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# The Covenant of Mayors: Evaluation of Sustainable Energy Action Plans from Eastern Partnership and Central Asian countries

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### **The Covenant of Mayors: Evaluation of Sustainable Energy Action Plans from Eastern Partnership and Central Asian countries**

#### **Abstract:**

Out of 5600 Sustainable Energy Action Plans (SEAPs) submitted to the Covenant of Mayors, about 100 SEAPs come from local authorities in Eastern Partnerships and Central Asian countries (CoM East).

This report presents the results of the in depth evaluation of 14 SEAPs from CoM East countries, aimed at identifying good practices, but also weaknesses and challenges.

The analysis has generally revealed a good compliance with the key commitments, in terms of definition of the target by 2020, calculation of the emission inventory, and definition of actions in the key sectors of activity.

Aspects related to governance (e.g. the adaptation of administrative structures, the mobilisation of civil society, or the SEAP monitoring process) and to the financing of actions are often described in general terms, without presenting tailor-made strategies.

Good practices identified in the 14 SEAPs are presented in the report.

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## **Executive summary**

The present report is part of a series of JRC reports on the Covenant of Mayors (CoM) and aims to facilitate exchanges of experiences amongst relevant stakeholders (such as public authorities, policy makers, experts and others) across countries and regions. It describes the outcome of the evaluation of a sample of 14 Sustainable Energy Action Plans (SEAPs) from Eastern Partnership and Central Asian countries (CoM East countries) in relation to the ten key principles described in the guidebook "How to develop a SEAP in the Eastern Partnership and Central Asian cities" [1].

In the SEAP development process, the core challenges for local authorities of CoM East countries include:

- Building capacity of local authorities and relevant stakeholders in local sustainable energy planning.
- Drawing attention to low-cost measures, including regulations, incentives (or taxes) and other legislative measures.

In this respect, this report has tried to highlight good practices from the evaluated SEAPs, but also weaknesses. It also describes some challenges encountered by CoM signatories in the development of their Plans, and whenever possible provides recommendations to overcome them. Particular attention is given to the following aspects:

- Identifying SEAP exemplary elements, focusing on the SEAP process. The process includes inter alia stakeholders' involvement, adaptation of administrative structure, as well as SEAP monitoring strategies.
- Extracting good practices, focusing on policy measures and, where relevant, pilot studies. Special emphasis is given to measures from the buildings and transport sectors, which are the primary focus of the Covenant, and other energy-related sectors (e.g. industry, public lighting etc.). Cross-sectorial measures are also highlighted, such as raising awareness, networking and training.

### ***Policy context***

The Covenant of Mayors (CoM) initiative has been launched by the European Commission (EC) in 2008 to support the efforts of local authorities to curb CO<sub>2</sub> emissions in their territories through the development and implementation of sustainable energy action plans (SEAPs). Originally designed to address mainly climate mitigation (setting a 20% emission reduction target by 2020), a strengthened Covenant of Mayors for Climate & Energy was launched by the European Commission in October 2015, extended in scope (including adaptation to climate change and access to energy), in timeframe (2030) and outreach (towards a global dimension).

Given the high level of participation from local authorities in the EU-28 and the increasing interest from cities and towns from Eastern European countries, the EC has proposed an energy regional cooperation project under the European Neighbourhood and Partnership Instrument-East (ENPI-East) 2010 Regional Action Programme to support the participation of cities in the Eastern Partnership and Central Asian countries in the Covenant.

This project (hereafter CoM East) has established a branch of the Covenant of Mayors Office covering the targeted countries (originally Armenia, Azerbaijan, Belarus, Georgia, Moldova, Ukraine, Turkmenistan, Kazakhstan, Tajikistan, Kyrgyzstan and Uzbekistan). Its purpose is to support cities in signing up to the Covenant of Mayors, to help them prepare and implement the related SEAP, and to provide technical and scientific back-up through the EC's Joint Research Centre.

As to January 2017, the Covenant of Mayors counts more than 7200 signatories. Out of more than 5600 submitted SEAPs, about 100 belong to signatories from Eastern Partnership and Central Asian countries.

### ***Key conclusions and main findings***

The analysis of 14 SEAPs has largely revealed a good compliance with the key commitments, in terms of definition of the target by 2020, calculation of the emission inventory, and definition of actions in the key sectors of activity. These are also the main aspects evaluated in the course of the standard evaluation of SEAPs by the JRC. However, in some cases, cities limit the scope of their SEAP by excluding one out of four key Covenant sectors (i.e. municipal buildings, residential buildings, tertiary buildings and transport) as they believe to have a rather limited capacity to influence them. More guidance could be provided to cities to help them address in a more effective way all the key sectors of activity, by raising their awareness on the opportunity to set a BAU target or a per capita target and on the possibility to plan low-cost measures with a considerable emission reduction potential (such as measures aimed at behavioural changes). To this end, the dissemination of best practices among fellow Covenant Signatories could be advantageous. Also, a greater involvement of national Governments could allow for more incisive action at the local level.

Regarding aspects related to governance (e.g. the adaptation of administrative structures, the mobilisation of civil society, or the SEAP monitoring process) and to the financing of actions, the evaluated SEAPs generally show some weaknesses. SEAP-related processes are often described in general terms, without presenting tailor-made strategies to ensure citizens' and stakeholders' participation or assigning clear roles and responsibilities to municipal officers. Often the SEAP development task is assigned to external consultants and/or financed by international donors: this may somehow reduce the sense of ownership of the SEAP by the local authority itself.

### ***Related and future JRC work***

The good practices identified through the present study may inspire other CoM signatories in the region. Future analyses by the JRC could concentrate on the actual implementation of the SEAPs, based on monitoring reports, to identify key factors for success as well as limiting factors influencing SEAP implementation in different countries.

### ***Quick guide***

The report has five chapters including an introduction (Chapter 1) which provides background on the Covenant of Mayors initiative and on the countries of Eastern Partnership and Central Asia. Chapters 2 & 3 explain the approach for selecting the SEAPs for the detailed evaluation, and present the results of such evaluation. Chapter 4 describes good examples of measures and policies in different sectors of activity. The concluding chapter (Chapter 5) draws lessons and recommendations for signatories' engagement in Covenant of Mayors, and for developing SEAPs in countries of the Eastern Partnership and Central Asia.

# **1 Introduction**

## **1.1 The Covenant of Mayors initiative**

The Covenant of Mayors (CoM) initiative has been launched by the European Commission's Directorate General for Energy (DG ENER) in 2008 to support the efforts of local authorities to implement sustainable energy policies in their territories. Covenant signatories voluntarily commit to a target of reducing CO<sub>2</sub> emissions by at least 20% by 2020 in their respective territories, by drafting and implementing a Sustainable Energy Action Plan (SEAP).

In 2012, the CoM initiative has been extended to 6 countries covered by the Eastern partnership (Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine) and 5 Central Asian countries (Turkmenistan, Kazakhstan, Tajikistan, Kyrgyzstan, Uzbekistan) within the Covenant of Mayors East (CoM East) initiative, funded by Directorate General for Neighbourhood and Enlargement Negotiations (DG NEAR).

In October 2015, a strengthened Covenant of Mayors for Climate & Energy was launched by the European Commission in October 2015 and built around three pillars:

- Mitigation (setting a 40% emission reduction target by 2030 for signatories in EU countries)
- Adaptation to climate change
- Secure, sustainable and affordable energy

In October 2016, the EU officially launched the second phase of the CoM East, announcing a 30% emission reduction target by 2030 and recommending an integrated approach to climate mitigation and adaptation. In this second phase, the project no longer covers Central Asian countries.

## **1.2 Countries of Eastern Partnership and Central Asia**

### **1.2.1 Challenges**

The conditions of local authorities from Eastern Partnership and Central Asian (CoM East) countries differ significantly from EU municipalities, for which the Covenant of Mayors framework has been designed. Signatories from CoM East countries may need better access to funding and technical assistance, and may have different political settings and policy incentives. The main difficulties in these countries include:

- Lack of staff and resources on energy and climate policies;
- Absence of a national framework for sustainable energy planning;
- Limited financial resources for local authorities (as most of their budget is coming from national governments);
- Developing and emerging economies, as some countries are in the process of recovering from the economic collapse in 1990s after the breakdown of the Soviet Union.

### **1.2.2 Emissions**

CoM East countries have very different emissions levels when compared to EU average CO<sub>2</sub> emissions levels (Figure 1). The majority of the countries, i.e. 7 out of 11, have relatively low country average emissions.

Three countries (Armenia, Azerbaijan and Uzbekistan) have country average emissions that are from 47 % to 78 % lower than EU average emissions level (i.e. 6.87 tCO<sub>2</sub>/per

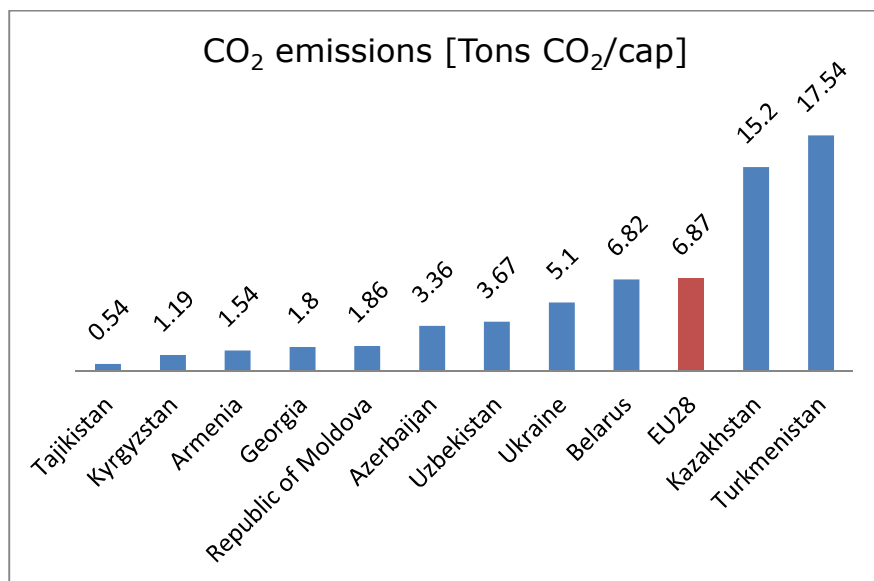


capita for year 2015 <sup>[1]</sup>. Armenia, Azerbaijan and Uzbekistan emit 1.54, 3.36 and 3.67 tCO<sub>2</sub>/per capita respectively.

The other four countries (Tajikistan, Kyrgyzstan, Georgia and Moldova) have even lower country average emissions that are more than 80 % lower than the EU average value. They emit low amounts of tCO<sub>2</sub> per capita, ranging from 0.54 tCO<sub>2</sub>/per capita to 1.86 tCO<sub>2</sub>/per capita.

These countries use climate-friendly energy sources, such as biomass and hydropower. For example, Moldova uses mainly traditional solid biomass fuel (wood, wood waste, vegetable waste) for energy production in the residential sector. Even if the combustion of such fuels releases CO<sub>2</sub>, it is assumed that the carbon released during combustion equals the carbon uptake of the biomass during re-growth within a year. Therefore these emissions are not accounted for in CO<sub>2</sub> emission inventories.

Figure 1. Emissions per capita in 11 CoM East Countries and in EU-28 in 2015. <sup>[1]</sup>



A related point to consider is that many CoM East countries face a situation in which provided energy services are insufficient – due to poverty or lack of access to modern energy infrastructure, which is known as a suppressed demand issue [2]. It can also be a combination of low household incomes and high unit costs of energy, meaning that households cannot afford sufficient energy for their basic needs.

The suppressed demand can occur due to high final energy prices for the majority of consumers, i.e. low income barrier, which is the case for municipalities of Moldova, Georgia, Armenia (especially rural areas). Their demand for energy is suppressed and remains so until household income increases. It is expected that citizens will consume more energy once the economy improves, thus generating higher levels of GHG emissions.

In Tajikistan suppressed demand mainly occurs due to a deficit in energy resources, i.e. an infrastructure barrier, where consumers cannot consume because of poor or inaccessible infrastructure. 90% of the country's electricity comes from hydropower, which is highly climate-sensitive especially considering that much of the country has a semi-arid climate [3] and that there are other water uses competing with energy production. In the seasons of low rainfall (dry seasons) reduced water availability results in a deficit of energy produced from hydropower. The country has limited capabilities of

<sup>(1)</sup> EDGARv4.3.2, European Commission, Joint Research Centre (JRC)/PBL Netherlands Environmental Assessment Agency. Emission Database for Global Atmospheric Research (EDGAR), release version 4.3.2. <http://edgar.jrc.ec.europa.eu>, 2016 forthcoming

energy diversification, especially considering that electricity is the main source of energy in the residential sector, and used even for space heating (i.e. 70 % of residential building are heated with electricity [<sup>2</sup>]).

A technology barrier is also faced by some municipalities, which occurs due to high initial cost or lack of capacity to absorb new technologies. The initial high costs may prevent the consumers from shifting to more efficient technologies, which, if implemented, would enable them to meet basic energy needs. For example, in Georgia, the relatively high cost of energy efficient light bulbs prevented the consumers from shifting to efficient domestic lighting [<sup>3</sup>]. With an increase in income (or policy incentives) the cost would become affordable to the consumer thus contributing to the diffusion of more efficient technologies resulting in savings which may be used to either meet other basic human needs [2].

This issue represents an important difference from EU countries. The extent to which each country is exposed to it as well as the peculiarities of the political and institutional framework conditions may hinder or play a crucial role in cities' active engagement in sustainable energy planning processes. Therefore, the Covenant of Mayors framework has been adapted to the conditions of these countries, to tackle the specific institutional and economic situation of the countries involved in the initiative.

