Republic of Serbia
Ministry Of Agriculture And
Environmental Protection

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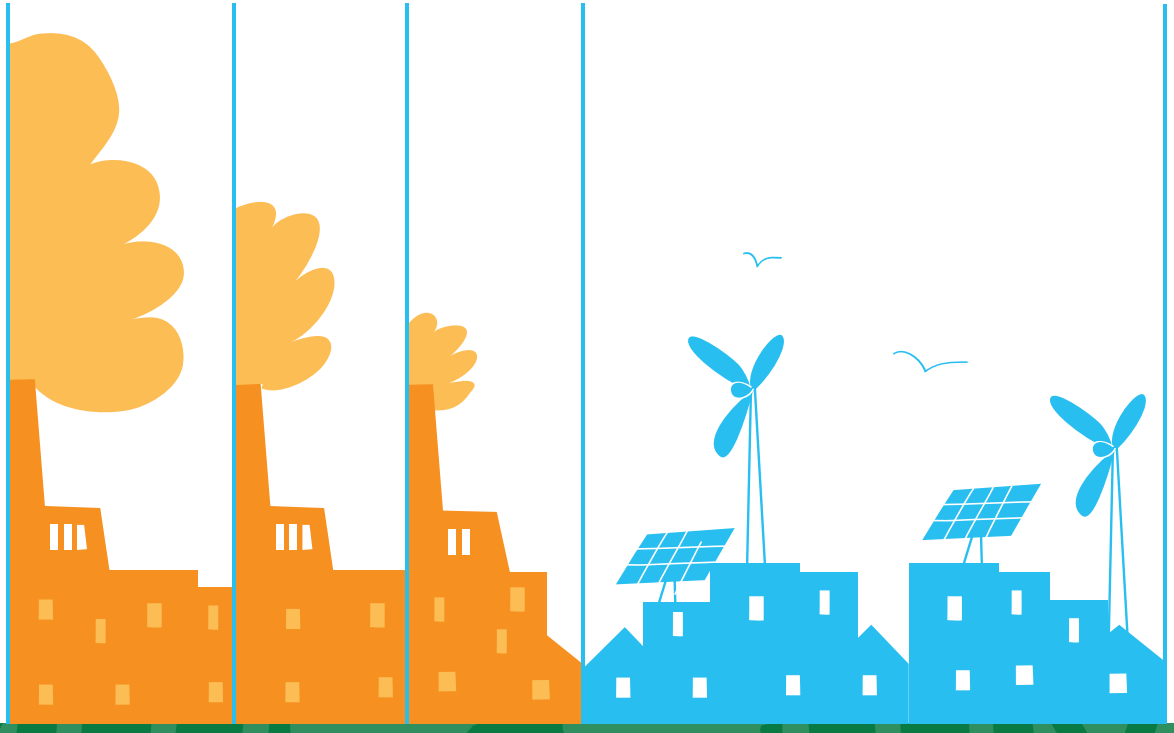

# CLIMATE SMART URBAN DEVELOPMENT CHALLENGE

United Nations Development Programme

| | |
|---|---|
| UNDAF Outcome(s): | By 2020, there are improved capacities to combat climate change and manage natural resources and communities are more resilient to the effects of natural and man-made disasters |
| UNDP Strategic Plan Environment and Sustainable Development Primary Outcome: | Outcome 5 - Countries are able to reduce the likelihood of conflict, and lower the risk of natural disasters, including from climate change |
| UNDP Strategic Plan Secondary Outcome: | Outcome 1 - Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded |
| Expected CP Outcome(s):<br>*(Those linked to the project and extracted from the country programme document)* | By 2020, there are improved capacities to combat climate change and manage natural resources and communities are more resilient to the effects of natural and man-made disasters |
| Expected Output(s):<br>*(Those that will result from the project and extracted from the CPAP)* | Output 1: Capacities for policy-making and implementation of international agreements improved<br><br>Output 2: Climate change mitigation and adaptation measures implemented in key sectors, at national and local level |
| Implementing Partner: | Ministry of Agriculture and Environmental Protection |
| Responsible Parties: | Ministry of Agriculture and Environmental Protection, UNDP |

