



**DEPARTMENT OF INTERNATIONAL AND  
EUROPEAN ECONOMIC STUDIES**

**ATHENS UNIVERSITY OF ECONOMICS AND BUSINESS**

# **TRANSFORMING CITIES TOWARD SUSTAINABILITY TRANSITION**

**PHOEBE KOUNDOURI**

**LYDIA PAPADAKI**

## **Working Paper Series**

**20-03**

**March 2020**

## Transforming cities toward Sustainability transition

Authors:

**Prof. Phoebe Koundouri**, Athens University of Economics and Business, Director EIT Climate-KIC Greece, co-chair UN SDSN Greece

**Lydia Papadaki**, researcher, manager UN SDSN Greece

By 2050, it is foreseen that over two thirds of the world's population will live in urban areas, increasing so the burden on the urban centres to meet the basic needs of citizens and provide clean water, safe food and energy to everyone. The only way to make the metropolitan areas viable is considering the negative effects of environmental degradation in all human activities, from access to fresh air and safe food to biodiversity losses and food chain disruptions. Therefore, it is urgent that we make every effort to make cities sustainable, low carbon, and climate resilient, in other words livable for the citizens.

On top of the high urbanization levels another constraint on city planning is the climate change issue. According to the IPCC report (2018) <sup>1</sup> warming from anthropogenic emissions from the pre-industrial period to the present will persist for centuries to millennia and will continue to cause further long-term changes in the climate system, such as sea level rise followed by associated impacts. Hence, climate change is a parameter that must be also considered in city planning, while achieving the SDGs signed by all 193 countries could facilitate the transition to a sustainable future and minimize the catastrophic effects of climate change on humankind.

On 25 September 2015, after many years of discussion and consultation, all 193 countries finally agreed and signed the Sustainable Development Goals (SDGs) and make the commitment to achieve them by 2030. The reporting and the implementation of the SDGs are two major priorities of the Sustainable Development Solutions Network, a UN agency working closely with United Nations agencies, multilateral financing institutions, the private sector, and civil society. The 2019 SDG Index and Dashboards Report for European Cities <sup>2</sup> shows that no capital cities and large metropolitan in Europe has achieved the SDG's, with Athens being the only European city with an overall SDG Index score which is below 50%. However, in a country level Greece's SDG Index score in 2019 <sup>3</sup>was 71.4 ranking the country as 50<sup>th</sup> in the global scale.

---

<sup>1</sup>IPCC, 2018: Summary for Policymakers. In: *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P. R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)]. *World Meteorological Organization, Geneva, Switzerland, 32 pp.*

<sup>2</sup> Guillaume Lafortune, Kees Zoeteman, Grayson Fuller, Rens Mulder, John Dagevos and Guido Schmidt-Traub. (2019). *The 2019 SDG Index and Dashboards Report for European Cities (prototype version)*. Sustainable Development Solutions Network (SDSN) and the Brabant Center for Sustainable Development (Telos).

<sup>3</sup> Sachs, J., Schmidt-Traub, G., Pulselli, R.M., Gigliotti, M., Cresti, S., Riccaboni, A. (2019): *Sustainable Development Report 2019 – Mediterranean Countries Edition*. Siena: Sustainable Development Solutions Network Mediterranean (SDSN Mediterranean).

EIT Climate-KIC is Europe's largest public-private innovation partnership focused on climate change, helping to transform cities into sustainable and resilient communities. A decarbonized and sustainable economy is not only necessary to prevent catastrophic climate change effects, but also can reveal unexplored wealth potential for business and society. The newly established EIT Climate-KIC Hub Greece is composed by a consortium of various organisations across the knowledge triangle. The hub is a focal point for organisations from across business and entrepreneurship, higher education, and research and technology, supporting knowledge sharing and integration and accelerating the journey of solutions from the lab through to market. In particular, the EIT Climate KIC Hub is bringing to surface the potential of Greece for innovative solutions in CleanTech, WaterTech, Circular Economy & innovative financing innovative financing schemes.