### **1.3 Adapted Covenant of Mayors framework for Eastern Partnership and Central Asia**

#### **1.3.1 Common elements with the Covenant of Mayors framework for EU-28 cities**

The adapted Covenant of Mayors framework for CoM East countries is largely based on the framework developed for EU signatories [11] and therefore has many common elements. They include the following principles that signatories should consider when preparing a Sustainable Energy Action Plan:

- Set a CO<sub>2</sub> emissions reduction target in their territory, compared to a chosen baseline year. This reduction should be achieved by undertaking action in the following sectors: municipal, residential and tertiary buildings, transport, street lighting, district heating, and other relevant emitting sectors which can be influenced by the local authority.
- Prepare a Baseline Emission Inventory (BEI) as a basis for the SEAP. The BEI has to be based on energy consumption and other relevant activity data related to the sectors mentioned above.
- Adapt administrative structures, including allocation of sufficient financial and human resources, in order to undertake the necessary actions to develop and implement the Action Plan.
- Mobilise local stakeholders in the SEAP development process and raise citizens' awareness.
- Elaborate and submit a SEAP, officially approved by the Local Authority.
- Report regularly on the implementation of the SEAP. An implementation report should be submitted every second year, indicating the progress of the actions and, at least every fourth year from the submission of the SEAP, including a monitoring emission inventory, possibly allowing the evaluation of the impact of already completed actions.

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<sup>2</sup> SEAP of Somoniyon, Tajikistan, available at [http://mycovenant.eumayors.eu/docs/seap/20035\\_1400667021.pdf](http://mycovenant.eumayors.eu/docs/seap/20035_1400667021.pdf)

<sup>3</sup> SEAP of Tbilisi, Georgia, available at [http://mycovenant.eumayors.eu/docs/seap/1537\\_1520\\_1303144302.pdf](http://mycovenant.eumayors.eu/docs/seap/1537_1520_1303144302.pdf).

### 1.3.2 Peculiarities of the Covenant of Mayors East framework

The main adaptation of the Covenant of Mayors framework for CoM East countries lies with the approach to define CO<sub>2</sub> emission reduction targets. In the framework developed for EU countries, local authorities commit to reduce CO<sub>2</sub> emission and energy consumption by 2020 compared to emissions levels in the baseline year (either on an absolute or on a per capita basis). The adapted framework [1] offers the possibility to set a CO<sub>2</sub> emission reduction target based on a reference scenario (Business-as Usual). It aims to allow those municipalities that are on a rapid economic growth path to develop their economies in a sustainable manner. It is therefore foreseen that such signatories will see their GHG emissions increase over the years, but it is expected that they will limit such increases as much as possible through the implementation of adequate energy policies and climate protection measures [10].

Another adaptation of the Covenant of Mayors framework to CoM East countries is related to the choice of the baseline year for building up emission inventory. Whereas EU-28 signatories are recommended to choose either 1990 or the closest subsequent year for which reliable data are available [11], CoM East signatories has given the possibility to refer to a recent baseline year [10]. In fact, usually the year 1990 is not representative of the situation of the municipalities in Eastern Partnership and Central Asia. This is mainly due to the economic collapse which characterised most of the countries in the 1990s and to the fact that industrialisation levels cannot be related to the current ones.

These adaptations are reflected in the ten key principles local authorities should consider when drafting their SEAPs. How local authorities address them is described in chapter 3, while the involvement of CoM East cities is presented in the next chapter.

Ten key elements to keep in mind when preparing a SEAP (adapted from [1]):

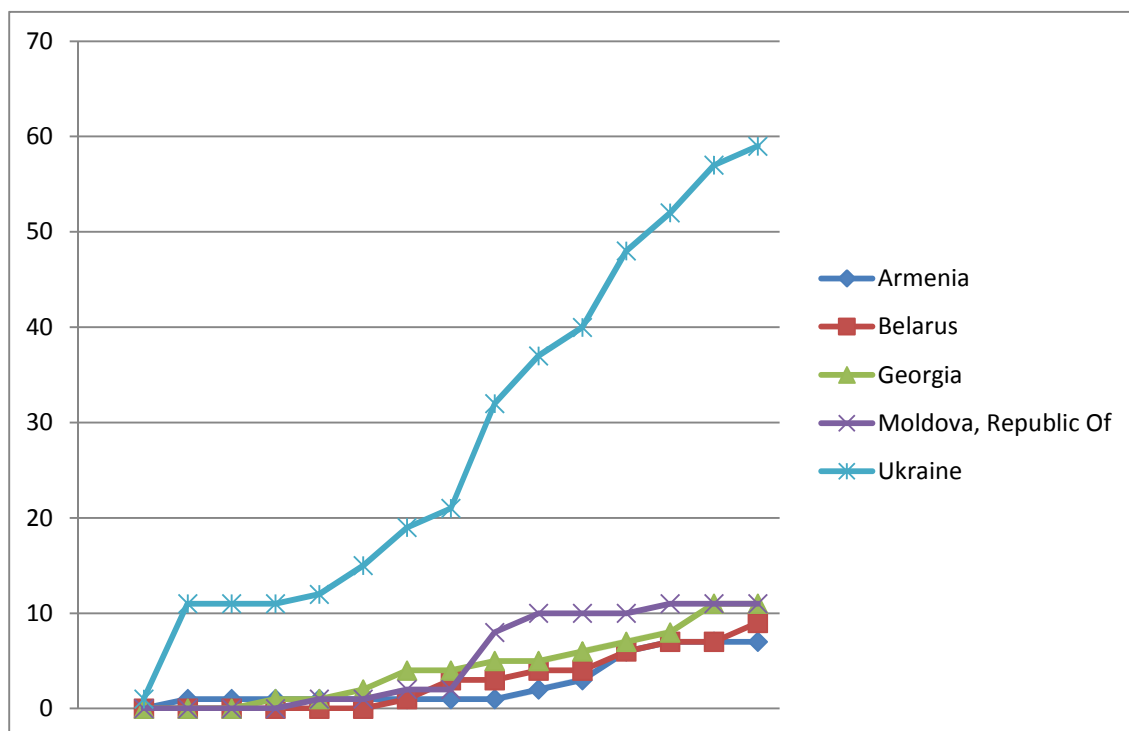
1. Adaptation of city structures
2. Mobilisation of civil society
3. Elaboration of a CO<sub>2</sub> Baseline Emission Inventory (BEI)
4. Commitment for a reduction of CO<sub>2</sub> emissions by at least 20 % by 2020
5. Comprehensive measures that cover the key sectors of activity
6. Strategies and actions until 2020
7. Identification of the financing sources for SEAP actions
8. SEAP approval by the municipal council (or equivalent decision-making body)
9. SEAP submission and filling in the template
10. Monitoring and reporting

### 1.4 Involvement of Eastern Partnership and Central Asian cities

The first cities from the region joined the Covenant of Mayors as early as 2008, and the first SEAPs were submitted in 2011.

The number of signatories has been growing between 2008 and 2017 especially in Ukraine, with more than 100 signatories up to January 2017. This was probably favoured by the attention of the national government to energy efficiency and sustainable development issues. Another factor which may have contributed to the high involvement of Ukrainian cities in the CoM is the high dependence of the country on the import of expensive fossil fuels from abroad. Figure 2 shows the adhesion of signatories from five Eastern Partnership countries (Ukraine, Moldova, Belarus, Georgia, Armenia) from 2008 to 2015. Azerbaijan, Kazakhstan and Tajikistan have only one signatory each and are not shown in the graph. Turkmenistan and Uzbekistan have no signatories.

Figure 2. Adhesion of signatories from Ukraine, Moldova, Georgia, Belarus, Armenia from 2008 to 2015.



### 1.5 The role of the JRC and the aim of the present report

The European Commission's Joint Research Centre (JRC) provides scientific, methodological and technical support to the Covenant of Mayors initiative. In earlier phases, the JRC developed methodologies chiefly targeting the EU countries, collaborating with city networks and practitioners from local and regional authorities, energy agencies and academia. Subsequently, the JRC has adapted the Covenant's methodology to the specific situation of the EU's Eastern and Southern neighbours.

The present report illustrates the results of a detailed evaluation of the SEAPs submitted by a selected number of local authorities from the Eastern Partnership and Central Asian countries. The study can help identify how CoM East signatories have addressed the 10 key principles and how specific challenges have been overcome.

The conclusions may allow the identification of solutions to improve the overall SEAP process in the CoM East, which could also be reflected in the upcoming revision of the SEAP guidebook.

## 2 Selection of Sustainable Energy Action Plans for detailed evaluation

This section describes how the SEAPs were selected to build a representative group for a detailed evaluation from different CoM East countries, regions and sizes of Local Authorities (LAs). Specific criteria have been introduced and are described in the next sections. They are based on the size of the Covenant of Mayors community and the number of SEAPs submitted in each country, considering also some SEAP development and quality aspects, such as the compliance with some minimum eligibility criteria.

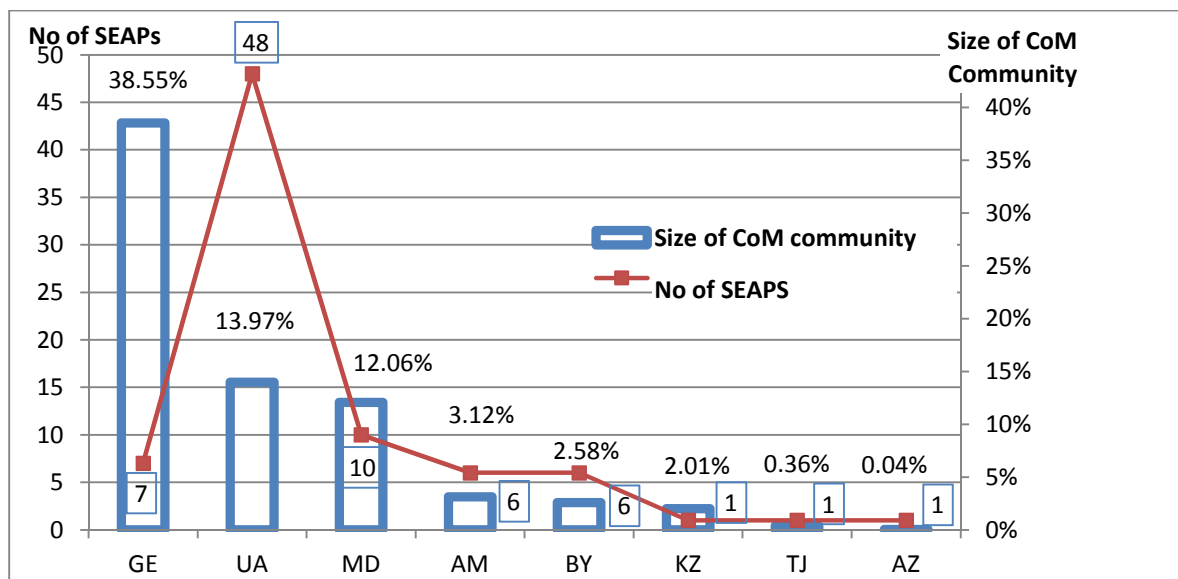
### 2.1 Number of SEAPs per country

The number of SEAPs to be analysed in each CoM East country has been established based on the size of the Covenant of Mayors community and the number of submitted SEAPs. The size of the Covenant of Mayors community aims to describe the share of a country's population that is influenced by the initiative. It is calculated by comparing the country's population to the population of municipalities that have developed their SEAPs and submitted them to the Covenant of Mayors.

The size of Covenant of Mayors community can be calculated by the following formula:

$$\frac{\text{Population in cities with SEAPs}}{\text{Total population in a country}} \times 100\% \text{ (eq. 1)}$$

Figure 3. Size of CoM community and number of SEAPs submitted per country



From Figure 3, three countries can be distinguished as having the largest CoM community and the largest number of submitted SEAPs. These countries are Georgia, Ukraine and Moldova which have 7, 48 and 10 submitted SEAPs respectively. For them, the largest number of SEAPs to be analysed was initially assigned, which was set to three SEAPs per country considering the scope of this report. However, the number of SEAPs for Moldova was later reduced to 2 SEAPs due to limiting factors found in many SEAPs' documents. In some SEAPs, the provided information was insufficient to extract and identify best practices, while in other cases the SEAP document was submitted in a different format than recommended, thus preventing the automated translation from the national language.

Consequently, the analysis of 2 SEAPs has been considered for Moldova and also for Armenia, the next most important country in terms of size of CoM community and number of submitted SEAPs. The analysis of one SEAP per country was established for

Belarus, Kazakhstan, Tajikistan and Azerbaijan, as these are the countries with the smallest size of CoM community.

The results of this selection are summarized in Table 1, illustrating the number of SEAPs considered for detailed evaluation in each country.

Table 1. Number of SEAPs considered for detailed evaluation and total number of submitted SEAPs per country

<b>Country</b>	<b>No. of selected SEAPs per country</b>	<b>No. of submitted SEAPs per country</b>
Ukraine	3	47
Georgia	3	7
Moldova	2	10
Armenia	2	6
Belarus	1	6
Kazakhstan	1*	1
Tajikistan	1*	1
Azerbaijan	1*	1
<b>Total</b>	<b>14</b>	<b>79</b>

(\* )Only one SEAP submitted in the country

## 2.2 Criteria for selecting SEAPs

In countries where more than one eligible SEAP had been submitted, five criteria have been introduced, shown in Table 2 in order of priority.

Table 2. Criteria for selecting signatories for detailed evaluation

<b>No</b>	<b>Description of criterion</b>
1	Size of local authorities
2	Regions
3	Limiting factors: objectives of the plan outside of the Covenant's scope, possibility to identify best practices, language
4	Year of SEAP submission
5	SEAP development and related donor-funded projects

**Size of municipalities:** Most of the Covenant of Mayors signatories (89%) are small- and medium-sized towns [4] [5]. This suggests that small cities can play an important role for climate change mitigation. In terms of population, the highest share (52%) of CoM signatories' inhabitants belongs to Large Urban centres. This has been taken into account when considering SEAPs for detailed evaluation, selecting not only large cities but also small and medium-sized towns.

**Regions:** Different regions of a country sometimes vary greatly in terms of resources and GDP. This is especially relevant for countries of relatively large area and population,

such as Ukraine. Thus, a balance was sought selecting municipalities from various regions of the same country that represent different climate zones and/or economic areas.

**Limitations:** There are a number of factors that limited the selection of SEAPs, namely:

the first factor is related to the compliance with the Covenant principles, which are evaluated in the standard evaluation procedure carried out by the JRC. Some SEAPs are on the border line to satisfy the minimum requirements relating to one or more aspects (i.e. the SEAP objectives are based on non-energy-related sectors; the long-term target is not compliant with the CoM 2020 objectives), and their approval is usually accompanied by recommendations for improvements. Such SEAPs are generally excluded from the list of potential SEAPs considered for detailed analysis.

The second factor concerns the level of details provided in the SEAP document. Sufficient information (quantitative and qualitative) should be presented in the SEAP to provide a possibility to identify best practices.