## Brief Description

The objective of the project is to promote climate-smart urban development. By a challenge prize approach it seeks to actively engage the civil society, public and business communities to come up with new and innovative ideas on how to contribute to this in practice and to jointly develop, finance and implement these ideas further. Broader and more effective use of new information and communication technologies (ICT) to enable and spearhead innovation and productivity gains, optimization of the resource use (e.g. by improved energy efficiency and resource sharing), reduction of physical mobility needs, more attractive public and non-motorized transport, increased use of renewable energy sources, climate smart waste management (improved recycling schemes and waste to energy) and other measures contributing to climate change mitigation are among the topics to be considered in this context.

# Context and global significance

1. As concluded by the 5th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) released at the end of 2014, "Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases (GHGs) are the highest in history". Although not being a major emitter of GHGs in the global context, Serbia belongs to the top 5 GHG emitting countries of the South-Eastern European region with estimated 45,3 million tonnes of CO2eq in 2013. [1]

## Climate Change in Serbia

2. Serbia submitted its Intended Nationally Determined Contribution (INDC)[2] to the UNFCCC on June 30th, 2015 prior to the Paris CoP 21 with a pledge to reduce its GHG emission by

Table 1.1 Total GHG emissions and related indicators in 2013 for selected South-Eastern European countries (Source: IEA Key World Energy Statistics 2015).

| **Country** | **$CO_{2eq}$** | **$CO_2$/TPES** | **$CO_2$/Population** | **$CO_2$/GDP** | **$CO_2$/GDP(PPP)** |
|---|---|---|---|---|---|
| | Mtons | $tCO_2$/toe | $tCO_2$/capita | $kgCO_2$/USD(2005) | $kgCO_2$/USD(2005) |
| Albania | 3,64 | 1,57 | 1,26 | 0,34 | 0,14 |
| Austria | 65,13 | 1,96 | 7,68 | 0,19 | 0,21 |
| Bosnia and Herzegovina | 21,50 | 3,33 | 5,62 | 1,65 | 0,75 |
| Bulgaria | 39,32 | 2,33 | 5,41 | 1,13 | 0,43 |
| Croatia | 16,01 | 2,07 | 3,76 | 0,36 | 0,23 |
| Greece | 68,89 | 2,94 | 6,25 | 0,34 | 0,31 |
| Hungary | 39,50 | 1,75 | 3,99 | 0,35 | 0,22 |
| FYR Macedonia | 8,30 | 2,97 | 3,94 | 1,10 | 0,41 |
| Moldova | 6,70 | 2,18 | 1,88 | 1,66 | 0,47 |
| Montenegro | 2,27 | 2,72 | 3,66 | 0,78 | 0,34 |
| Romania | 68,84 | 2,16 | 3,45 | 0,57 | 0,28 |
| **Serbia** | **45,31** | **3,04** | **6,33** | **1,60** | **0,64** |
| Slovakia | 32,38 | 1,88 | 5,98 | 0,50 | 0,27 |
| Slovenia | 14,34 | 2,09 | 6,96 | 0,37 | 0,28 |
| Ukraine | 265,05 | 2,51 | 5,83 | 2,72 | 0,77 |
| *OECD* | 12 038,00 | 2,27 | 9,55 | 0,30 | 0,30 |

[1] http://www.iea.org/publications/freepublications/publication/KeyWorld2015.pdf

[2] http://www4.unfccc.int/submissions/INDC/Published%20Documents/Serbia/1/Republic_of_Serbia.pdf

9,8% from the 1990 level by 2030. This is going to be achieved by reducing emissions in key emitting sectors, such as energy production/consumption, agriculture, waste management, transport. Besides taking actions at the national level, there is a huge untapped mitigation potential at the municipal level, including the improvement of local communal services, local industry, businesses etc. The climate change strategy and action plan to be finalized in 2018 is expected to further define the precise activities, methods and implementation deadlines.