EIT Climate-KIC supports this vision engaging both citizens and city stakeholders through two main programmes: Climathon and Smart Sustainable Districts. Climathon is a global movement dedicated to solving the toughest climate challenges cities face today, through a 24-hour hackathon taking place simultaneously in major cities around the world. Citizens, city officials and partners connect under a shared vision for a healthier city and try to find innovative solutions. The winning idea is then supported by the municipality, which in collaboration with EIT Climate-KIC Greece will facilitate the implementation of the idea in the city.

Complementary, Smart Sustainable Districts initiative supports city stakeholders to develop and deliver transformative sustainability projects at a city-district scale through a collaborative approach involving all stakeholders in tackling simultaneous challenges – unlocking radical, environmental, social and economic benefits for communities. Both programmes follow a bottom-up approach, as working at the city-district scale brings the complexity of whole-city urban challenges down to a more viable neighbourhood unit, which can later be scaled back to city-wide implementation.

As stated above innovation in combination with stakeholders' engagement could drive even an unlikely candidate such as a medium sized city in Greece's agricultural heartland to become a leading smart city. Trikala with population approximately 82,000 became Greece's first smart city with technology innovation not only improving lives, but increasing transparency and efficiency, necessary steps for any change to be achieved. Screens on walls display colourful maps and graphs monitoring the availability of parking spaces, the status of traffic lights and water pipes, the location of rubbish trucks and the town hall's monthly budget. However, what is outstanding in the case of Trikala is the shift in people's mindset with more and more being interested into IT and share the common vision of Sustainability.

Another technology implemented in Trikala as well is the CPHSense service platform for air quality monitoring by Leapcraft aiming at monitoring, benchmarking and analyzing a wide range pollutants and noise at a fraction of the cost of conventional methods. As stated in the

---

Air Solutions report (2019)<sup>4</sup> in order to reduce air pollution, air pollution levels need to be quantified. Hence, this innovative platform in combination with adequate policies and stakeholders' engagement could drive significantly the clean air levels in the city. Trikala also aims to join the EU's Activage programme, which tests smart houses that monitor elderly residents' health by detecting movement and food consumption.

Circular economy (CE) can be the key element to a systematic transition to a net zero carbon emissions future, as it focuses on re-designing the way our economy works designing products that can be 'made to be made again'<sup>5</sup> and powering the system with renewable energy. Creativity and innovation are core concepts in circular economy enabling win-win solutions to take place and people think "out of the box". Transitioning to a circular economy is not about decarbonizing the economy and eliminating the negative effects of the linear economy. Rather, it aims at a radical transformation of the society building long-term resilience

As part of its continuous effort to transform Europe's economy into a more sustainable one, the European Commission launched in December 2015 the Circular Economy Action Plan. This ambitious plan for the adoption and implementation of the circular economy estimates that by 2030 the integration of CE will result in savings of over 600 billion euros for firms within EU, will create 580,000 new jobs and will contribute to the reduction of 450 million tons greenhouse gases. Key players in Europe's transition to a circular economy are the Member States, where adopting CE in each country should be aligned with its strategic documents and identified sectoral strengths and needs, set in the individual country's Smart Specialisation Strategies (S3). Greece with the support of EIT Climate-KIC will pilot the adoption of CE in their respective S3s, in collaboration with the responsible authorities. Challenges, priorities, opportunities and potential synergies within the country will be identified, while experts from Greece and EU will lead the implementation steps.

The acceleration of urban sustainability transition is urgent, and we should not procrastinate. Networks such the UN SDSN and the EIT Climate-KIC support this transition with numerous schemes, while circular thinking can be the key aspect to a city transformation. Cases such as Trikala, a small Greek city, show that any city can achieve sustainability transition aligning economic growth, social development and environmental protection if people are willing to collaborate towards achieving a common goal.

---

<sup>4</sup> Martin Eriksson, Usva Salvi and Maria Svane. (2019). Air Solutions report. Sustainable Development Solutions Network Northern Europe, SDSN NE, in collaboration with the Gothenburg Air and Climate Network (GAC) and the Swedish National Committee for Global Environmental Change.

<sup>5</sup> Ellen MacArthur Foundation. (2017). Available at: <https://www.ellenmacarthurfoundation.org/circular-economy/concept>