



Creating a sustainable and resource efficient future: A methodological toolkit for municipalities



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ABSTRACT

Translating resource efficiency into practical European, national and local policy frameworks which integrate the various economic, social and environmental components passes through short to long term visions, strategies as well as measurable targets.

The RE-SEETies project was funded by the South East Europe programme in order to contribute to the resource efficiency challenge. The project investigated on energy consumption and waste production and disposal; potential changes in consumption patterns and how policy making alternatives may support the achievement of resource efficiency targets.

This paper aims to present the main results of this unique international cooperative experience carried out by research centres and municipalities in the South East Europe area.

First, the paper focuses on the methodological toolkit and criteria for assessment which aims to support municipalities in creating a sustainable and resource efficient future through coherent and appropriate planning practices.

Second, the paper discusses the main results obtained and lessons learned on a wide range of interrelated issues covering the policymaking process, financing of local resource-efficiency investments, good practices, tools to support decision-making and assessment methodologies. It also covers behavioural change and how policy can stimulate public authorities, companies and citizens to become more sustainable.

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1. Introduction

The depletion of endogenous resources, the growing dependence of the European economy on imported resources (both “direct” such as fuels and materials and “embedded” in imported goods) and the growing global demand has led to an increase of the environmental and economic pressure [1].

Resource efficiency is an important part of the overarching concept of sustainable development and deals with “using the Earth’s limited resources in a sustainable manner while minimising impacts on the environment” [2].

The resource-efficient Europe flagship initiative [3] is part of the Europe 2020 Strategy [4], the EU’s growth strategy for a smart, inclusive and sustainable economy. The recent communication of the Commission “Towards a Circular Economy” [5], points out the necessity to move from a linear economy where resources are simply extracted, used and thrown away to a circular economy where resources are put back in the loop. To this end, the Commission intends to include new waste targets and indicators to monitor resource efficiency, new policies to boost recycling and prevent the loss of valuable materials, and new initiatives to create green jobs and support eco-entrepreneurs.

Cities are central to achieve such ambitious targets and support the shift towards sustainable growth via a resource-efficient, low-carbon economy. As a matter of fact, more than two-thirds of the European population lives in urban areas and most activities related to production and consumption of goods and services are concentrated in cities. Trends of energy consumption [6] and waste generation [7] at urban scale are expected to increase steadily in the future as well as cities’ contribution to global emissions of greenhouse gases, which currently accounts for about 80% of the global GHG emissions [8].

On the other hand, cities and towns are drivers of ambitious movements such as the Local Government Climate Roadmap [9], the Covenant of Mayors [10] or the carbonn City Climate Registry [11]. They are also incubators of innovation, since European, national and regional policies are not only implemented, but adapted towards the local context.

Therefore, moving towards resource efficiency demands a technological and socio-cultural shift within cities. This means a reorganisation of urban functions addressing both the build infrastructure (e.g. construction of smart grid) and how resources are used (e.g. promoting opportunities of urban mining, reuse and upcycling) [12].

South East European cities are characterised by the highest energy intensities in Europe (i.e. the energy used for the production of a unit of work), high dependence on import, large use of coal (which has rather strong negative impact on the environment) and mostly old-fashioned production plants but very little investment and priority are being given to the increase of energy efficiency [13]. Moreover, there are still many constraints (political,

technological, financial, legislative, educational, etc.) to the development of renewable energy sources in order to contribute to the regional energy supply and security [13].

Regional cooperation is thus essential for increasing prosperity and economic growth of South East Europe (SEE) in order to make better, faster progress towards European integration [14]. Suited measures should be promoted to support the establishment of sustainable communities and regions in these countries contributing to the reduction of their per capita use of natural resources and waste production. According to the SE European Energy Community Treaty [15], parties to the Treaty (Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Former Yugoslav Republic of Macedonia, Albania, Romania, Bulgaria and the Interim UN Administration for Kosovo–UNMIK) are obliged to implement reforms in the energy and environmental sector in accordance with the European Union’s respective policy. This means that SEE countries are also required to systematize on key issues, such as limitations of emissions of certain air pollutants from large combustion plants, the Kyoto Protocol, and renewable energy which is considered crucial for climate change mitigation.

Until now the response of parties in SEE to the Energy Community Treaty has generally been at a low level [16], pointing out the need for cities in this geographical area to progress in the area of resource efficiency.

A significant contribution in this direction was provided by a recently-concluded project, RE-SEETies “Towards resource efficient urban communities in SEE” [17], aimed at preparing the South East European cities to cover the expected rise in energy demand and resources consumption through sustainable local strategies and action plans.

The RE-SEETies project involved partners from Croatia, Greece, Hungary, Italy, Macedonia, Romania, Slovakia and Slovenia. In particular five knowledge institutions (CNR-IMAA–IT, CRES–EL, Energiaklub–HR, MACEF–MK and REGA–HR) and eight partner cities (The Local Government of Budapest District 18–HR, Municipality of Aigaleo–EL, Municipality of Potenza–IT, City of Nitra–SK, City of Skopje–FYRM, Harghita County Council–RO, City Municipality Ptuj–SI, City of Ivanic-Grad–HR) worked together with the long-term vision to turn SEE cities into resource efficient urban communities.

An innovative aspect of RE-SEETies deals with a comprehensive overview of urban energy and waste management systems in this area of Europe, proposing an integrated, transnational approach to promote renewable energy sources and energy efficiency as well as waste valorisation in municipalities. The project contributed to the development of policies for sustainable energy supply and resource efficiency, setting up joint waste-and-energy strategies, stimulating energy efficiency and the development of renewables.

One of the key results of this cooperative effort is an integrated methodological toolkit which specifically support cities in evaluating the energy efficiency potential, RES penetration and GHG

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