3. Serbia's First Biennial Update Report (FBUR) and Second National Communication under the UNFCCC, including updated information on national circumstances, GHG inventories and climate change mitigation and adaptation measures, as well on identified constraints, gaps, financial, technology and capacity building needs, have been completed.

4. According to the GHG inventory for 2013 presented in both the FBUR and the SNC, the energy sector and the combustion of fossil fuels in particular remained the biggest source of GHG emissions in the country accounting for 79,4% of total GHG emissions. From all energy sector GHG emissions, 69,1% were originating from energy industries, 11,7% from transport, 7,7% from manufacturing industries and construction and 5,9% from other sectors. The remaining 5.5% were fugitive emissions out of which 60,7% from oil and natural gas and 39,3% from solid fuels. As input data, the official data published by the Statistical Office of the Republic of Serbia energy balances was used.By including also the non-energy-related GHG emissions, the agriculture, forestry and other land use (AFOLU) were estimated to be responsible for 10.6% of total GHG emissions (excl. removal by sinks), the waste sector 5,1% and the industrial processes 4,8%. The removal of CO2 by sinks by the forestry sector and the use of harvested wood products corresponded to about one fourth of the total gross GHG emissions of the country.

5. For future GHG emissions, three scenarios were developed, including: i) "a basic scenario", ii) "a scenario with measures" and iii) "a scenario with additional measures". Projections in the FBUR were made until 2020 and in the SNC until 2030 with long term projections until 2050. The basic scenario foresees the implementation of policies and measures that were in force in 2010. The "scenario with measures" assumes improvements in the implementation of existing policies and measures so that the current objectives and obligations of the state would be achieved. The"scenario with additional measures" consist of complementary targets leading to further reduction in final energy consumption and related GHG emissions.

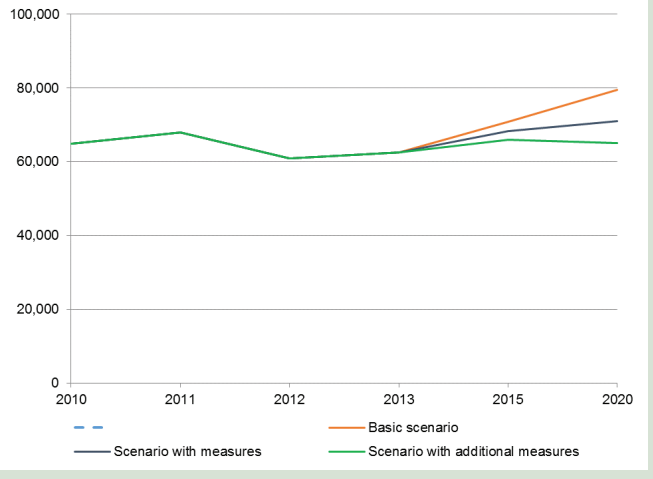


Figure 1.1 Three GHG emission scenarios, as presented in the FBUR

6. Increasing the share of renewable energy, improved energy efficiency and modernization of industrial processes were foreseen as key areas for the reduction of energy related GHG emissions, while in the agriculture sector further development of livestock supplies was envisaged. For the waste management sector, a target was set to double the recycling rate by

establishing a number of regional centers with waste separation plants and increasing the amount and capacity of recycling centers. This is to be complemented by the construction of new plants for mechanical-biological treatment of municipal waste, facilities for anaerobic digestion and waste combustion. Specific activities to reduce GHG emissions were developed and identified as NAMA projects.