The language of a SEAP document can sometimes be a limiting factor, as municipalities have the possibility to submit their SEAP document in the national language, instead of English or Russian. It is therefore important that a SEAP is submitted in the format that provides a possibility for automated translation (e-printed in PDF format, not scanned PDF).

**Year of SEAP submission:** Signatories which joined the initiative in its early years may have started the process even before the establishment of the Covenant requirements (thus developing their own approaches) and/or may have benefitted from a limited previous experience in the field of local energy planning. To assess this aspect, we include signatories that submitted plans between 2010 and 2015.

**Support in SEAP development and link to related donor-funded projects:** The implementation of the CoM initiative shows that some municipalities can experience difficulties in complying with the Covenant requirements. This is especially relevant for less developed regions and countries, and for small municipalities with limited human and financial resources. Therefore a number of projects have been initiated and funded by the EU and other donors to build municipalities' capacities for SEAP development. The main projects aimed at supporting SEAP preparation in selected municipalities are listed below:

- E4EM - Energy for Eastern Mayors project, to support Municipalities from Belarus, Moldova and Ukraine towards the adoption of energy efficiency criteria and renewable energy sources.
- DACO - project performed with partners from Province of Chieti (Italy), the Energy Agency ALESA (Italy) and Energy Charter Secretariat [<sup>4</sup>] to support several local authorities in Eastern Europe and Central Asia to acquire a common methodology to monitor, evaluate and reduce their energy consumption and CO<sub>2</sub> emissions.
- CIUDAD SURE - "Sustainable Urban Energy in the ENPI region – towards the Covenant of Mayors" (SURE), a project funded by the European Union under the "Cooperation in Urban Development and Dialogue" program, EC CIUDAD "SURE" ENPI/209/203-932.
- UNEP - "Covenant of Mayors Going East" program.

When choosing SEAPs for further analysis, a balance was sought between the municipalities that have drafted SEAPs using local resources, and those that benefitted from the above mentioned projects. In some countries this was difficult to achieve, as the majority of submitted SEAPs were developed in the framework of donor-funded projects. In other countries only one SEAP was submitted.

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<sup>4</sup> More on DACO project can be found at <http://daco.encharter.org/en>

A related point to consider is that LAs of CoM East countries can turn for support in SEAP development to the CoM East help desk. However, the accessibility of this support depends to a certain extent on the helpdesk geographical location. For instance, it was less convenient for LAs from Central Asia to access the support of a helpdesk located as far away as in Ukraine. Thus, it seems to be an important factor when reaching signatories and supporting their SEAP development.

As a side note, two additional options were developed by the JRC to boost the SEAP development process, which were applied extensively by EU municipalities (Melica G. et al., 2014). First, municipalities can benefit from the assistance of authorities acting as Covenant Territorial Coordinators that commit to provide signatories with the support necessary to fulfil their commitments (including technical and administrative support). Second, groups of small neighbouring municipalities have the possibility to draft and adopt a joint SEAP document, provided that specific conditions are fulfilled [1]. In CoM East countries, such options have not yet been implemented and would need further support and endorsement.

### **2.3 Selected signatories**

Based on the criteria described in the previous section, the 14 signatories were selected and listed in Table 3 below. The SEAPs selected are not meant to be considered the best SEAPs submitted, but rather as a representative group of SEAPs, selected based on the criteria described in Table 2.



Table 3. List of 14 Signatories selected for a detailed evaluation of their SEAP and related characteristics

Country	Name of City	Population	Year of SEAP submission	SEAP development/ Related projects <sup>5</sup>
Ukraine	Lviv	758,351	2010	
	Chernivtsi	262,294	2015	
	Hola Prystan	15,074	2014	
Georgia	Tbilisi	1,136,600	2011	Sustainable Development Centre Remissia (within USAID)
	Batumi	170,000	2014	
	Gori	50,000	2015 <sup>6</sup>	
Moldova	Balti (Beltsy) <sup>7</sup>	127,000	2014	UNEP
Armenia	Soroca	20,000	2014	E4EM
	Hrazdan	53,083	2015	
Belarus	Artik	19,560	2015	
	Polotsk	80,000	2012	CIUDAD "SURE"
Kazakhstan	Taraz	350,000	2014	DACO
Tajikistan	Somoniyon	20,153	2014	DACO
Azerbaijan	Icherisheher <sup>8</sup>	4,300	2014	UNEP

<sup>(5)</sup> Abbreviations of EC projects are described in previous section 2.2

<sup>(6)</sup> Resubmission

<sup>(7)</sup> SEAP version submitted in 2014 has been analysed

<sup>(8)</sup> Special status: Historical-Architectural Reserve of Baku

### **3 Results of the evaluation: how cities addressed the ten key principles of the Covenant of Mayors**

The SEAP process is described by ten key principles that the local authorities should consider when drafting their SEAPs. The local authority may decide the level of details required to address the ten key principles, taking into account the threefold function of the SEAP document: a first SEAP function is that it should serve as a technical and working instrument over the course of implementation; second, a communication tool towards stakeholders; and third, a political document showing the directions the municipal council is heading to, where relevant with the national authority's involvement. A SEAP should respect minimum requirements relating to the Covenant formal commitments and principles, which are evaluated in the standard evaluation procedure, based on which the JRC decides on the acceptance of a SEAP and sends feedback to the concerned signatory. The criteria applied in the standard evaluation relate to the SEAP approval by an official body (in principle the municipal council); the statement of the overall CO<sub>2</sub> reduction objective by 2020; the presence of a Baseline Emission Inventory (BEI) covering the key sectors of activity; the inclusion of a set of actions in the key sectors of activity; the completion of the online SEAP template and the coherence and completeness of the data provided. Other aspects related to the overall SEAP process are not systematically checked in the standard evaluation. Therefore, they have been analysed in the context of this study, with the aim of drawing lessons and identifying best practices. This chapter presents the outcome of the analysis based on the 10 key principles, in the order that they appear in the guiding documents [1].

#### **3.1 1<sup>st</sup> Principle: Adaptation of city administrative structure**

To elaborate and implement a successful SEAP, a signatory should adapt administrative structures, including allocation of sufficient financial and human resources, in order to undertake the necessary actions to take part in developing the action plan.

Table 4 depicts how a signatory addressed the adaptation of municipal structures in their SEAP. A qualitative evaluation of the information provided on this aspect is also provided:

- not addressed (no information has been found in SEAP)
- limited (general and a very brief description)
- adequately described (tailored-made scheme and description)

Signatories present some information related to adaptation of administrative city structures, which in most cases is rather general and brief. It usually echoes the recommendations provided in the guidelines and is not fully tailored to the needs of a particular city. Cities that were among the first ones to join the CoM and submit their SEAPs (Lviv, Tbilisi) did not provide information on the adaptation of the city structure for SEAP implementation, or provided very limited information (Polotsk). Lviv however, presents a structure for the energy management system, which has been introduced for municipal and residential buildings. This is relevant for other SEAPs of Ukraine and also for SEAPs in Armenia. Signatories of such countries paid particular attention to the introduction of energy management systems in municipalities, as there was an absence of such energy management practices.

A number of signatories have provided an adequate description of administration city structure, presenting tailored schemes on how the city will coordinate and implement a SEAP.

Table 4. Adaptation of municipal structures

Country	Name of City	Level of details	Graphical representation
UA	Lviv	<i>Limited:</i> only energy management system is presented in public and residential sectors	NA Only scheme for energy management system
	Chernivtsi	<i>Adequately described</i> Adapted organizational structure to implement the SEAP	Yes, tailored
	Hola Prystan	<i>Limited:</i> General information on SEAP coordination is presented	Yes, generalised
GE	Tbilisi	<i>Not addressed:</i> No information has been found in SEAP	NA
	Batumi	<i>Adequately described:</i> management of the monitoring process, assigned Unit of Municipality responsible for coordination	Yes
	Gori	<i>Adequately described</i> Detailed description of structure, administration units are set for SEAP implementation & monitoring	Yes
MD	Beltsy	<i>Limited:</i> brief description, indicating the appointment of energy manager for SEAP monitoring and coordination	No
AM	Soroca	<i>Limited:</i> intention to establish a working group is mentioned	No
	Hrazdan	<i>Limited:</i> General and brief information, based on a structure for energy management system	Yes, generalised
BY	Artik	<i>Limited :</i> General and brief information, based on a structure for energy management system	Yes, generalised
	Polotsk	<i>Limited :</i> Brief, it only mentions that the coordination of the SEAP will be done by City Executive Committee and a unit dedicated for coordination has been established	No
KZ	Taraz	<i>Not addressed:</i> No information has been found in the SEAP	NA
TJ	Somoniyon	<i>Adequately described:</i> Personnel and a number of positions has been appointed for overall SEAP implementation and supervision	Yes
AZ	Icherishe-her	<i>Adequately described:</i> Detailed adaptation, including building a working group, establishment of links within administrative units.	Yes

An example of a city's adapted administrative structure and tailored scheme is presented in Annex II, which describes the case of Chernivtsi (UA).

### 3.2 2<sup>nd</sup> Principle: Mobilisation of civil society

Signatories should mobilise local stakeholders in the SEAP development process and raise citizens' awareness. They should describe how the civil society has been involved in drawing up the SEAP and how they will be involved in its implementation and follow-up. Table 5 summarizes information provided in the analysed SEAPs, indicating stakeholders involved in the SEAP development and implementation, and their specific roles.

Table 5. Stakeholders' involvement in the SEAP development and implementation

Country	Name of City	Identified stakeholders' names and/or envisaged roles	Comments
UA	Lviv	<ul style="list-style-type: none"> <li>✓ Energy service companies support implementation of measures in building sector</li> </ul>	Some information is indicated, however which other stakeholders will be involved and what are their roles have not been detailed
	Chernivtsi	<ul style="list-style-type: none"> <li>✓ Support from municipal companies:               <ul style="list-style-type: none"> <li>- in data provision:                   <ul style="list-style-type: none"> <li>i) Transport, Connection and Energy Department of the City Council (data for municipal transport)</li> <li>ii) Natural gas supplier (public joint-stock company "Chernivtsihaz")</li> </ul> </li> <li>- in measures' implementation and data provision:                   <ul style="list-style-type: none"> <li>i) Heat and energy supply <i>Teplocomunenergo</i> and water supply and sewage <i>Vodokanal</i> in industry sectors</li> <li>ii) Electricity company "Mis'ksvitlo" in street lighting</li> <li>iii) "Chernivtsi Trolleybus company" for measures for trolleybuses</li> </ul> </li> </ul> </li> <li>✓ Stakeholders: Multi-apartment homeowners association are involved in implementation of measures</li> </ul>	Detailed information on support in SEAP preparation and implementation from municipal companies.
	Hola Prystan	NA	Stakeholder' involvement has not been sufficiently described in SEAP

Country	Name of City	Identified stakeholders' names and/or envisaged roles	Comments
GE	Tbilisi	<ul style="list-style-type: none"> <li>✓ Support in data provision (i.e. Municipal Transport Department data provision in transport sector, Electricity Distribution company and natural gas.</li> <li>✓ Support in the implementation of the actions- Economic Policy Agency</li> </ul>	Establishment of Multi-Stakeholder forum and Sustainability Council of Tbilisi is foreseen
	Batumi	Public Outreach Strategy has been designed as a part of the SEAP to ensure that all major stakeholders' groups take part with local authority in implementation of the SEAP	Detailed information is provided
	Gori	Public Outreach Strategy has been developed to involve major stakeholders' groups to take part with local authority in implementation of the SEAP	Detailed information is provided
MD	Beltsy	Participation of Beltsy Municipality staff in the implementation of measures focused on improving energy efficiency	Except Beltsy Municipality staff, other stakeholders involvement is not indicated
	Sorooca	NA	Stakeholders' involvement has not been sufficiently described in the SEAP
AM	Hrazdan	NA	The SEAP has not sufficiently detailed stakeholders' involvement in SEAP developing and monitoring processes.
	Artik	NA	Stakeholders' involvement has not been sufficiently described in SEAP
BY	Polotsk	The possibility of citizens' involvement is indicated.	Stakeholders and citizens will be involved in open discussions about the SEAP and in SEAP implementation. No details are given on what stakeholders will be involved in SEAP implementation and what their roles are.

Country	Name of City	Identified stakeholders' names and/or envisaged roles	Comments
KZ	Taraz	Taraz city Municipality and "Taraz Invest Consult" are involved in SEAP (and BEI) development, coordination and monitoring.	Except this, other stakeholders' involvement has not been sufficiently described in SEAP
TJ	Somoniyon	Support to implementation of individual actions: <ul style="list-style-type: none"> <li>✓ The state power company «BarkiTojik» of Rudaki District» supports the implementation of actions in power supply.</li> <li>✓ Department of education supports the implementation of actions at schools.</li> </ul>	Some information is indicated
AZ	Icherisheher	Support to data provision: <ul style="list-style-type: none"> <li>✓ Energy provider (electricity)</li> <li>✓ National gas distributor</li> </ul>	Some information is indicated

From the information presented in the analysed SEAPs, civil society is usually benefitting from information and awareness raising campaigns on energy efficiency measures, however their *active* involvement in SEAP development and monitoring is generally limited and not sufficiently addressed. Many signatories have not adequately detailed stakeholders' involvement in SEAP development and monitoring processes apart from presenting some general information (i.e. Hrazdan, Artik, Soroca, Hola Prystan, Polotsk, Beltsy). In the other SEAPs, the stakeholders' involvement is mainly related to data provision (by energy providers and distributors), which sometimes also take part in the implementation of individual measures in the sectors of their business activity (i.e. Somoniyon, Taraz, Icherisheher, Chernivtsi, Tbilisi). Furthermore, in two SEAPs, other stakeholders are involved, i.e. apartment homeowners' associations and energy service companies that supported the implementation of several individual measures in the building sector (Chernivtsi and Lviv, respectively).

In contrast to the above mentioned SEAPs, Batumi and Gori have developed a comprehensive Public Outreach Strategy as a part of their SEAP to ensure that major stakeholders' groups take part in the SEAP implementation in cooperation with the local authority. The example of the strategy of Batumi is presented in Annex V.

### 3.3 3<sup>rd</sup> Principle: Baseline Emission Inventory

The SEAP must include the results of the Baseline Emission Inventory (BEI), based on a sound knowledge of the local situation in terms of energy and greenhouse gas emissions and covering the entire geographical area of the municipality.

