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## Sustainable energy action plans: project management intercomparison

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### Abstract

This paper explores the content of various Sustainable Energy Action Plans (SEAPs) necessary to the Covenant of Mayors. This study has the aim of providing an overview of existing methodologies for the development and implementation of SEAPs by municipalities. As the number and complexity of issues related with energy are very broad, it is very important to know and identify good practices and guidelines to increasing participant municipalities. Based on the methodologies collected in several studies, it is possible to identify key aspects and issues municipalities might consider for the development of their own plan. The SEAP can't be only a collection of measures; it must have a coherent strategy with the European and National policies. This study also shows that a good coordinator with project management skills is necessary to overcome obstacles due to the lack of communication or collaboration among the different municipality's departments.

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## 1. Introduction

Over the past years, climate change has gained top priority on international political agendas. In 2008, the European Commission approved a package of measures entitled “Energy for a Changing World” [1] which is also known as “20–20–20” targets. This plan set three objectives for 2020 compared to 1990:

- a 20% reduction in European Union greenhouse gas emissions;
- raising the share of European Union energy consumption produced from renewable resources to 20%;
- to ensure a 20% improvement in the European Union 's energy efficiency.

The targets were set by European Union leaders in March 2007, when they committed Europe to become a highly energy-efficient, low carbon economy, and were enacted through the climate and energy package in 2009. The European Union is also offering to increase its emissions reduction to 30% by 2020, if other major economies in the developed and developing countries commit to undertake their fair share of a global emissions reduction effort [2].

### 1.1. Europeans' attitudes towards climate change

The issue of climate change has not only raised concern at the political top levels. The results of a survey on Europeans' attitudes towards climate change [3] was carried out in spring 2008 that shows 68% think that “poverty, the lack of food and drinking water” is one of the most serious problems our world faces now, 62% feel that “global warming / climate change” also is among the most serious problems. At a country level, absolute majorities in nearly all countries regard "global warming/climate change" as a serious problem, while 45% citizens in the Czech Republic, Italy and Portugal, both with 47% consider this to be a serious problem. In Cyprus 92% of citizens and Greece with 90%, around nine in ten citizens think that “global warming / climate change” is one of the most serious problems, in Slovenia this figure is as high as eight respondents in ten [3]. This study show that Europeans are highly concerned about climate change and clearly willing to take action against it, but sometimes lack knowledge and information about how to do it. Increasing the knowledge levels among citizens about climate change and ways of combating it is an important tool for reaching this.

## 2. The Covenant of Mayors

After the adoption, in 2008, of the EU Climate and Energy Package, the European Commission launched the Covenant of Mayors [4] to endorse and support the efforts deployed by local authorities in the implementation of sustainable energy policies. Indeed, local governments play a critical role in mitigating the effects of climate change, all the more so when considering that 80% of energy consumption and CO<sub>2</sub> emissions are associated with urban activity [4].

Many European municipalities, and in particular those which are most depopulated or dependent on agriculture, already face particular challenges as regards growth, employment and sustainability. These challenges include lower income levels, an unfavourable demographic situation, higher unemployment rates, slower growth of the tertiary sector, weaknesses in skills and human capital, lack of opportunities for young people, lack of technical capacity and resources. One of the most important initiatives to support these communities in this effort is the Covenant of Mayors.

In order to translate their political commitment into concrete measures and projects, Covenant signatories notably undertake to prepare a Baseline Emission Inventory and submit, within the year following their signature, a Sustainable Energy Action Plan outlining the key actions they plan to undertake[4].

These municipalities, in particular rural communities usually do not have adequate capacity and skills to achieve Sustainable Energy Actions Plans [5]. In cooperation with the Covenant of Mayors, the Joint Research Centre of the European Commission assists signatories with scientific and technical questions, mostly related to emission inventories and action plans. Signatories are guided through the process thanks to a number of tools and methodologies which have been developed in coordination with the Covenant of Mayors.