## Serbian focus on mitigating climate change through actions at municipal level

7. Municipalities are the basic entities of local self-government in Serbia. Each municipality has its assembly (elected every 4 years in local elections), the mayor, municipal council (executive bodies), and municipal administration. The assembly councillors (19 to 75 per municipality) are elected on the basis of a free, general and equal right to stand for election and by the direct and secret ballot.

8. Serbian municipalities differ much in terms of the territory (from 3 km2 to 1,530 km2), population (from 1,600 to over 340,000), population density (from 5,3 pers/km2 to 18.78 pers/km2) and economic strength. From all municipalities, 41% has population less than 20,000. The poorest municipalities are located in the border areas of South-West, South-, and East-Serbia with annual budgets below 2 million USD. The economically most developed municipalities are in and around the cities of Belgrade and Novi Sad. As geographical subdivisions of the national territory, municipalities encompass both urban and rural areas

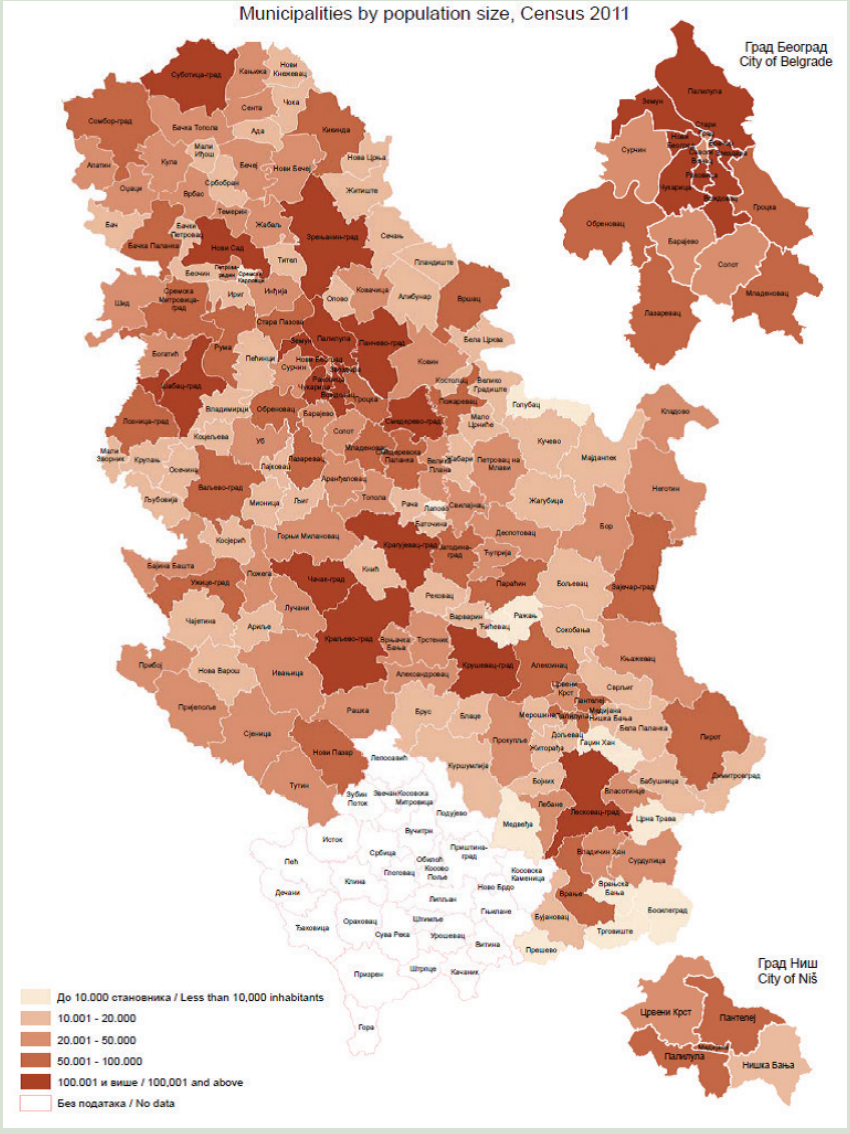


Figure 1.2 Map of Serbian municipalities by population in 2011

| Population of Serbian Municipalities in 2011 | | | | |
|---|---|---|---|---|
| Size Range | Number of municipalities | % of mun. | Population | % of pop. |
| >100,000 | 19 | 11.5 | 2,903,748 | 40.4 |
| 50,000-100,000 | 26 | 15.7 | 1,729,250 | 24.1 |
| 20,000-50,000 | 53 | 31.9 | 1,661,633 | 23.1 |
| 10,000-20,000 | 57 | 34.3 | 814,900 | 11.3 |
| < 10,000 | 11 | 6.6 | 77,330 | 1.1 |
| Total | 166 | 100.0 | 7,291,436 | 100.0 |

Table 1.3: Population of Serbian municipalities [3]

(for example, roughly 70% of the territory of the City of Belgrade is classified as rural). Under the local government law, municipalities have the authority to create subordinate units of administration (so called "mesna zajednica") to serve parts of the municipality, including rural villages, but these are not independent legal entities. The municipalities themselves operate under the overall responsibility of the ministry in charge of public administration and local self-government.