There is a set of sectors (often referred to as key Covenant sectors) that are strongly recommended to be included in SEAP and in BEI, mainly because they fall under the regulatory control of the local administration, and include buildings and transport. They also account for the largest share of total energy consumption in a city, for example the

building sector, still further expanding, accounts for 40 % of total energy consumption<sup>9</sup>. Therefore, the following sectors are strongly recommended to be included in the scope of the SEAP:

- Municipal buildings (MUNC)
- Tertiary (non-municipal) buildings (TERT)
- Residential buildings (RESD)
- Transport: municipal fleet (MUNC), public (PUBL), and private transport (PRIV)

The indication of municipal buildings as a separate sector (despite the fact that it generally accounts for a limited share of urban emissions) lies with the consideration that the scope for direct influence will typically be much higher for municipal emissions [6]. Also, actions undertaken by local governments on their own facilities and operations can spur broader community adoption.

The key sectors mentioned above should be the target of emission reduction, mainly through energy savings and local renewable energy development measures. Signatories can include other sectors that fall under their jurisdiction, for example they can plan emission reduction projects for:

- municipal public lighting,
- waste and wastewater management,
- industrial sector, if it is not part of the EU Emissions Trading System (ETS),
- local electricity and district heat/cold generation, from renewable and non-renewable sources.

As can be seen from Table 6, the collection of local data for building BEI can present a challenge for some signatories.

Table 6. Sectors included in Baseline Emission Inventory (BEI) and sectors where signatories plan most measures

Country	Name of City	Buildings			Transport			Other sectors*	Notes on Methodology
		MUNC	RESD	TERT	MUNC	PUBL	PRIV		
UA	Lviv	x	x	-	x	x	x <sup>10</sup>	Indst* PL**	Energy resources of the city are described, projections of energy consumption by 2020
	Chernivtsi	x	x	-	- <sup>11</sup>	x	-	Indst. PL	BEI data sources are specified along with energy resources of the city
	Hola Prystan	x	x	x	x	- <sup>12</sup>	x	Indst. PL	Energy resources of the city are described

<sup>(9)</sup> Directive 2010/31/EU on the energy performance of buildings

<sup>(10)</sup> Aggregated data are presented for three subsectors

<sup>(11)</sup> Data are presented together for public and municipal transport, as stated in the SEAP

<sup>(12)</sup> Not indicated whether the public transport is present in the city.



Country	Name of City	Buildings			Transport			Other sectors*	Notes on Methodology
		MUNC	RESD	TERT	MUNC	PUBL	PRIV		
GE	Tbilisi	x	x	x (-)	x	x	x	PL	BEI calculations are presented for the majority of sectors
	Batumi	x	x	x	x	x	x	PL	Calculations for building BEI presented for the majority of sectors
	Gori	x	x	x (-)	x	x	x	PL	Calculations for building BEI presented for many sectors
MD	Balti/Beltsy	x	x	x	<sup>-13</sup>	x	x	PL	Sources of collected data for BEI (no calculations)
	Soroca	x	x	x	x	x	-	Indst(-) PL	Detailed data on municipal building stock and municipal fleet. There are no official statistics on fuel used in private transport sector in municipality
AM	Hrazdan	x	x	-	x	x	-	PL	Data sources are described (no calculations). Estimation of energy savings for most measures.
	Artik	x	x	-	x (-)	x (-)	-	PL	BEI data sources identified, however no supporting calculations are presented for building BEI / Estimation of energy savings for most measures is presented
BY	Polotsk	x	x	x	x	x	x	PL	Data sources for BEI calculation are presented (without calculations) / Estimation of energy savings for most measures is described.

<sup>(13)</sup> Data are presented together for public and municipal transport, as stated in the SEAP

Country	Name of City	Buildings			Transport			Other sectors*	Notes on Methodology
		MUNC	RESD	TERT	MUNC	PUBL	PRIV		
KZ	Taraz	x	x	x	x	x	x	PL	Statistical data have been used for tertiary and residential sectors (due to lack of local data). Energy system of the city is described.
TJ	Somoniyon	x	x	x	x	- <sup>14</sup>	x	PL	BEI data sources identified. Data on the building stock presented.
AZ	Icherisheher	x	x	x (-)	x	- <sup>15</sup>	x (-)	PL	Data sources identified for electricity, natural gas consumption, municipal buildings and fleet, stock of municipal fleet is built.

"x" indicates a sector included in BEI and measures planned in that sector; "-" indicates a sector not included in BEI and no measures planned in that sector; "x (-)" indicates a sector included in BEI but no measures planned in that sector

\*Indst – Industry

\*\*PL – public lighting

The main difficulties are encountered for the following sectors: transport, tertiary buildings and sometimes also residential buildings. If local data are not available for buildings, statistical data are used by the cities, e.g. Taraz used statistical data both for tertiary and residential buildings.

As for what concerns the transport sector, data are not available or difficult to obtain for private transport, and this sub-sector is not included in the BEI of some SEAPs (i.e. Chernivtsi, Soroc, Artik). Some other municipalities have difficulties in disaggregating data for municipal and public transport, and therefore presented them in aggregated form (i.e. Chernivtsi, Lviv). There are also small municipalities that do not have public transport (i.e. Somoniyon, Icherisheher).

The other reason for leaving some sectors out of the BEI is that some signatories believe to have limited influence in these sectors. For example, signatories Hrazdan, Artik indicated to have limited influence on private transport, and therefore, did not present data for these sectors in BEI. To overcome this barrier, some examples of policy measures in such sectors could be highlighted to municipalities, possibly providing guidance on how to estimate the impact of such measures. Figure 4 shows baseline year chosen by signatories to collect data for BEI. Signatories, as recommended in the

<sup>(14)</sup> The city has no public transport

<sup>(15)</sup> As a historic resort and UNESCO-listed World Heritage Site, it has traffic restrictions and has limitations on a number of vehicles/per day. Only the following vehicles have access the resort: ambulances, fire, police and emergency services; Food delivery and Public institution vehicles; vehicles of museums and exhibition centres, vehicles of people living in the area. The other cars can enter the historic reserve under conditions if the maximum number of vehicles has not been reached.

guidelines, tend to select the most recent year for which reliable data are available, which is usually one or two years before the SEAP submission.

Figure 4. Selected year for building up a Baseline Emission Inventory (BEI)

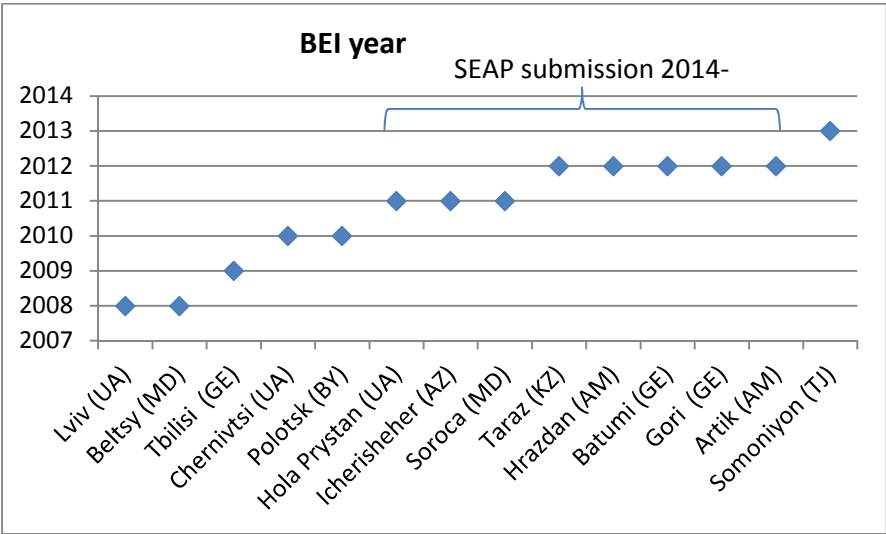
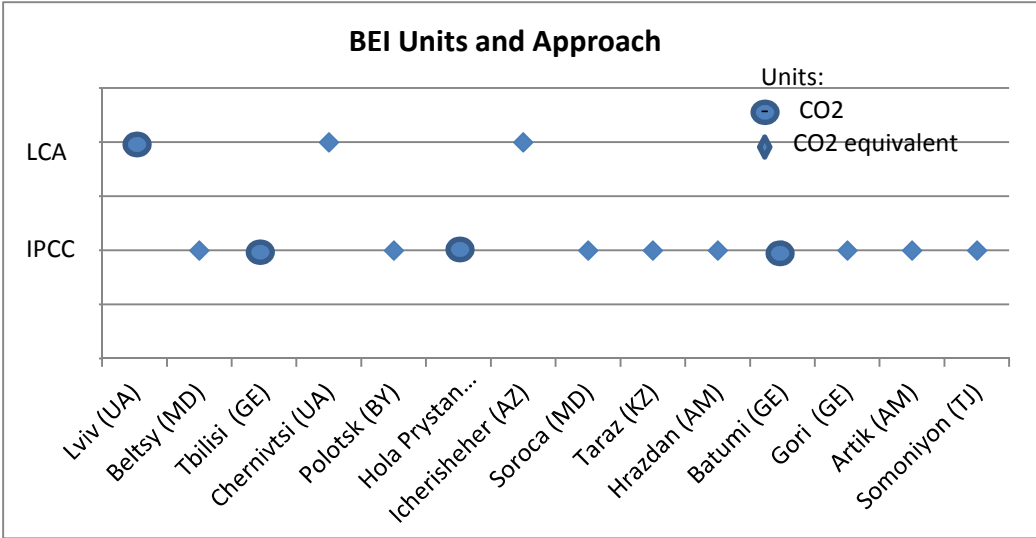


Figure 5 depicts the approach adopted by signatories to quantify the emissions per unit of activity. CO<sub>2</sub> emissions are calculated for each energy carrier by multiplying final energy consumption by the corresponding emission factor.

Figure 5. Baseline Emission Inventories: choice of emission factors type and emission reporting units.



Signatories can select two approaches for the calculation of emissions [7]:

- IPCC (Intergovernmental Panel on Climate Change ) – emission factors for fuel combustion, which are based on the carbon content of each fuel;
- LCA (Life Cycle Assessment) – emission factors for the overall life cycle of each energy carrier, i.e. including not only the GHG emissions due to fuel combustion but also emissions of the entire energy supply chain, i.e. exploitation, transport and processing.

Figure 5 also shows the emission reporting unit adopted by signatories, which can be i) tonnes CO<sub>2</sub> – if signatory choose to report only CO<sub>2</sub> emissions; ii) tonnes CO<sub>2</sub> equivalent

– if signatories choose to include also other GHGs such as CH<sub>4</sub> and N<sub>2</sub>O, e.g. from non-energy related sectors such as waste and wastewater management.

As can be seen from Figure 5, most signatories have selected the IPCC approach for the calculation of emissions, and only three signatories have chosen LCA (i.e. Lviv, Chernivtsi, Icherisheher). Similarly, most signatories have chosen to report CO<sub>2</sub>, and only four signatories have decided to report on CO<sub>2</sub> equivalent and account for other GHGs such as CH<sub>4</sub> and N<sub>2</sub>O.

An example of BEI calculation is presented in Annex III, which describes the case of BEI of Taraz (KZ), presenting building stock data and data sources for BEI.

### **3.4 4<sup>th</sup> Principle: Commitment to GHG reduction by at least 20% by 2020**

The signatories from CoM East countries have three options to set their GHG emissions reductions target:

- Setting the target as an **absolute reduction** compared to the overall emissions accounted in the Baseline Emission Inventory (BEI);
- Setting the target as a **per capita reduction** compared to the total per capita emissions accounted in the BEI. The emissions of the baseline year are divided by the number of inhabitants in the same year, and the percentage emission reduction target is calculated on that basis
- Setting the target on the basis of a **business-as-usual scenario (BAU)**: this is estimated starting from the results of the BEI and foreseeing GHG emissions for the territory of the local authority in 2020 in a scenario without the SEAP.

Figure 6 shows the different GHG emissions reduction targets set by the analysed signatories.

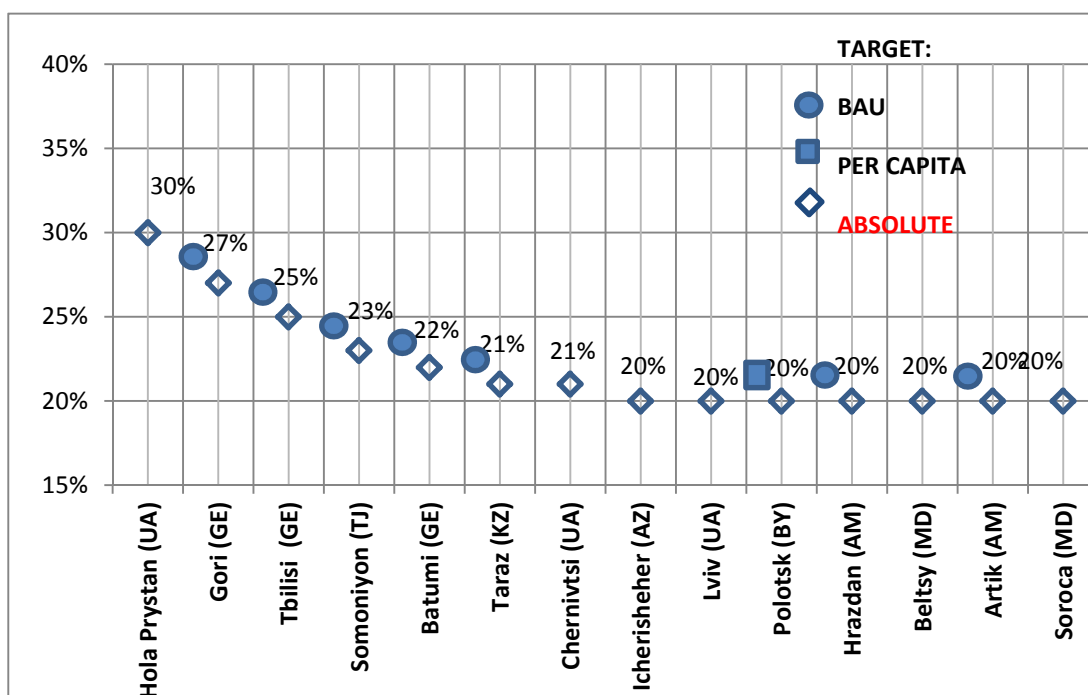
Signatories from countries of low average emission levels, see classification on Figure 1, usually set up a target based on BAU. Most signatories have used a BAU scenario developed using country-specific coefficients provided by the JRC (Janssens-Maenhout, et al., 2012), with the exception of Tbilisi and Batumi, where BAU LEAP (Long Range Energy Alternatives Planning System)<sup>16</sup> was applied.

