REPUBLIC OF SERBIA
Ministry of Agriculture and Environmental Protection

PROJECT DOCUMENT[1]

Project Title: Climate Smart Urban Development Challenge

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): *(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): *(Those that will result from the project and extracted from the CPAP)*	Output 1: Capacities for policy-making and implementation of international agreements improved 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:	UNDP
LPAC Date	23 December 2016

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.

[1]For UNDP supported GEF funded projects as this includes GEF-specific requirements

Programme Period:	2016-2020
Atlas Award ID:	00087660
Project ID:	00094603
PIMS #	5551
Start date:	Jan. 2017
End Date	Dec. 2021
Management Arrangements	NIM
PAC Meeting Date	23 December 2016

Total resources required:	US$ 12,510,000
Total allocated resources:	US$ 12,510,000
Regular UNDP (TRAC):	US$ 100,000
Other:	
GEF	US$ 1,950,000
Other (parallel) cash	US$ 9,960,000
In-kind	US$ 500,000

Agreed by (Government): _____

Stana Bozovic, State Secretary, Ministry of Agriculture and Environmental Protection — Date/Month/Year

Agreed by (UNDP): _____ 21/02/2017.

Steliana Nedera, Deputy Resident Representative — Date/Month/Year

TABLE OF CONTENTS

LIST OF ACRONYMS

AFOLU	Agriculture, Forestry and Other Land Use Change
CO	UNDP Country Office
CO_2	Carbon dioxide
CSUD	Climate Smart Urban Development
DH	District heating
EBRD	European Bank for Reconstruction and Development
EE	Energy Efficiency
EIA	Environmental Impact Assessment
EMS	Energy Management System
EMIS	Energy Management Information System
EPS	Elektroprivreda Srbije (national power utility "Electric Power Industry of Serbia")
EU	European Union
EUR	Euros
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GWh	Gigawatthour
HQ	UNDP Headquarters
IEA	International Energy Agency
ICT	Information and Communication Technology
ISO	International Organisation for Standardization
M&E	Monitoring and Evaluation
MoAEP	Ministry of Agriculture and Environmental Protection
MoME	Ministry of Mining and Energy
MoF	Ministry of Finance
MRV	Monitoring, Reporting and Verification
NAMA	Nationally Appropriate Mitigation Action
NGO	Non-Governmental Organization
O&M	Operation & Maintenance
PB	Project Board
PIR	Project Implementation Review
PMU	Project Management Unit
PPG	Project Preparation Grant
PPP	Purchasing Power Parity
PSC	Project Steering Committee
PUC	Public Utility Company
PV	Photovoltaic
QPR	Quarterly Progress Report
RCU	UNDP Regional Coordination Unit
RE	Renewable Energy
RTA	Regional Technical Advisor
SCTM	Standing Conference of Towns and Municipalities
SNC	Second National Communication
SWH	Solar water heater
TPR	Tripartite Review
TTR	Terminal Tripartite Review
WB	World Bank
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

1. SITUATION ANALYSIS

1.1. 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 CO_{2eq} in 2013.[2]

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

Climate Change in Serbia

2. Serbia submitted its Intended Nationally Determined Contribution (INDC)[3] to the UNFCCC on June 30th, 2015 prior to the Paris CoP21 with a pledge to reduce its GHG emission by 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) under the UNFCCC, including updated information on national circumstances, GHG inventories and climate change mitigation as well on identified constraints, gaps, financial, technology and capacity building needs, was completed in October 2015. The Second

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

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

National Communication (SNC) of Serbia is expected to be submitted to the UNFCCC Secretariat during 2016.

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 CO_2 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.

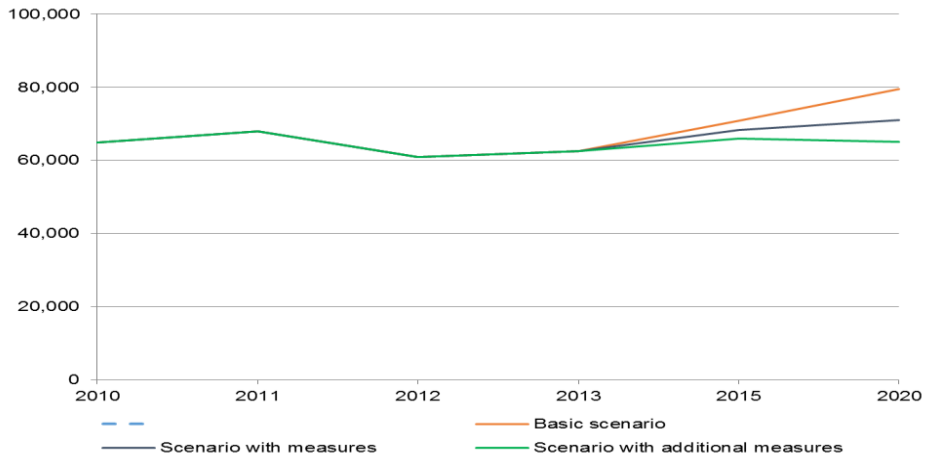


Figure 1.1 Three GHG emission scenarios, as presented in the FBUR

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.