## Smart Cities and Climate Smart Urban Development in Serbia

9. There is no single, commonly agreed definition of a smart city, but typically it refers to a city where new and innovative technologies and approaches are used for improving the efficiency, safety, quality and environmental sustainability of urban living and related public services. A big part of those solutions is based on new digital technologies and ICT applications, but not only that. Smart cities also mean more interactive, responsive and transparent city administration for broad community engagement and for creating an attractive business environment for new technical, financial and social innovations to reduce social and cultural inequality, injustice and isolation and meeting the needs of an ageing population. From climate change perspective, smart cities may encompass smarter urban land use and transport planning, upgraded water supply and waste disposal facilities, more efficient ways of lighting, heating and cooling buildings, increased use of renewable energy and other GHG emission free technical solutions, more efficient resource sharing as well undertaking precautionary measures towards the projected impacts of climate change.

### Baseline, barriers and current government policy to address the root causes and threats

10. In the baseline, the Government of Serbia seeks to contribute to climate change mitigation by continuing, among others, the transposition of the EU directives dealing with energy efficiency (EE) and the promotion of renewable energy (RE). This effort is complemented and further supported by

[3] Source: 2011 Census of Population, Households and Dwellings in the Republic of Serbia, First result, Statistical Office of the Republic of Serbia, Belgrade, 2011.