Generally signatories tend to set up a target as absolute reduction, even if population changes are envisaged in the long- or medium-term. The exception is Polotsk, which has set a per capita target. This approach is considered as more complex by signatories, as it requires performing more calculations and taking into account changes in population (from statistical sources, if available). To help cities estimate the target on a per capita basis, an example of such calculations has been included in a Technical Annex of the Guidebook “How to develop a SEAP” [8].

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<sup>(16)</sup> SEAP of Tbilisi, Georgia, available at [http://mycovenant.eumayors.eu/docs/seap/1537\\_1520\\_1303144302.pdf](http://mycovenant.eumayors.eu/docs/seap/1537_1520_1303144302.pdf).

Figure 6. Options chosen by signatories to set their GHG emissions reduction targets



An important observation that the signatory from Kazakhstan (Taraz) set up a target based on a BAU scenario even though Kazakhstan already has high emission levels and only a slight increase of emissions is foreseen by 2020 in a BAU approach. The rationale behind this decision was not presented in the SEAP of Taraz. However, the BAU approach is generally recommended as more relevant for fast growing economies.

In analyzed SEAPs no information was found on long-term CO<sub>2</sub> reductions targets beyond 2020, (e.g. to 2030 or 2050). Likewise, information on targets on energy efficiency and renewable energy has not been specified in the SEAPs. Cities can set other long term targets, for example Lviv (UA) has set a target to reduce energy consumption by 51% by 2030.

### 3.5 5<sup>th</sup> and 6<sup>th</sup> Principles: Measures covering key sectors & Long and short-term actions

A SEAP should contain two types of actions:

- Long-term: encompassing a vision of sustainability until 2020;
- Short- and medium-term: to cover the 3-5 years following the adoption of the SEAP and to translate the long term view into actions.

Table 6 shows the sectors where most of the measures are planned. Generally the following observations can be made:

- Measures are planned in the same sectors as in the BEI, with the exception of sectors that are indicated with (-) in Table 6.
- With regard to individual measures, calculation of their energy savings and CO<sub>2</sub> emissions reductions are rarely provided in SEAPs. SEAPs from Georgian municipalities present calculations for the majority of planned measures. In other SEAPs, i.e. from Armenia, such calculations are presented for some selected measures along with assumptions for estimating impact of policy and soft measures (although not always supported by the references).
- Estimation of savings is rare for policy measures. Some examples of estimated impacts of policy measures are presented in an Annex 4

— Examples of soft measures from analysed SEAPs are presented in Chapter 4.

### **3.6 7<sup>th</sup> Principle: Financing**

The SEAP should identify the key financing resources that will be used to finance the actions. Signatories usually use local or national financial resources to implement measures described in the SEAP, and private and external resources, e.g. from EU or other donors. This information is described in Table 7 below, indicating, where available, the percentage of funds from different sources for SEAP implementation.

As shown in Table 7, the financing of the SEAP relies heavily on external resources, such as international organizations, donors and banks. Many signatories indicated that they plan to obtain additional funds from international organizations and donors. For example, Chernivtsi, Soroca and Beltsy, plan to obtain between 50% and 80% of such funds (other cities have not specified the amount). The reason for this is the limited availability of local budget, which is mainly dedicated to co-financing projects supported by donors or banks. Although the SEAP should identify the key resources for funding the implementation of the plan, only a list of potential donors is usually presented in the SEAP without providing further information. In other cases, financial resources for implementing measures have not been sufficiently described in the SEAP. This suggests that no arrangements or commitments have been made for securing the funds at the time of SEAP development.

A somewhat different situation is noted from signatories from Central Asia as they indicated a significant amount of private funding for SEAP implementation (i.e. Taraz and Somoniyon). This includes bank loans for citizens and enterprises (mentioned by Somoniyon). Furthermore, a special case is noted for the signatory from Azerbaijan, the old city of Baku - State Historical-Architectural Reserve "Icherisher" (UNESCO-listed World Heritage Site), which is financed solely by local budget. Plans to include other sources are mentioned but they have not been detailed in the SEAP of Icherisher.

In most cases, signatories that have submitted their SEAPs in 2014-2015 have indicated the percentage of funds from different sources for SEAP implementation (with the exception of signatories from Armenia).

Table 7. Main financial resources for implementing SEAPs

Country	City	Local	National Fund programs	EU programs/(Private)	Comments
UA	Lviv	x	x	x	Funding sources are the State Energy Conservation Fund, financial resources of enterprises, institutions and organizations, State Budget of Ukraine, Local municipal budget and other sources. For measures implemented in Lviv in 2007-2009, the city budget and the State Budget of Ukraine was used. As there was a need for additional resources, funds were also used from international financial institutions, grants, funds of enterprises, such as IFC, World Bank, EBRD, USAID, NEFCO.
	Chernivtsi	10%	-	81% / (9%)	City budget (including the development budget) is guided primarily at providing the necessary co-financing for the SEAP projects. Possible options for cooperation for future energy efficiency projects are identified in the following international financial institutions: NEFCO, UNDP, IFC, EBRD E5P, WB. For the municipal sector, the main source of financing was considered credit and grant funds with co-financing from the city budget. For residential buildings, funds of residents were included in the funding structure. There are plans to obtain bank loans for the implementation of some measures.
	Hola Prystan	15%	15%	15% / (55% <sup>17</sup> )	No additional information has been found in SEAP, only percentage of financial recourses is provided.
GE	Tbilisi	x	-	x	Donors' funding in combination with funds and loans of Tbilisi City Hall. Further information on donors' funds to finance implementation of measures has not been detailed. Implementation of energy efficiency projects with support of international organizations have been mentioned (USAID, INOGATE and others).
	Batumi	80%	10%	5% / (5%)	The city plans to involve donors as local resources are not sufficient for the implementation of sustainable projects. The list of potential donors includes USAID, GIZ, UNDP, EC-LEDS and others.
	Gori	x	x	x	Limited funds are available from the local budget. Most of the budget resources are used for infrastructure growth and social projects that hamper the development of long-term energy policies, as stated in the SEAP; potential donors are indicated for SEAP implementation: EC-LEDS Project, USAID, EU, GIZ, GEF, UNFCCC-programs.
MD	Beltsy	2%	18%	50% / (30%)	Local donors: National State Budget, Local Budget of Balti Municipality, Energy Efficiency Fund, Ecological Fund. External donors: Covenant of Mayors, Horizon 2020, International Climate Initiative (IKI), Sweden (SIDA), Germany (GIZ), USAID. Local and international private investments.
AM	Soroca	10%	5%	85%	Financial resources for implementing measures have not been sufficiently described in SEAP.
	Hrazdan	x	x	x	Funds for Renewable Energy and Energy Savings of Armenia (BĚĚC) are involved for co-financing EE projects in buildings. For other measures, potential donors have been listed in SEAP (WP, EBRD, UNEP, E5P etc.). However further information on donors' funds to finance implementation of measures has not been detailed.
	Artik	x	x	x	Funds for Renewable Energy and Energy Savings of Armenia (BĚĚC) are involved for co-financing EE projects in buildings. A list of potential donors is presented for other measures in the SEAP (WP, EBRD, UNEP, E5P etc.), however no further information have been presented.
BY	Polotsk	x	x	x	Potential sources of financing have been listed: the city and regional budget, the national budget provided for the financing of national energy efficiency programs, and other.
KZ	Taraz	20%	30%	- / (50%)	Financial resources for implementing measures have not been sufficiently described in SEAP
TJ	Somoniyon	66%	-	- / (34%)	City has limited financial resources and plans to attract investments, including bank loans for entrepreneurs for the development of small-scale and medium sized businesses; bank loans for citizens for the construction of new homes and improvement of old houses, purchase of efficient vehicles.
AZ	Icherisheher	100%	-	-	The financing of the actions is foreseen through Administration local budget, national programs on energy savings and other sources, however it has not been sufficiently detailed.

<sup>(17)</sup> No additional information and justification is provided

### 3.7 8<sup>th</sup> Principle: SEAP approval by Municipal Council

Implementing this principle may present a challenge in some CoM East countries, especially where there is not full political and fiscal decentralisation of LAs.

Table 8. SEAP approval by Municipal Council or equivalent body

Country	Authority approving the SEAP
Ukraine	Municipal Council
Georgia	Municipal Council
Moldova	Municipal Council
Armenia	Community Council of Elders <sup>18</sup>
Belarus	Executive Committees at the District level (rayon)
Kazakhstan	Municipal Council
Tajikistan	Municipal Council
Azerbaijan	Administration of the State Historical-Architectural Reserve "Icherisheher" under the Cabinet of Ministers of the Republic of Azerbaijan <sup>19</sup>

In some CoM East countries, local self-government is less developed and assigned with minor administrative functions. The main local government functions instead are assigned to other, usually regional or national, institutions. For example in Belarus and Azerbaijan, the major part of local governing functions is controlled by "Local Executive Committees", which are appointed by the President and report directly to the President's Office. In Belarus<sup>20</sup> they are vested with all executive powers and financial resources, while in Azerbaijan<sup>21</sup> they are responsible for most municipal services and infrastructure, and control most financial resources. Similarly, in some Central Asian countries (i.e. Turkmenistan and Uzbekistan) local authorities are not fully independent from national governments. In such countries, the attention of national governments to issues of energy efficiency and sustainable development is of crucial importance to ensure the active participation of local authorities in the Covenant of Mayors.

As can be seen in Table 8, the majority of signatories have their SEAPs approved by the Municipal Council, while other signatories by equivalent bodies. SEAP approval by equivalent bodies prevails in Belarus and Azerbaijan. In Belarus, SEAPs are approved by Executive Committees at the District level, which are appointed by the President and report to the President's Office. This has an important implication for LAs as their participation in the CoM initiative should to be supported and approved at a national level (i.e. by the President's Office). A similar structure is found in Azerbaijan, where the authority (Icherisheher) analysed is under the direct jurisdiction of Cabinet of Ministers of the Republic of Azerbaijan. Therefore the SEAP of Icherisheher was approved by the Administration of the State Historical-Architectural Reserve.

<sup>(18)</sup> A local elected government body with the leadership of the Mayor

<sup>(19)</sup> A special status of Icherisheher, State Historical-Architectural Reserve in Baku city

<sup>(20)</sup> Belarus is the only country in the EaP region that has not signed the European Charter of Local Self-Government, and has an observer status in the Council of Europe

<sup>(21)</sup> Azerbaijan signed the European Charter of Local Self-Government already in 2002 however it has never been fully translated into practice.



### **3.8 9<sup>th</sup> Principle: SEAP submission**

Covenant signatories have the following commitments:

- Signatories should develop a SEAP within one year of joining the Covenant of Mayors (and within two years for the new Covenant of Mayors for Climate and Energy). They upload the SEAP document in national language, English or Russian, and fill-in the online SEAP template either in English or Russian.

Signatories that have received support in drafting their SEAP tend to prepare the SEAP document in English language, while others tend to prepare the SEAP in local language. Preparing the SEAP document in English or Russian language facilitates the learning process across the countries and enhances the visibility of the SEAP in the region and in the international community. A successful submission of the SEAP was considered as a prerequisite for choosing the SEAP for the present study.

### **3.9 10<sup>th</sup> Principle: Monitoring and reporting**

Monitoring is a very important part of the SEAP process. Regular monitoring using relevant indicators can help to evaluate whether the local authority is achieving its targets, and to adopt corrective measures if necessary. Signatories are therefore committed to submit a report (monitoring report) every second year following the submission of the SEAP. This report should indicate any changes to the overall SEAP strategy, update figures on the attribution of staff and financial capacities and identify barriers to the implementation of actions. In addition, this report has to be complemented by a Monitoring Emission Inventory (MEI) at least every fourth year after SEAP submission. It serves the purpose to monitor the evolution of CO<sub>2</sub> emissions over time, by comparing it with the BEI. To enable this, MEIs have the same structure and follow the same methodological approach as the BEI, accounting for final energy consumption and associated CO<sub>2</sub> emissions in the monitoring year by energy carrier and by sector [1].

For this, a monitoring strategy should be established and described in the SEAP document. This may include the processes of the SEAP management and monitoring, establish responsible units and their roles, as well as setting up indicators to monitor individual SEAP actions.

Based on the information presented in the analysed SEAPs, the monitoring strategy usually echoes the recommendations provided in the guidelines and is not fully tailored to the needs of a particular city. Usually it does not sufficiently describes how the implementation of individual measures will be monitored and followed up, although the identification of departments responsible for the implementation of each measure is found in many SEAPs and is a good starting point.

Some signatories (i.e. Gori and Batumi) have described in details the management of the SEAP monitoring process. Responsible units in the municipalities have been set for the overall monitoring; companies and departments of the city hall are indicated along with a description of their responsibilities (e.g. data collection for monitoring in different sectors etc.). For example, Batumi SEAP [<sup>22</sup>] indicates the following key activities of monitoring and reporting process: i) Updating Business-as-usual scenario ii) Estimating a cut in emissions as a result of implemented measures; iii) Preparing final reports. In addition, a SEAP monitoring group is to be set up by Batumi municipality to be responsible for the preparation of annual monitoring reports.

Furthermore, some signatories have described in greater details indicators for individual actions. For example, signatories of Taraz, KZ and Somoniyon, TJ have established indicators that are under the direct control of their municipalities, such as:

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(<sup>22</sup>) SEAP of Batumi, Georgia, available at [http://mycovenant.eumayors.eu/docs/seap/1537\\_1520\\_1303144302.pdf](http://mycovenant.eumayors.eu/docs/seap/1537_1520_1303144302.pdf)

- Approval of the new building code; no. of interventions for RES and EE. These are used for SEAP actions on Regulatory requirement for the refurbishment of residential buildings.
- No. of courses and no. of participants. These are used for SEAP actions on eco-driving courses.
- Some examples of technical indicators: no. of boilers replaced; no. appliances replaced of building automation systems; % of replaced fixtures or % of fixtures subjected to routine/emergency maintenance; electric energy saved per year; thermal energy saved per year.