## 2.1. The partnerships

Several solutions were found to overcome this problem of lack of capacities. One of the solutions was to create various types of partnerships. The European Commission defines:

- Covenant Coordinators as those public administrations which provide strategic guidance, financial and technical support to municipalities signing up to the Covenant of Mayors but lacking necessary skills and/or resources to fulfil their requirements. The Commission distinguishes between Territorial Coordinators, which are sub-national decentralized authorities - including provinces, regions and public groupings of municipalities - and National Coordinators, which are national public bodies - including national energy agencies and ministry of energy;
- Signatories represent cities, with different size from small villages to major metropolitan areas such as London or Paris, that have signed the Covenant of Mayors on a voluntary manner and are committed to achieve sustainable energy policies to meet and exceed the EU 20% CO<sub>2</sub> reduction objective through increased energy efficiency and development of renewable energy sources;
- Associated Partners are professional associations, nongovernmental organizations (NGOs), and other such structures which are in a position to provide linkages with private companies and civil society, as well as support to Covenant signatories, notably in the form of technologies, methods, financial incentives, promotional tools, cultural and participative initiatives;
- Covenant Supporters, with expert knowledge of the regulatory, legislative and financial framework under which they operate - be it at the national, regional or European level - are ideally placed to provide tailored advice to signatories and identify synergies with existing initiatives. They too are essential partners of the Covenant of Mayors Office, especially considering their ability to adapt the Covenant objectives and messages in a way that makes sense to the realities on the ground.

## 3. Methodology

First, we see the set of Signatories and its evolution within the covenant of mayors. Second verified the number of SEAPs subject over time. Then we analysed top countries that equal or exceed 40% population coverage. This paper also presents the guidelines suggested to SEAP elaboration. Finally, we discuss some tools and methodologies used in the management, planning and communication of several projects.

## 4. Results and Discussion

Figure 1 presents signatories over time since European Commission launched the Covenant of Mayors [4]. In a few months, began a set of signatures that remained at a steady rate since November 2008 until July 2013.

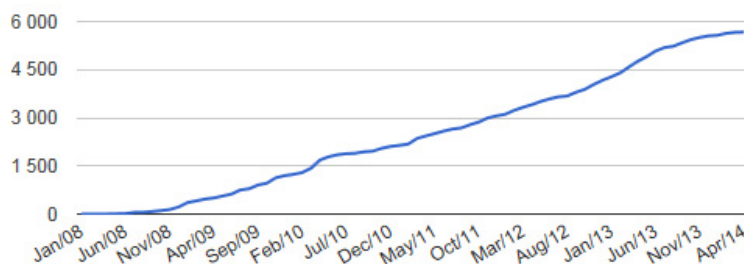


Fig. 1. Signatories over time [4].

From this date seems to have been a decrease in the growth rate. We wonder if the economic and social situation is to withdraw the attention of climate issues, sustainability, and energy efficiency.

In the case of the evolution of the delivery of SEAPs, we can see in Figure 2 that only started a significant rate of increase from April 2011. Covenant signatories commit to submit their SEAPs within the year following adhesion and to provide periodic implementation reports outlining the progress of their action plan.

This seems to mean that after the excitement of political commitment, the application of the rules of submission of the plans presented unexpected technical difficulties. After many collaborative to assist with the dissemination of guidelines for the preparation of SEAPs efforts, despite some fluctuations the number of plans submitted has been growing steady up to today.

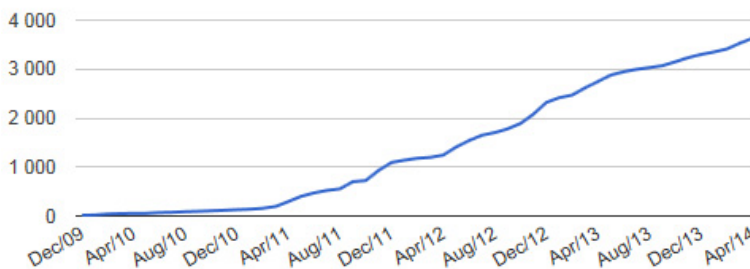


Fig. 2. SEAPs submitted over time [4].

However, it is important to analyse the influence of the covenant of mayors by country and population covered. There have been elaborated in Table 1 which shows the current situation and chose to show all those countries that equalled or exceeded 40% of the population covered.