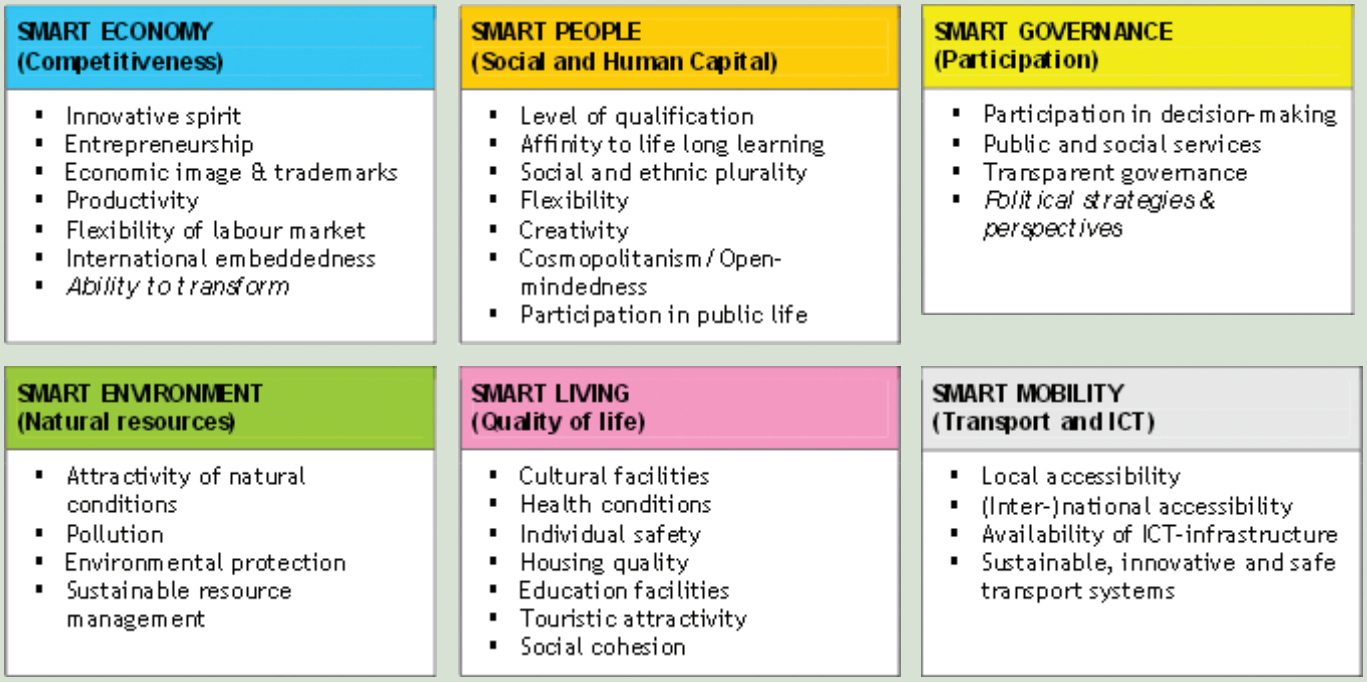


Figure 1.4 Smart City Indicators from "Ranking of European medium-sized cities" by the Centre of Regional Science, Vienna Technical University; Department of Geography, University of Ljubljana; and Research Institute Housing, Urban and Mobility Studies, Delft University of Technology (2007) [4]

several internationally financed projects offering technical assistance for public awareness raising and training, financing targeted EE and RE investments in selected subsectors such as in schools, supporting the introduction of energy management systems and establishing specific purpose credit lines and other financing mechanisms to support larger scale municipal EE and RE investments.

11. In general, however, climate change mitigation and related EE, RE and other measures are not yet viewed as a primary area of concern by Serbian municipalities and their residents. Most municipalities are facing substantial challenges in trying to secure their financial sustainability and satisfy the demand for basic social and other municipal services such as reliable energy and water supply, public transport and waste management. Throughout the last years, the transfers which municipalities receive from the national budget are decreasing. Thus, the municipalities are struggling to obtain financing for investments in the equipment for municipal services

[4] http://www.smart-cities.eu/download/smart_cities_final_report.pdf

(either renovation of the existing or new equipment). At the same time, the level of cost for municipal services is very often not on the market level, but kept low due to political reason. This led to the development of market for municipal lending and, in some case, to high level of local public debt. Climate change related issues in this context are typically considered to be of secondary importance despite a common principal agreement and understanding on the need to develop the cities in both environmentally and economically sustainable way.

## Project Objective, Outcomes and Outputs

12. The objective of the project is to promote innovation and community engagement for climate smart urban development (CSUD). Rather than defining the detailed technical and other solutions upfront, however, it seeks to actively engage citizens, CSOs, public and business communities to come up with new and innovative ideas on how to contribute to this in practice and to jointly develop, finance and implement these ideas further. Possible areas include broader and more effective use of information and communication technologies (ICT), including its integration into existing city management systems to enable and spearhead innovation and productivity gains in city services, optimization of the resource use and reduction of physical mobility needs. Efforts to increase the share of "climate proof" public services by improved energy efficiency and increased use of renewable energy sources, traffic flow optimization and alternative transport modes, including the promotion of carbon-free public and non-motorized transport, building automation systems for lighting, heating, air conditioning and ventilation, waste management (improving recycling schemes and waste to energy) and contributing to climate change mitigation by other means are also to be considered in this context. The challenge is to identify "the best fit" for a specific problem/city/town, and then finance, implement and sustain the solution in a situation, where the capacities and resources of city authorities to do so on their own are extremely limited.