## 4 Examples of measures From Sustainable Energy Action Plans

### 4.1 Buildings sector

<b>Somoniyon (TJ)</b> <b>Refurbishment of municipal buildings</b>	<b>Sector:</b> <b>Municipal buildings</b>
<p><b>Description:</b></p> <p>The biggest problem in Somoniyon is due to the lack of electricity during winter time. In fact 100% of electricity is produced by hydroelectric plants that are completely frozen during the coldest months. Before signing up to the Covenant of Mayors, to cope with this situation the Municipality was planning to install coal-fired boilers or to set up a small local coal-fired power plant. After the signature of the Covenant of Mayors, the Municipality decided to use bi-fuels boilers (electric-coal), which aim at producing electricity through renewable sources (wind, solar, biomass, etc.), using coal only as a back-up, when renewable energy sources are not available.</p> <p>Municipal buildings with high energy consumption will be refurbished in order to improve their energy performance. This action include the replacement of the envelope, use of window-film that controlled sun, replacement of lighting bulbs, improvement of energy efficiency of heating system. This also involves replacement of boiler (i.e. using condensing boilers) and use of automated control system that help to save energy in the absence of people.</p>	<p><b>Key features:</b></p> <p>Estimated CO<sub>2</sub> reduction: 71.8 tons CO<sub>2</sub>/year</p> <p>Estimated energy savings: 885 MWh/year</p> <p>Implementation costs: 97098 EUR</p> <p>Responsible: Municipality of Somoniyon –technical sectors</p> <p>Implementation time frame: Time period: 2016 - 2020</p> <p>Target indicators under the direct control of the municipality:</p> <ul style="list-style-type: none"> <li>i) N° of refurbished buildings</li> <li>ii) N° of replaced boilers</li> <li>iii) N° of replaced bulbs</li> <li>iv) N° of automated systems installed</li> </ul>

<b>Chernivtsi (UA)</b> Campaigns for citizens on residential buildings: efficient household appliances and compliance requirements of Ukraine Building Code	<b>Sector:</b> Residential buildings
<p><b>Description:</b></p> <p>City authorities recognize the fact that increasing public awareness is highly important for energy consumption reduction in the city. The main problems that prevent implementation of energy efficiency measures in the residential sector are the following:</p> <ul style="list-style-type: none"> <li>• low awareness about the state of play in the field of energy, supply and consumption;</li> <li>• low level of citizens engagement;</li> <li>• large financial expenditures (compared to average salary) required to modernize residential buildings and heat supply systems;</li> <li>• lack of effective measures or policies at the national level to support energy saving projects in the residential sector.</li> </ul> <p>To encourage immediate action in this field, the city council planned educational campaigns for residents that include information sharing about:</p> <ul style="list-style-type: none"> <li>• the use of energy-efficient devices and household appliances</li> <li>• replacing outdated windows with new ones that satisfy the requirements of Ukraine Building Code</li> </ul>	<p><b>Key features:</b></p> <p>Estimated CO<sub>2</sub> reduction: 16232 tons CO<sub>2</sub>/year</p> <p>Estimated Energy Savings: 23601 MWh year</p> <p>Financing sources: City budget, funds of international technical assistance projects and public utility companies</p> <p>Implementation time frame: 2016-2020</p> <p>Responsible Body: Department of economy, housing and communal services of the City Council</p>

<b>Batumi (GE)</b> Requirements and standards on energy efficiency	<b>Sector:</b> Building sector
<b>Description:</b> Buildings in Batumi were built considering that energy is cheap and therefore it is not necessary to use it efficiently. In addition, at the time of their construction, global warming and greenhouse gas emissions trends were not topics of global interest. Therefore, with relevant legislation, the buildings sector can increase their energy efficiency and increase the share of renewable energy. Batumi Municipality along with legislative bodies of Autonomous republic of Ajara and National Government of Georgia will develop energy efficiency standards in new buildings. This will involve hiring external experts for drafting requirements/standards of the energy efficiency and raising awareness of citizens on the need of such standards.	<b>Key features:</b> Estimated CO <sub>2</sub> reduction: 5050 tons CO <sub>2</sub> /year Estimated Energy Savings: 24500 MWh/year Implementation costs: ca. 184000 EUR Implementation time frame: 2016-2020 Responsible Body: Batumi Municipality and legislative bodies

<b>Lviv (UA)</b> Educational campaigns for residents of buildings	<b>Sector:</b> Building sector
<b>Description:</b> One of the barriers to implement energy consumption reduction measures is the lack of experience and knowledge on how to design and implement such measures. In relation to the buildings sector, the important barrier is the lack of experience and practice of deep thermos-modernisation of residential buildings. City authorities recognize this fact and proposed the following measures: <ul style="list-style-type: none"> <li>• Development of common projects in thermo-modernisation: 2 standard designs for apartment buildings (built in 60s-80s).</li> <li>• Development of common projects in thermo-modernisation: 4 standard designs for private houses.</li> <li>• Development of common projects in thermo-modernisation: 4 typical reconstruction projects for private houses.</li> </ul>	

<b>Hrazdan (AM)</b> Energy management in the public sector of the city	<b>Sector:</b> Municipal sector
<p><b>Description:</b></p> <p>An important element of the implementation of the urban policy is related to the introduction of energy management in the public sector of the city. It will enable Hrazdan to daily monitor the consumption of energy resources in institutions and identify the causes of the increase in energy consumption. It will allow the public sector to ensure the efficient use of energy.</p> <p>The measure consists of regular monitoring and analysis of data on energy consumption in municipal institutions and further optimization of consumption modes based on hierarchical systems of accountability and continued feedback. Every institution will appoint an energy manager or a specialist with appropriate education and practical skills.</p> <p>It is expected that the implementation of energy management in budget institutions will lead to energy savings in the coming 4-5 years, about 15% of the consumption of the base 2012. The annual consumption of the public sector is 821.247 MWh of electricity and 338.87 MWh of natural gas. Reducing consumption by 15% is equivalent to electricity savings of 123.19 MWh and natural gas savings of 50.83 MWh. The total reduction in carbon dioxide emissions a result of the event will be 37.62 tons of CO<sub>2</sub>/year.</p>	<p><b>Key features:</b></p> <p>Estimated CO<sub>2</sub> reduction: 37.62 tons CO<sub>2</sub>/year</p> <p>Estimated Energy Savings: 174.02 MWh/year</p> <p>Implementation costs: 6000 EUR</p> <p>Implementation time frame: 2015-2017</p> <p>Responsible Body and Financing sources:: City Municipality</p>

## 4.2 Transport Sector

<b>Tbilisi (GE)</b> Tbilisi Transportation strategy (comprehensive set of measures)	<b>Sector:</b> Transport
<p><b>Setting up of Traffic Lights Control Centre</b></p> <p>The Control Centre on the basis of the information collected about the traffic intensity regulates the flow of traffic in the optimal regime and helps to increase traffic efficiency. The impact of this measure has been assessed for private passenger transport, based on a survey.</p>	<p><b>Key features:</b></p> <p>Estimated CO<sub>2</sub> reduction: 123.85 tons CO<sub>2</sub>/year</p> <p>Estimated Energy Savings: 491.06 MWh/year</p> <p>Implementation costs: 13316654 GEL (ca. 4.9 million EUR)</p> <p>Implementation time frame: 2011-2020</p> <p>Responsible Body: Tbilisi City Hall Urban Transport Service</p>

<p><b>Improvement of Public Transport Service</b></p> <ul style="list-style-type: none"> <li>• Electronic displays (i.e. 938) operating in the city in an online regime and informing passengers on buses arrival time</li> <li>• New mini-buses introduced in summer 2011</li> <li>• Flexible and preferential pay system. The travel cost can be paid in any public transport using a Metro-money universal plastic card</li> <li>• Safe transportation. Drivers pass special theoretical and practical training</li> <li>• Improvement and optimization of routes</li> </ul>	<p><b>Key features:</b></p> <p>Estimated CO<sub>2</sub> reduction: 40.72 tons CO<sub>2</sub>/year</p> <p>Estimated Energy Savings: 183.59 MWh/year</p> <p>Implementation costs: 2 383 145 GEL (ca. 883000 EUR)</p> <p>Implementation time frame: 2010-2020</p> <p>Responsible Body: Tbilisi City Hall Urban Transport Service, Tbilisi Transport Company, Media companies</p>
<p><b>Public transport popularization campaign</b></p> <p>The transport Company's website provides passengers with relevant information: i) On the introduction of new system of paying transport fees in the municipal transport (getting and using of Metro-money cards); On the system of discounting fees in the public transport; ii) On the improvement of passengers ticketing in municipal buses (the campaigning format); iii) On the free trips during holidays (New Year, Easter, Christmas, etc.); iv) Trip planning program integrated in the Google system (Google Transit) to provide information on the routes, stops and schedules of Tbilisi Metro and buses</p>	<p><b>Key features:</b></p> <p>Estimated CO<sub>2</sub> reduction: 30.54 tons CO<sub>2</sub>/year</p> <p>Estimated Energy Savings: 137.69 MWh/year</p> <p>Implementation costs: 92 041 GEL (ca. 34000 EUR)</p> <p>Implementation time frame: 2010-2020</p> <p>Responsible Body: Tbilisi City Hall adm., Public Relations and Marketing Dept. of Tbilisi Transport Company, Media companies</p>

<p><b>Gori (GE)</b> Technical requirements of the vehicles</p>	<p><b>Sector:</b> Transport</p>
<p><b>Description:</b></p> <p>It is expected that the technical check-up of vehicles in Georgia will become obligatory, although it is not fully determined what kind of control it will be. The Gori City Hall will cooperate with other Municipalities and national structures to work out standards for engines and fuels, conforming to European ones. As a result both fuel consumption and GHG emissions will be lowered as well as local pollutants will be reduced. Technical control will promote better maintenance and adequate equipment of vehicles. According to the Guidelines on Mitigation in Transport Sector the fuel consumption by a well-maintained vehicle may be reduced by 3-7%, causing a relevant decline in emissions. As the majority of vehicles in Georgia are obsolete and inefficient, this measure could have a significant effect, though at this stage specific steps in this direction are not planned by the Gori City Hall.</p>	

**Icherisheher, Historical-Architectural Reserve of Baku, (AZ)**

Improvement of transport system: restricted use of transport and awareness rising campaigns

**Sector:**  
Transport

**Description:**

Since 2009, an automated traffic control system was set up to monitor the access and restriction of vehicles. Vehicles can access the city in case the maximum number of vehicles (i.e. 450) driving in "Icherisheher" has not been reached. When this limit is reached, only vehicles of people living in the area (with permanent access cards) can enter. In this case, information is displayed on the monitors at the entrance gate to inform visitors that access is temporarily suspended for cars.

Further actions planned in transport system:

- Introduce further limitation in the number of cars permitted to enter the city.
- Introduce environmental check point services at entrances to the Municipality to control greenhouse gases emissions of car engines before they enter the city. In case emissions from the car exceed the limits, the owner of the car will be informed and driving of this will be banned.

Campaigns for promoting bicycle in Icherisheher and design space for cycling and parking, especially in locations where intensive traffic is observed.



*Source: Sustainable Energy Action Plan of The State Historical-Architectural Reserve "Icherisheher"*

**Key features:**

Estimated CO<sub>2</sub> reduction: 0.2 tons CO<sub>2</sub>/year

Implementation time frame: 2012-2020

Responsible Body: Administration of "Icherisheher"

<b>Taraz (KZ)</b> Eco-driving courses	<b>Sector:</b> Transport
<b>Description:</b> <p>Implementation of eco-driving lanes will allow saving 10% of the normal fuel consumption. The lanes will be general and specific for particular types of vehicles, aiming at spreading a sustainable driving style by adopting a conscious driving, safe and respectful of the parameters in which the internal combustion engine works better (adjust the tire pressure, drive safely in adverse weather conditions, keep the windows closed driving at high speed, etc.).</p> <p>The lanes will be organized for citizens and drivers of public transportation and municipal fleet.</p>	<b>Key features:</b> <p>Implementation time frame: 2016-2020</p> <p>Responsible Body: Technical sector of the Municipality of Taraz</p> <p>Implementation costs: 20 400 EUR</p> <p>Estimated CO<sub>2</sub> reduction: 16 846 tons CO<sub>2</sub>/year</p> <p>Estimated Energy Savings: 49 805.60 MWh/year</p>

### 4.3 Other sectors

<b>Chernivtsi (UA)</b> Improving the energy management system of heat and energy supply company <i>Chernivtsi –Teplocomunenergo</i>	<b>Sector:</b> District heating
<div data-bbox="188 958 576 1413" data-label="Figure"> </div> <p data-bbox="592 920 906 1458"><b>Description:</b> The DH system is outdated not only in terms of infrastructure but also in terms of management and control systems. Therefore establishing an energy management system of the <i>Chernivtsi teplocomunenergo</i> is planned, introducing a system of operational control, analysis and regulation of the efficient use of fuel - energy resources in the heat boroughs.</p> <p data-bbox="188 1462 576 1608">Figure: Distribution and main sources of heat Source: the Sustainable Energy Action Plan of Chernivtsi for 2015-2020</p>	<b>Key features:</b> <p>Estimated CO<sub>2</sub> reduction: 6209,91 tons CO<sub>2</sub>/year</p> <p>Estimated energy savings: 28106 MWh/ year</p> <p>Implementation costs: about 500 000 EUR, from CME "Chernivtsi-teplocomunenergo"</p> <p>Implementation time frame: 2015-2017</p> <p>Responsible Body: <i>Chernivtsi Teplocomunenergo</i>, Department of housing and communal services of the City Council</p>



<b>Beltsy (MD)</b> Energy efficient equipment in Water supply and sewage systems	<b>Sector:</b> Water supply and treatment
<b>Description:</b> <p>Municipal Enterprise Agency "Apa-Canal Balti" provide Beltsy municipality with drinking water. For this, it uses 27 pumping stations with 83 running pumps, out of which only 11 correspond to modern requirements. The installed capacity of the pumps is 2251kW, with a monthly consumption of electricity of about 400-420 MWh, or 4800 – 5000 MWh per year, which corresponds to 3283-3447 tonnes CO<sub>2</sub>/year.</p> <p>The cost of electricity constitutes 5-30% of the operating costs of enterprises of water treatment plants, in some cases up to 40%, and three quarters of which are consumed by the pump group. Therefore, the planned measures concern modernization of pumping stations and installation of energy efficient equipment of water supply system.</p> <p>The modernisation and the use of energy efficient equipment in drinking water supply and sewage disposal systems is expected to reduce the consumption of electricity by 10-30%.</p>	<b>Key features:</b> <p>Estimated CO<sub>2</sub> reduction: 3447 tons CO<sub>2</sub>/year</p> <p>Estimated Energy Savings: 5000 MWh/year</p> <p>Implementation costs: 2 075 000 MDL (almost 100 000 EUR)</p> <p>Implementation time frame: 2014-2016</p> <p>Responsible Body: City Council</p>