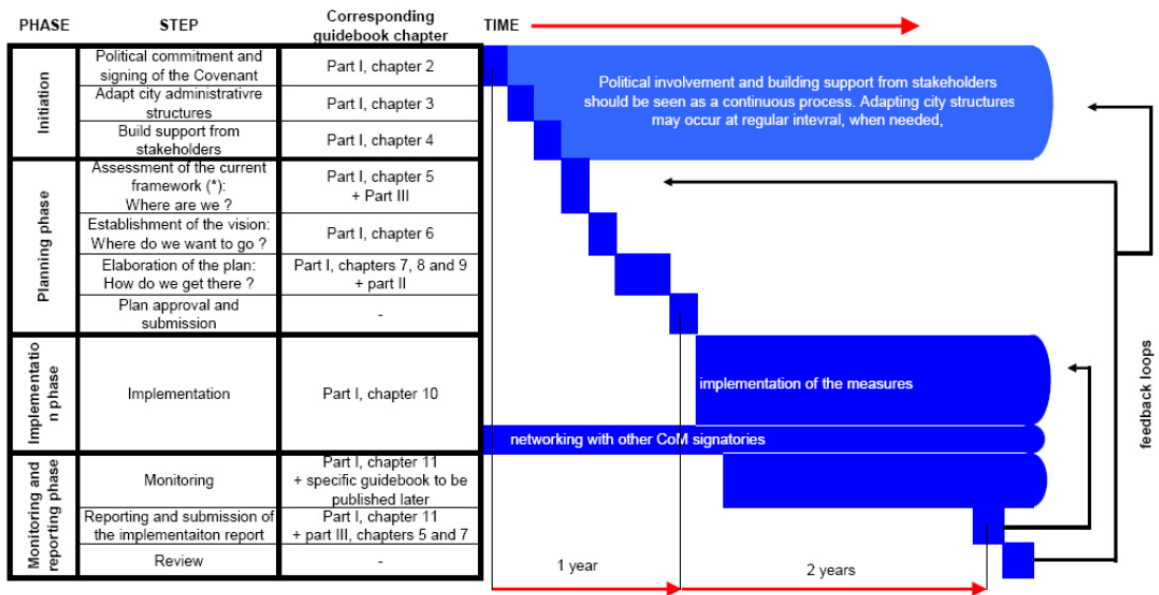
Table 1. Present situation: top countries that equalled or exceeded 40% population coverage (April, 2014) [4].

Countries	Signatories	Population covered	Pop. covered (%)	Submitted SEAPs (%)
Italy	2717	33 511 152	57	69
Spain	1456	25 426 484	57	70
Cyprus	22	470 906	55	68
Denmark	35	2 738 692	52	77
Latvia	18	1 078 212	50	94
Sweden	49	4 082 547	47	90
Croatia	59	1 929 593	46	69
Georgia	8	1 877 100	45	50
Portugal	92	4 581 891	44	61
Belgium	99	4 450 737	42	53
Estonia	5	536 083	42	40
Iceland	1	118 427	41	100
Lithuania	13	1 345 815	41	77
Bosnia-Herzegovina	14	1 515 387	40	100

Observing Table 1 we can notice that only 14 countries are represented but many SEAPs are not submitted yet, and they have one year to deliver from signature date. Italy and Spain are the top countries with best percentage

population coverage (57%), but Italy has more absolute population covered. In Italy, a good percentage (69%) of SEAPs were submitted and Spain almost the same number (70%).

The following Figure details the key steps for elaborating and implementing a successful SEAP. As shown in the graph, the SEAP process is not a linear one, and some steps may overlap with others. This may lead to a complex process along with difficulties in data management and several actors. Also, some actions may have started before the adhesion to the Covenant (not shown) [6].



(\*) Including the elaboration of the CO<sub>2</sub> baseline emission inventory

Fig. 3. The SEAP elaboration process [6].

The SEAP template is available on-line as an internet-based tool that the Covenant signatories are required to fill in themselves. Detailed information on how to fill in the SEAP template is available by clicking on the ‘Instructions’ link directly accessible in the Signatories’ Corner. Also, a good help can be where organisational structures have already been created for other related policies (for example Local Agenda 21, energy management unit, coordination, etc.), which may be used in the context of the Covenant of Mayors.

Studying various SEAPs, we can see a simple organisation structure, where two groups may be constituted: a steering committee, constituted by politicians and senior managers. Its mission would be to provide strategic direction and the necessary political support to the process, and various working groups, constituted by key persons from different departments of the local authority, public agencies, etc. Their task would be to ensure SEAP elaboration and follow-up work, to guarantee stakeholders' participation, to produce reports, etc.

Many Sustainable Energy Action Plans emerged from this covenant with the goal of analysing the current consumption patterns and compiling the actions that the municipalities should undertake in order to fulfil their pledges [7]. The sustainable energy management must be integrated with the other actions and initiatives of the relevant municipality departments, and it must be ensured that it becomes part of the overall planning of the local authority. Multi-departmental and cross-sectorial involvement is required, with organisational targets in line and

integrated with the SEAP [7]. However, recent studies showed results from the public survey that indicates a lack of proper information and communication about the Covenant of Mayors initiative and the obligations arising from its signing towards the citizens itself [8].