13. The project will have a stepwise approach in seeking to achieve its objective. First, the project will build up the capacity and assist participating municipalities to mainstream ICT into city management systems and to put in place digital inventories and tools to gather data, monitor actions and also make this information easily accessible by the public. This is further encouraged by launching the first challenge program for the development and establishment of such systems with phased awards, technical and financial backstopping for most innovative and cost-effective technical solutions and for most progressive municipalities to implement them. Secondly, the project will develop and launch a more comprehensive challenge program for climate smart urban development (CSUD) as an innovative mechanism to source solutions for low-carbon activities and to coach and support otherwise their further development, testing and commercialization. Finally, the project will monitor and evaluate the impact of the supported activities and backstop their replication and mainstreaming, including, as applicable, further development of the national legal and regulatory framework in order to create an enabling environment for the identified climate-smart solutions and for encouraging innovation in urban management in general. These activities are structured under two main project components (outcomes), which are discussed briefly below with further details in Section 3, "Project Results Framework".

## Project Rationale and GEF Policy Conformity

14. The project will primarily contribute to Program 3 "Promote integrated low-emission urban systems" under the Climate Change Objective 2 "Demonstrate systemic impacts of mitigation options" of the GEF-6 Programming Directions adopted by the GEF Assembly in May 2014. As outlined in the mentioned programming directions: "Examples of projects eligible for support under CC2 -Program 3 include:

- Urban initiatives that commit to GHG mitigation targets at the city level, which could utilize performance-based financing and incentives;
- Design and implementation of sustainable urban strategies, policies, and regulations, combining energy efficiency (buildings, lighting, air conditioning, transport, district heating systems), renewable energy development (solar, wind, co-generation, waste-to-energy), and other sources of GHG emissions (solid waste and wastewater management);
- Land use management, planning and zoning, including the integration of land planning with transport planning and transit-oriented development, for sustainable cities to reduce energy demand, enhance climate resilience, and improve living standards;
- Innovative policies and mechanisms for freight and logistics services with the engagement of the private sector, including development of logistics platforms, reverse logistics, and low-emission zones;
- Urban sustainable transport infrastructure and systems that reduce demand for car travel through catalytic approaches, including road and parking policies and pricing, zoning and street/urban design codes, and congestion pricing, that are particularly relevant for urban, low emission development, and incentives for broader use of public transport, such as measures to enhance access and efficiency of public transport services and carpooling/car sharing programs;
- Initiatives to assess and reduce the impacts of SLCFs at the urban level; and
- Initiatives to enhance broad community engagement and support for and use of emission reduction approaches and low-carbon technologies.

The project is also in line with the Sustainable Development Goals (SDGs) adopted by the UN Sustainable Development Summit in September, 2015 (https://sustainabledevelopment.un.org/) such as SDG 7 "Affordable and Clean Energy", SDG11 "Sustainable Cities and Communities", SDG 12 "Responsible Consumption and Production" and SDG 13 "Climate Action" to just mention a few. The adopted SDGs establish a basis for the new UN Development Agenda until 2030, as a follow up of the previous Millennium Development Goals, which had 2015 as the target year.