<b>Artik (AM)</b> Pilot PV-installations for outdoor lighting in entrances and yards of multi-apartment blocks	<b>Sector:</b> Public lighting
<b>Description:</b> <p>Currently outdoor lighting is performed with incandescent lamps and requires modernization. A significant decrease in the market value of photovoltaic modules over the last 3-5 years, made it feasible to apply such modules in a pilot study of outdoor lighting.</p> <p>In this respect, it was considered to replace the existing outdoor lighting of incandescent lamps with energy efficient lamps powered by PV-modules. The cost of the module with a peak power of 260 watts, including energy-saving lamps, inverter, battery, sensor and installation is approximately 900 Euros. This pilot study will implement such systems for 40 apartment buildings, and might be extended in the future.</p>	<b>Key features:</b> <p>Estimated CO<sub>2</sub> reduction: 3694 tons CO<sub>2</sub>/year</p> <p>Estimated Energy production: 16,64 MWh/year</p> <p>Implementation costs: 36000 EUR</p> <p>Implementation time frame: 2018-2020</p> <p>Responsible Body: City Council and Foundation for renewable energy and energy efficiency of Armenia</p>

## 4.4 Cross sectorial measures and awareness raising

<p><b>Hola Prystan (UA)</b> Access to financing instruments for individual Energy efficiency projects</p>	<p><b>All Sectors</b></p>
<p><b>Description:</b></p> <p>City authorities recognize the fact that financing energy efficient measures is critical for achieving the SEAP objectives. Therefore, city authorities ensure that citizens have access to possible funding mechanisms that in this case involve compensation for interest rates on loans for energy savings on a competitive basis.</p>	<p><b>Key features:</b></p> <p>Estimated CO<sub>2</sub> reduction: 138 tons CO<sub>2</sub>/year</p> <p>Estimated Energy Savings: 300 MWh/year</p> <p>Implementation costs: 50000 EUR</p> <p>Implementation time frame: 2015-2020</p> <p>Responsible Body: The Executive Committee of the City Council</p>

<p><b>Somoniyon (TJ)</b> <b>Economic incentives to reduce energy consumption by changing consumers' behaviour</b></p>	<p><b>Sector:</b> Schools</p>
<p><b>Description:</b></p> <p>On the basis of the European Project Euronet 50/50<sup>23</sup>, the Municipality of Somoniyon will reduce energy consumption in schools through the support of students and teachers. The aim is to involve schools in energy-saving activities by creating economic incentives both for schools and for managers of school buildings:</p> <ul style="list-style-type: none"> <li>• 50% of the financial savings achieved thanks to energy efficiency measures taken by pupils and teachers are returned to school through a financial pay-out</li> <li>• 50% of the financial savings are a net saving for the local authority that pays the energy bills.</li> </ul> <p><i>Benefits:</i></p> <ul style="list-style-type: none"> <li>• The school teaches pupils how to save energy by changing their behaviour and the school gets additional financial resources</li> <li>• The local authority has lower energy costs and the local community gets a cleaner local environment.</li> </ul> <p><i>Methodology:</i></p> <p>It actively involves buildings' users in the process of energy management and teaches them environmentally friendly behaviour through practical actions.</p>	<p><b>Key features:</b></p> <p>Responsible: Municipality of Somoniyon – Administrative and technical sectors</p> <p>Other actors involved: Schools (teachers, pupils, workers etc.)</p> <p>General Measuring Indicators:</p> <p>i) Total CO<sub>2</sub> emissions of the Municipal Administration</p> <p>ii) Final energy consumption of the Municipal Administration</p> <p>Target indicators under the direct control of the municipality:</p> <p>i) N° of schools involved in the Project</p> <p>ii) Electric and thermal energy saved each year</p> <p>Implementation time frame: Time period: 2016 -2020</p>

<sup>23</sup> <http://euronet50-50max.eu/en/>

## 5 Conclusions

### 5.1 Overall considerations

The launch of the Covenant of Mayors East in Eastern Partnership and Central Asian Countries has required the adaptation of the Covenant of Mayors methodological framework and principles to the specific situation of cities and towns from those countries. The adaptation of the framework was mostly motivated by the fact that CoM East countries have developing and emerging economies, as some of them are in the process of recovering from the economic collapse after the breakdown of the Soviet Union.

The initiative has been successful in some Eastern European countries, namely in Ukraine (with 48 Sustainable Energy Action Plans (SEAPs), covering 14% of the country population), in Georgia (only 7 SEAPs, but covering as much as 38% of the country's population) or in Moldova (10 SEAPs, covering 12% of the country's population). In the other three Eastern European countries covered by the project (Armenia, Belarus and Azerbaijan), the level of penetration of the Covenant was much lower, with few submitted SEAPs and all from small towns (with less than 50 000 inhabitants) except Polotsk and Rogachev from Belarus, with 82800 and 59700 inhabitants respectively.

The participation of signatories from Central Asian countries has been rather limited, with only one submitted SEAP from Kazakhstan and one from Tajikistan. In addition, given that as of 2016 the CoM East project funded by DG NEAR no longer covers Central Asian countries, it is not expected that the number of signatories and SEAPs will grow in that Region, at least in the short term. In future, to promote the Covenant in that Region, more targeted support could be provided through the involvement of national and subnational governments that could help the municipalities develop and implement their action plans.

In the context of the present study, the analysis of 14 SEAPs has been performed in order to gain a better understanding of how the adapted framework has been applied by a sample of local authorities for the development of their action plan.

Unfortunately the limited number of submitted SEAPs especially in some CoM East countries represented a constraint in the construction of the sample to analyse. This is a limitation of this study, as it prevents from drawing robust general conclusions. However, the analysed sample still allows observing some good practices, even in countries with just one submitted SEAP: for example the city of Taraz (the only submitted SEAP from Kazakhstan) was selected as a good example of calculation of the Baseline Emission Inventory, which instead was a challenge for municipalities in other countries. This suggests that from a technical point of view, the SEAP presents some good features, so the limited success of the initiative in certain countries might not be motivated by a lack of technical expertise.

The selection of SEAPs was made in order to have a balanced sample while considering the following aspects:

1. Size of the local authority
2. Regions
3. Limiting factors (e.g. objectives of the plan outside of the Covenant's scope, language)
4. Year of SEAP submission
5. SEAP development and related donor-funded projects

The selected SEAPs have been checked in relation to the ten principles described in the SEAP guidebook. The aim of the study was to identify best practices and existing challenges in the definition of local climate and energy policies in each country.

## 5.2 Main findings

### 1<sup>st</sup> Principle: Adaptation of city administrative structure

Usually signatories provide information related to the adaptation of administrative structures for the implementation of the SEAP, which in most cases is rather general and brief. It usually echoes the recommendations provided in guidelines and is not fully tailored to the particular needs of the city. Signatories that were among the first to join the CoM did not provide information on the adaptation of the city structure, probably due to lack of previous experience on this subject. On the other side, some signatories paid particular attention to the introduction of energy management systems in their cities, as there was absence of energy management practices. Examples of adequate description of the adaptation of administrative structures have been identified in some SEAPs, which presented tailored schemes for SEAP coordination and implementation envisaged by the city.

### 2<sup>nd</sup> Principle: Mobilisation of civil society

Civil society and stakeholders are usually benefitting from information and awareness raising campaigns presented in SEAPs. However, their active involvement in SEAP development and monitoring is limited and is presented in rather general terms. In some SEAPs, the stakeholders' involvement (usually energy suppliers and distributors) is focused on the support to data provision for the calculation of BEIs. In others, stakeholders are also expected to support the implementation of some measures (e.g. homeowners' associations and energy service companies that support the implementation of some measures in the building sector).

Examples of development of a comprehensive Public Outreach Strategy have been identified in a couple of SEAPs (e.g. Batumi). This Strategy aims at ensuring that major stakeholders' groups take part in the implementation of SEAP in cooperation with the local authority.

The mobilisation of civil society is generally an area for potential improvement in most of the analysed SEAPs, while from the in-depth evaluation of SEAPs from EU-28 this emerged as one of the main strengths and a key success factor for the implementation of ambitious strategies [9].

### 3<sup>rd</sup> Principle: Baseline Emission Inventory

The Baseline Emission Inventories of the analysed SEAPs are generally compliant with the Covenant requirements, although some criticalities are identified.

The main difficulties for building up a BEI are encountered for the sectors of transport, tertiary buildings and, to a lesser extent, residential buildings. This is related to the availability of local data, which are substituted by statistical data. Within the transport sector, data are particularly difficult to obtain for the private transport sub-sector, which therefore is often excluded from the scope of the BEI and of the SEAP. For municipal and public transport, data are sometimes presented in an aggregated form, as some municipalities have difficulties in disaggregating data for these sub-sectors.

In other cases, signatories decided to leave some sectors out of their BEI as they believe to have a rather limited influence upon those (e.g. on private transport).

### 4<sup>th</sup> Principle: Commitment to GHG reduction by at least 20% by 2020

Signatories from countries with low average emission levels (lower than EU average) usually set up a target of GHG emissions reduction based on a Business-as-usual scenario, which is based on projections of GHG emissions in 2020. Other signatories tend to set up a target as an absolute reduction compared to the current emissions levels, even if population changes are envisaged in the long or medium term and a per capita reduction target would be more appropriate. Signatories perceive this approach as more complex, requiring more data and calculations. To overcome this barrier, some examples

of calculation of the target on a per capita basis could be highlighted to the municipalities, explaining in which cases this approach is more beneficial.

### **5<sup>th</sup> and 6<sup>th</sup> Principles: Measures covering key sectors & Long and short-term actions**

As a rule, SEAP measures should cover the key sectors and include long and short term actions. As stated before, sometimes a key sector is excluded from the scope of the SEAP as cities consider themselves to have limited capacity to influence it. To support cities, some examples of low-cost measures in such sectors could be highlighted and promoted.

In addition, the foreseen implementation of the measures is generally not described in detail and estimations of energy savings and CO<sub>2</sub> emissions reductions are rarely provided in SEAPs. Estimates are generally provided only at the sectorial level. Some examples of SEAP measures have been identified where such calculations are presented together with assumptions for estimating their impact, although not always supported by literature references. Further guidance could be provided to cities on how to estimate the impact of their measures.

### **7<sup>th</sup> Principle: Financing**

Financing of the SEAP measures rely heavily on external resources, such as international organizations, donors and banks. Many signatories indicated that they plan to obtain additional funds from international organizations and donors. The reason for this is the limited and often insufficient local budget, which is used for co-financing projects supported by donors or banks. Although the SEAP should identify the key resources for funding the implementation of the plan, just a list of potential donors is often presented in the SEAP without providing further information. This suggests that no arrangements or commitments have been made for securing the funds at the time of SEAP development in the majority of municipalities.

### **8<sup>th</sup> Principle: SEAP approval by Municipal Council**

In countries where local authorities are not fully independent from central governments, the attention of national governments to issues of energy efficiency and sustainable development should be considered when encouraging active participation of such local authorities in the Covenant of Mayors.

### **9<sup>th</sup> and 10<sup>th</sup> Principle: SEAP submission and monitoring**

Signatories that have received support in drafting their SEAP tend to prepare the SEAP document in English, while others tend to prepare the SEAP in the national language. Developing a SEAP document in English or Russian facilitates the exchange of good practices across the countries and enhances visibility of the SEAP in the region and in the international community.

Monitoring strategies usually echo the recommendations provided in the guidelines and are not fully tailored to the needs of a particular city. They usually identify departments responsible for the implementation of each measure, but do not adequately describe how the implementation of individual measures will be monitored and followed up. Examples of adequate descriptions of SEAP monitoring processes have been identified in some SEAPs, including monitoring indicators for individual actions.

## **5.3 Final Conclusions**

The analysis of 14 SEAPs from CoM East countries has generally revealed a good compliance with the key commitments, in terms of definition of the target by 2020, the calculation of the emission inventory, and the definition of actions in the key sectors of activity. These are also the main aspects evaluated in the course of the standard evaluation of SEAPs by the JRC. However, in some cases, cities limit the scope of their SEAP by excluding one out of four key Covenant sectors as they are not sure it falls within their remit. More guidance could be provided to cities to help them address in an

efficient and effective way all the key sectors of activity, by raising their awareness on the possibility to set a target based on a Business-as-usual scenario or a per capita target and on the possibility to plan low-cost measures with a considerable emission reduction potential. To this end, the dissemination of best practices among fellow Covenant Signatories could be advantageous. Also, a greater involvement of national governments (which could provide technical or financial support and enabling conditions by improving the policy framework) could allow for a more incisive action at the local level.

Regarding aspects related to governance (e.g. the adaptation of administrative structures, the mobilisation of civil society, the financing of actions or the SEAP monitoring process), the evaluated SEAPs generally show some weaknesses. SEAP-related processes are often described in general terms, without presenting tailor-made strategies to ensure citizens' and stakeholders' participation or assigning clear roles and responsibilities to municipal officers. Often the SEAP development task is assigned to external consultants and/or financed by international donors: this may somehow reduce the sense of ownership of the SEAP by the local authority itself and consequently fail to ensure the necessary political support to the SEAP as a long-term strategy.

The good practices identified through the present study and described in the Annexes may inspire other CoM signatories in the Region. Future analyses could concentrate on the actual implementation of the SEAPs, based on monitoring reports, to identify the key success factor as well as the limiting factors influencing SEAP implementation in different countries.