Financing mechanisms are necessary for the implementation of SEAPs. These include support/consulting for drafting the SEAP, as well as the actual financing of sustainable energy measures [9]. Easy measures should be implemented as soon as possible in order to motivate the stakeholders. The level of difficulty has to be low at the start and higher afterwards as the experience is increasing. This strategy allows maintaining and improving the motivation of the working groups [9]. We also must realise that the stakeholder requirements and expectations at the individual level are not possible to identify to its full extent and that stakeholders might evolve over the progression of the project. This means that new needs may come up; the stakeholders may come up with new demands and new goals may occur while the project is under development [10].

A network of municipalities might ensure higher participation of less privileged actors, including voices from the youth, the poor, women, indigenous people and civil society. The concept of sustainable development itself stresses the need for mutual attainment of social equity, environmental health and economic wealth, for which the responsibilities and resources are allocated to different societal spheres (state, market and civil society) [11].

In MUSEC (MULTIplying Sustainable Energy Communities) Project [12] a guidebook was created which covers the main steps of the process in a very detailed point of view. According with Bertoldi et al [9], this method collects the main steps to follow and should only be completed with communication and dissemination guidelines. This document can be easily followed by municipalities without any experience in energy planning. The guidebook available online has been structured very clearly. Each web page corresponds to a particular aspect of the methodology.

In SECURE (Sustainable Energy Communities in Urban Areas in Europe) Project [13], a guide was developed for each step with the experiences of each partner during the implementation of their own SEAP. According to Bertoldi's evaluation [9], it has an important lack of details about all the aspects of the methodology. So due to the simplicity of the process, the methodology can be used as a first approach for SEAP elaboration. This methodology is good to have a general approach for non-experienced small municipalities that are looking for information about what happens when the decision to implement the SEAP has been taken.

The European Energy Award® [14] supports municipalities willing to contribute to sustainable energy policy and urban development through the rational use of energy and increased use of renewable energies. There are 1500 municipalities participating today. It allows municipalities to identify strengths, weaknesses and potential for improvement and, above all, implement effectively energy efficient measures. A catalogue of measures and evaluation tool allow evaluating and selecting appropriate measures for the SEAP. The success of the municipality's efforts is made visible by an award. Bertoldi's evaluation [9] show as a strength of this project to be very focused on the success of the implementation period, with an annual report and subsequent adaptation of the plan, a objective external evaluation is guaranteed by an external auditor. Also, an independent review of the success can lead to the award. As a weakness, he states that tools and guidance documents are not publicly available - only members can have access.

#### **4. Conclusions**

After analysing several Sustainable Energy Actions Plans, a set of conclusions can be found on the phase of the initiating project. It is very important to obtain political commitment, vision and implementation structure with financial resources to be strong enough to prevent political changes. Since the very first beginning, every stakeholder must be in touch with each other to allow making synergies, obtaining information from discussion groups and create benchmarking. The commitment of national and European Union is also crucial to succeed.

On the phase of the project planning the most important steps to develop a Sustainable Energy Actions Plan were: analysis of the present situation, present and future energy and CO<sub>2</sub> balance and estimation reduction potentials; strategy to reach targets, with targets' definition, measures and implementation plan; and a regular plan's monitoring. A good coordinator with project management skills is necessary to maintain good communication and collaboration between different municipality's departments and stakeholders. It is very important the follow up and

retaining political interest for the climate issue among so many other social issues present in municipalities which are most depopulated, with lower income levels, and increasing unemployment rates.

Although there are many SEAPs submitted, it is not even possible to get in great detail the mode of operation of the management of each project. On the other hand, many plans still have not passed the stage of implementation of the measures and the consequent verification results. As they are completed successfully many SEAPs may in the future have a vision of management mode and the structure more advisable to work to develop the objectives of the Covenant of Mayors.

## 5. Future work

After more projects have finished the stage of implementation and evaluation of results, future research will be made. It is important to find more innovative methodologies and tools for the implementation of SEAPs with different technical difficulties and among various stakeholders, particularly among many municipalities in small towns and rural communities.

Equally important will be to study the relationship between SEAPs and other plans and strategies already underway as Local Agenda 21, development plan of the municipality, and others.

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