## National consultative process on climate smart urban development perspectives in Serbia

Ministry of Agriculture and Environmental Protection and United Nations Development Programme (UNDP), in cooperation with the French Embassy in Serbia, conducted a national consultative meeting with the purpose of planning GHG emissions reduction measures at municipal level. More than 90 representatives of municipalities, businesses and CSOs took part at this meeting that was organized ahead of the 22nd Conference of the Parties to the United Nations Framework Convention on Climate Change (7-18 November 2016,

Marrakesh, Morocco). Results of the consultative meeting will be presented at the side event. In addition, the meeting represented one of the final preparatory activities relevant for the initiation of the project "Climate Smart Urban Development Challenge".

Main goal of the project is to provide assistance to municipalities in planning and implementation of innovative measures and solutions for GHG emission reduction (the so-called "Climate Smart" approach to local development).

Discussions were guided by key note addresses of:

Ms. Stana Bozovic, State Secretary in the Ministry of Agriculture and Environmental Protection,

H.E. Christine Morro, Ambassador of the French Republic to Serbia,

H.E. Driss HACHAQ, Charge d'Affaires a.i, Embassy of the Kingdom of Morocco in Serbia

H.E. Irena Vojackova-Sollorano, Resident Representative of the United Nations Development Programme

Representatives of the Ministry of Agriculture and Environmental Protection also presented national climate change policy framework and pathways for delivery of the Paris Climate Agreement, including the Serbia's NDCs. In addition, basic introduction on the Climate Smart Urban Development Challenge project was provided by UNDP representatives, including presentation of other complementary initiatives in the field of energy efficiency and renewable energy at municipal level. Participants have been given comprehensive information on the concepts of innovations and challenge prize approach in mitigating climate change, as well as good practice examples of climate smart solutions at local level presented by the Swiss Cooperation Office in Serbia and the City of Helsinki. CSO representatives presented their experiences in supporting enabling policy environment and awareness raising for climate mitigation actions at the municipal level in Serbia.

Summary conclusions and massages of National Consultations are presented below:

It is important to keep global momentum for effective implementation of the Paris Climate Agreement, in particular Nationally Determined Contributions;

In Serbia, municipalities are considered as one of the main partners in implementation of NDCs;

Serbia is determined to introduce new and innovative and challenge based approach to support climate change mitigation actions at the level of municipalities. Climate Smart Urban Development Challenge project is seen as a good tool that can provide a long-term and sustainable model for this kind of interventions;

It is important to build partnerships between all relevant stakeholders, decision makers, businesses, research and scientific community, CSOs and municipalities, in order to maximize utilization of available resources and capacities;

There is a growing need to build synergies between decision making processes and scientific research through science-policy interface, in particular for climate smart urban planning and development. This would require engagement of qualified experts from scientific community;

Climate Smart planning at municipal level should be one of the main driving forces for boosting local economy and creation of new green job opportunities. For this reason, involvement of private sector and establishment of public private partnerships is essential;

Climate Change problems should also be acknowledged as a challenge and business opportunity for creation of new green jobs, boosting of new and innovative technological solutions and business models;

Serbia established Green Climate Fund in order to support climate actions at all levels, national and local, and among various stakeholder groups. The Green Fund will also be one of the main co-financing options for Climate Smart Urban Development Challenge project, besides other donor resources and fund of participating municipalities;

Government, as well as local self-governments, will need to create enabling policy and financing environment for effective implementation of climate smart solutions. This in particular refers to the public procurement procedures and opportunities for effective PPPs;

Climate smart planning will to the great extent, require improvement in data collection and management systems at central and local level, as well as at the level of individual sectors;

There is a common understanding that new Climate Smart Urban development Challenge project will be focused on areas such as sustainable urban planning, sustainable energy production (including energy efficiency and utilization of renewable energy resources), intelligent electricity networks, energy efficient public lightning, traffic flow optimization, construction of sustainable ventilation and heating systems, sustainable infrastructure in agriculture etc. This project will promote innovative and integrative approaches and new technologies for reducing greenhouse gas emissions at the local level and will promote new business models, public private partnerships and social inclusiveness as integrative approach in mitigating climate change;


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