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## List of abbreviations and definitions

AM	Armenia
AZ	Azerbaijan
BEI	Baseline emission inventory
BY	Belarus
CA	Central Asia
CoM East	Covenant of Mayors in Eastern Partnership and Central Asian countries
CoM	Covenant of Mayors
EaP	Eastern Partnership
EC	European Commission
EE	Energy Efficiency
EU	European Union
GE	Georgia
GHG	Greenhouse gases
JRC	Joint Research Centre
KG	Kyrgyzstan
KZ	Kazakhstan
LA	Local authorities
MD	Moldova
MUNC	Municipal buildings or municipal fleet
PRIV	Private transport
PUBL	Public transport
RESD	Residential buildings
SEAP	Sustainable Energy Action Plan
TERT	Tertiary (non-municipal) buildings
TJ	Tajikistan
UA	Ukraine



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## Annexes

### Annex I. Example of Setting up the target based on a business as usual scenario: City of Artik (AM)

#### **Example Artik, Armenia (19560 inh.)**

The target of 20% is set on basis of **business as usual scenario** (percentage of quantity of CO<sub>2</sub> emissions in the year 2020 )

Data: Total emissions in the baseline year 2012 are equal to 11310 tCO<sub>2</sub>\*

#### Estimations:

1<sup>st</sup> step Emissions in 2020 are estimated on basis of business as usual scenario. For this, baseline year emissions (i.e., 11310 tCO<sub>2</sub>) are multiplied by the country specific coefficient, which is 1.25 (Janssens-Maenhout, et al., 2012) for Armenia for the year 2012. As a result, emissions in 2020 are expected to be 14137 tCO<sub>2</sub> in a BAU scenario.

2<sup>nd</sup> step The target of 20% is calculated as percentage of 20 out of the total emissions in the year 2020 (i.e. 14137 tCO<sub>2</sub>), which equals 2828 tCO<sub>2</sub>.

Results: Artik needs to reduce its annual CO<sub>2</sub> emissions by 2828 tCO<sub>2</sub> by 2020.

\*[http://www.covenantofmayors.eu/about/signatories\\_en.html?city\\_id=7068&seap](http://www.covenantofmayors.eu/about/signatories_en.html?city_id=7068&seap)

## **Annex II. Example of Adapting Administrative Structure: city of Chernivtsi (UA)**

For the SEAP realization, Chernivtsi City Council adopted "The Concept on Introduction of Power Management System in Chernivtsi". For the implementation of the Concept, Chernivtsi City Council developed and approved "The Regulation on Information Collection as for Energy Resources and Water Consumption by the Chernivtsi Budgetary Municipal Institutions".

The present Regulation aims at providing organizational support to introduce a constantly operating system of dynamic supervision in order to receive information on energy consumption in the budgetary city institutions. Information from the daily energy meters readings allows for an analysis and assessment of the main indicators on the energy consumption by the city institutions. In accordance with the Regulation, an organizational and executive structure headed by the deputy mayor and an organizational and administrative structure has been set up. Its purpose is to take daily energy meters readings, analyse the corresponding information and avoid over-expenditure and inappropriate use of energy resources.

The city council departments of education, culture, health care, physical education and sport, social protection of population have been engaged in the system of power management in order to organize accounting of energy consumption. The mentioned department supervises 140 establishments, 255 buildings. The total number of workers involved in monitoring the consumption of energy resources is 140.

### Annex III. Example of BEI calculation: city of Taraz (KZ)

The BEI for the City of Taraz is considered as a good example from CoM East countries as it provides details for subsectors such as municipal fleet and public transport. Where local data are not available, statistical data are used (Tertiary buildings). While this is not ideal, it is considered an acceptable compromise and a good starting point to plan energy efficiency and renewable energy measures. All the tables below are taken from the SEAP of the City of Taraz.<sup>24</sup>

#### MUNICIPAL BUILDINGS EQUIPMENT/FACILITIES

The municipal existing building stock is made up of different structures over which the Municipality has a direct management. Through data provided by the Municipality, it's possible to evaluate the following emissions.

Identification	Dimensional Data	FUEL		Energy Consumption		Certified green electricity purchases		Heat / cold thermal energy purchases		CO <sub>2</sub> -eq Emission (ton/yr)		CO <sub>2</sub> -eq Total Emission (ton/yr)
	Net Volume (m <sup>3</sup> )	Consumption* (m <sup>3</sup> ; litre; kg; kWh)	TYPE	Electric Energy (MWh/yr)	Fuels (MWh/yr)	% of electric energy consumption	Emission factors (t/MWh) (only for LCA approach)	Heat / cold Energy (MWh/yr)	Emission factors (t/MWh)	Electric Fuel	Heat/cold	
			-	10.690,30	42.975,65			0,00		Electric Fuel	16.120,97	26.924,83
Kindergartens, nursery, elementary, middle and junior high schools		1.301.500	Natural Gas	8.225,70	12.463,16				0,23	Electric Fuel	12.404,35	14.921,91
		2.012.486	Other Bituminous Coal		14.489,90				0,23	Electric Fuel	2.517,56	4.941,06
Municipal buildings (offices)		167.200	Gas oil, diesel	1.137,00	1.672,00				0,23	Electric Fuel	4.941,06	2.161,02
		1.069.599	Natural Gas		10.242,48				0,23	Electric Fuel	1.714,00	2.068,98
Municipal facilities		429.000	Natural Gas	1.327,60	4.108,10				0,23	Electric Fuel	446,42	2.831,86
			-		0,00				0,23	Electric Fuel	2.068,98	0,00

#### TERTIARY BUILDINGS EQUIPMENT/FACILITIES

The activities in the tertiary sector are grouped in three different areas and their consumptions have been estimated by statistical data.

Identification	Dimensional Data	FUEL			Heat/cold thermal energy purchases		Consumption (MWh/yr)	CO <sub>2</sub> -eq Emission (ton/yr)		CO <sub>2</sub> -eq Total Emission (ton/yr)
	Net Volume (m <sup>3</sup> )	Consumption* (m <sup>3</sup> ; litre; kg; kWh)	TYPE	Consumption (MWh/yr)	Heat/cold Energy (MWh/yr)	Emission factors (t/MWh)	Electric Energy (MWh/yr)	Electric Fuel	Heat/cold	
	0,00			464.271,90	100.594,00		65.827,66	Electric Fuel	99.268,10	251.531,08
Tertiary Buildings (served by Zhambylskie electricheskie set)		52.000,00	Natural Gas	497,95				Electric Fuel	129.208,04	5.969,87
		0,00	-	0,00	424	0,23	3.828	Electric Fuel	5.772,10	
		0,00	-	0,00				Electric Fuel	100,59	
Tertiary Buildings (served by TarazEnergocenter)		12.000.000,00	Natural Gas	114.912,00				Electric Fuel	97,18	93.496,00
		23.928.480,00	Other Bituminous Coal	172.285,06	100.170	0,23	62.000	Electric Fuel	129.107,46	245.561,21
		17.657.689,00	Gas oil, diesel	176.576,89				Electric Fuel	22.957,76	

#### MUNICIPAL PUBLIC LIGHTING

The public lighting system in 2012 made use different types of bulbs and no light flux regulators were installed.

Identification	Classification			Lighting hours* (h/yr)	Grid loss** (%)	Certified green electricity purchases		Reduction for light flux regulation*** (%)	Electric Energy Consumption [MWh/yr]	CO <sub>2</sub> -eq Emission (ton/yr)
	Lamps Number	Lamp Power [Watt]	Typology			% of electric energy consumption	Emission factors (Ton/MWh) (only for LCA approach)			
TOTAL	10.882		-						9.194,40	13.865,16
174 streets 12 microdistricts 4 residential array	10.882		LED -906, energy saving -350, sodium - 9626						9.194,40	13.865,16

<sup>24</sup> [http://www.covenantofmayors.eu/about/signatories\\_en.html?city\\_id=6365&seap](http://www.covenantofmayors.eu/about/signatories_en.html?city_id=6365&seap)

## MUNICIPAL FLEET

Municipal fleet has the lower impact in terms of CO<sub>2</sub> emissions. Data have been directly collected from municipal registers.

Identification	Mileage [km/yr]	Energy Performance* [km/l] or [km/kg] or [km/kWh]	FUEL	Energy Consumption		CO <sub>2-eq</sub> Emission		CO <sub>2-eq</sub> Emission
				Electric Energy [MWh/yr]	Fuels [MWh/yr]	Electric Energy [ton/yr]	Fuels [ton/yr]	[ton/yr]
TOTAL				0,00	687,43	0,00	178,58	178,58
10 cars	300.000	10	Motor Gasoline	0,00	276,00	0,00	68,72	68,72
12 cars	240.000	14	Gas oil, diesel	0,00	171,43	0,00	45,77	45,77
4 vans	120.000	5	Gas oil, diesel	0,00	240,00	0,00	64,08	64,08

## PUBLIC TRANSPORTATION

Data have been directly collected from the local public service

Identification	Number of vehicles	Average vehicle mileage [km/yr]	Energy Performance* [km/l] or [km/kg] or [km/kWh]	FUEL	Energy Consumption		CO <sub>2-eq</sub> Emission		CO <sub>2-eq</sub> Emission
					Electric Energy [MWh/yr]	Fuels [MWh/yr]	Electric Energy [ton/yr]	Fuels [ton/yr]	[ton/yr]
TOTAL					5.416,67	227.987,00	8.168,33	60.829,06	68.997,39
PAZ - 3205	348	125.000	3	Gas oil, diesel	0,00	130.500,00	0,00	34.843,50	34.843,50
Shaolin, Mudan, Golden Dragon, FAW,	367	120.000	6	Gas oil, diesel	0,00	79.272,00	0,00	21.165,62	21.165,62
Mercedes - Benz	36	27.778	7	Gas oil, diesel	0,00	1.500,00	0,00	400,50	400,50
Asia, KiaKombi	30	180.000	5	Gas oil, diesel	0,00	10.800,00	0,00	2.883,60	2.883,60
Setra	18	55.556	3	Gas oil, diesel	0,00	3.500,00	0,00	934,50	934,50
LAZ - 695	5	150.000	3	Motor Gasoline	0,00	2.415,00	0,00	601,34	601,34
Trolleybus	13	125.000	0	Electric Energy	5.416,67	0,00	8.168,33	0,00	8.168,33

#### **Annex IV. Example of evaluating the impact of measures: city of Gori (GE)**

The SEAP of Gori includes a large variety of measures, whose impact is estimated in terms of CO<sub>2</sub> emissions reduction and energy savings.

**Example:** *Gori, Georgia (75000 inh.)*

*Activity: Developing Foot and Bike Paths\**

*According to the Mitigation Measures Manual for the Transport Sector\*\*, a 2-kilometer walk or bike ride can reduce emissions by 417 grams of CO<sub>2</sub>eq. [...]. According to a conservative estimate, at least 30% of 1-3 km distances will be covered on foot or by bike by 2020 in Gori or about 5% of total transportation. Private vehicles covered about 133.4 million km in 2012; this figure will reach 175.3 million by 2020. Therefore, about 2.63 million km. of the total amount of distance travelled by private vehicles and public transport can be saved, resulting in 562 tons of CO<sub>2</sub>eq. reduction.*

[\*] This example is selected from Gori SEAP, accessed at the Covenant of Mayors website on 02/05/2016.

[http://www.covenantofmayors.eu/about/signatories\\_en.html?city\\_id=6039&seap](http://www.covenantofmayors.eu/about/signatories_en.html?city_id=6039&seap)

[\*\*] *Technologies for Climate Change Mitigation – Transport Sector, UNEP Risoe Center, 2011. <http://tech-action.org/>*

## **Annex V: Example of strategy of stakeholders' involvement: city of Batumi (GE)**

The Public Outreach strategy is divided into different areas, depending on the main strategic goals and target groups. They also include activities to be implemented, leading organizations, expected results and potential donors. A brief summary of this strategy is presented below.

In addition to staff training and activities directed to behavioural changes of the Batumi population, the following activities are foreseen:

### **1. Public awareness raising**

- Preparing informational materials for the city population about the measures and technologies that improve the residential environment for the population and will save their expenses on energy consumption.
- Systematic meetings with the population and training officers in the condominiums.
- Inclusion of the population in design and implementation of the pilot projects.

### **2. Informing Batumi administrators and officers about advantages and perspectives of city's energy efficiency and socio-economic profitability of this initiative.**

- Organization of information-sharing seminars for the representatives of Batumi Mayor's office
- Council (Sakrebulo) on advantages and perspectives of city's energy efficiency.
- Facilitation of staff participation at the Mayor's office and Council (Sakrebulo) in the national and international events and conferences within CoM.
- Inclusion of the mass media representatives in the high-level meetings within CoM to inform the public about the ongoing processes.
- Ensuring the decision-making process in the framework of CoM is carried out through consultations with the interested parties.

### **3. Inclusion of the private sector in achieving SEAP goals**

- Funding the annual exhibition/festival of innovation and technologies in Batumi. One of the goals of the event should be informing the private sector about the opportunities on the modern technological market.
- Attracting the private sector with various promotional mechanisms in using innovative technologies (for example, certain tax benefits in the payment of local taxes for the companies which will implement energy saving and innovative technologies.
- Creating a stimulus for research for the educational organizations and private sector.
- Consultation service for the private sector for risk reduction.
- Establishing various funds for promoting the implementation of new technologies.
- Promoting the establishment of the private sector initiative group, to support the inclusion of this sector in CoM processes.

### **4. Consultations with the interested parties on introducing new measures and standards**

- Clarifications and consultations on measures and standards, necessary for SEAP implementation, improving socio-economic conditions in Batumi and attracting more tourists, are systematic.
- The non-governmental sector is actively working with the population and various target groups.
- Mass-media are actively included in the activities and the socio-economic benefits are clarified.



## **5. Identification of the barriers together with the interested parties**

- Identification of possible barriers accompanying the process of introducing new measures and various standards with the interested parties.
- Identification of barriers on implementing standards and regulatory measures for SEAP implementation in consultation with the population.
- Designing the measures for overcoming these barriers in consultation with various target groups (for example a gradual introduction of these restrictions could be envisaged).

## **6. Raising awareness of the decision-makers and the private and public sector representatives on the role of regulatory measures and standards in ensuring sustainable energy efficiency**

- Informing the decision makers about the best international practices.
- Including the decision makers in the international processes related to CoM and low emission development.
- Raising awareness of the decision-makers on the role of regulatory measures and standards in ensuring sustainable energy efficiency, an attention should be paid to the necessity of energy efficiency consumption for Georgia for ensuring energy independence.

When discussing the regulatory measures and standards in the media or when informing private sector representatives, attention should be paid to social and environmental issues and to the promotion of tourism.

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