Energy Supply and Consumption

7. The total primary energy supply (TPES) of Serbia in 2013 was 14,9 Mtoe. The energy supply is dominated by the use of fossil fuels with locally produced coal (lignite) contributing to over 50% of the

TPES, followed by oil products (23%), natural gas (12%), biomass and biogas (7%) and hydro (6%)[4]. The residential sector and the commercial and public services were accounting for some 33% and 9% of Serbia's total final energy consumption of 8,7 Mtoe, 53% and 18% of the electricity consumption and 52% and 10 % of the heat consumption, respectively. The energy intensity of Serbia in terms of primary energy supply per GDP in USD (2005) exceeded the OECD average by about 5 times in 2013 and more than 2 times on the basis of purchasing power parity (PPP) adjusted GDP.

8. Lignite with high sulphur content is the most significant indigenous energy resource. In addition, Serbia has some domestic natural gas and oil production, which contributed to the total supply of these fuels by 23 % and 37%, respectively, in 2013.[3]Biomass is primarily used for heating and/or cooking in rural areas, but also in urban areas and by the industrial sector. Most households using wood for heating have stoves or open fireplaces. The share of wood fuel used in central heating systems has been estimated at about 18% from all household biomass energy use.[5]Beside households, woody biomass is also used by some public buildings such as schools and health care centres, although to a lesser extent.

9. Based on the findings of the project preparatory phase of the recently started UNDP-GEF funded project: "Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia", it was concluded that it is "clear that both the heat and electricity sectors present significant opportunities for future bioenergy market development in Serbia. Despite the fact that wood industry residues are almost entirely exploited for various purposes, forest residues remain largely unexploited. It is estimated that less than 10% of forest residues are currently utilized and therefore these could become a significant source of biomass for wood fuel production in the future."

10. The share of thermal vs. hydro power vary from year to year, but typically over 70 % of the annual power generation is thermal based. The power generation costs for both the thermal and hydro power are relatively low compared to many other countries resulting in that the electricity prices in Serbia are currently among the lowest ones in Europe. The average price of electricity for households stands currently at about 5,1 eurocents per kWh (without VAT), while for industrial customers the prices are about 10% lower [6]. These tariffs are not considered as adequate, however, to attract new investments in the power sector.

11. In January 2013, the Government of Serbia adopted a new "Decree on Criteria for Privileged Power Producers" to provide a privileged power producer status to all operators using renewable energy sources for power generation as well as to those that perform activities in highly efficient CHP facilities, thereby providing some new opportunities for the increasing use of both CHP and the use of new renewable sources such as biomass in municipal DH plants.

Table 1.2 Premium feed-in tariffs adopted in January 2013

Type of Power Plant	Installed capacity P (MW)	Feed-in tariff(c€/kWh)
Hydro power plants	up to 0.2	12.40
	0.2 – 0.5	13.727 - 6.633*P
	0.5 – 1.0	10.41
	1 – 10	10.747 – 0.337*P
	10 - 30	7.38
HPPs using existing infrastructure	up to 30	5.9
Biomass power plants	up to 1	13.26
	1 - 10	13.82 – 0.56*P
	over 10	8.22
Biogas power plants	up to 0.2	15.66
	0.2 - 1	16.498 – 4.188 * P

[4]Source: Energy Balance of the Republic of Serbia for 2013

[5]Source: UNPD/GEF project document "Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia", 2014

[6]Source: Country Report on Energy Business in Serbia, Balkan Energy News, September 2015

	over 1	12.31
Biogas plants using animal manure		12.31
Landfill and sewage gas power plants		6.91
Wind power plants		9.20
Solar power plants		
roof-mounted	up to 0.03	20.66
roof-mounted	0.03 – 0.5	20.941 – 9.383*P
ground-mounted		16.25
Geothermal power plants	up to 1	9.67
	1 - 5	10.358 – 0.688*P
	over 5	6.92
Waste fired power plants		8.57
Coal fired co-generation power plant	up to 10	8.04
Gas fired co-generation power plant	up to 10	8.89

12. Liberalization of the electricity market started in 2004, when all customers connected to high voltage transmission grid were forced to abandon the regulated tariffs and to sign supply contracts either with "EPS Supply" or with another supplier of the open market. Only few suppliers could compete with low EPS prices, however, and in the end only one customer decided not to sign a contract with the EPS. Electricity market for households and small customers was liberalized at the beginning of 2015.

13. The total number of electricity customers in Serbia in 2014 was 3,550,588[7], of which over 90 %are household customers. In most EU countries, the share of residential electricity consumption is significantly lower. According to estimates, one third of the households in Serbia is using electricity for heating, complemented by another third, which is expected to use electricity occasionally for heating purposes. Together, they have been estimated to contribute to the annual electricity consumption by about 5 TWh for household heating purposes only.

14. The distribution losses are estimated at about 15 % of the total amount of electricity delivered. Technical losses are estimated at 8,5 %, while the rest (6,5%) is considered as non-technical losses. Up to 1 TWh or 60-80 million Euros are estimated by the EPS to be directly due to electricity theft.[8]For reducing the losses, the EPS has started a project to replace all the existing 3.5 million meters over the period of 7 years with new modern metering equipment with the estimated investment costs of about 500 million Euros in total. The current law also allows EPS to disconnect household customers should their debt reach just 40 Euros i.e. in average one unpaid bill. By this, the annual losses are expected to be reduced by 4-5 % paying the investment back in 5-6 years. The first meters are expected to be installed by the end of 2015 – early 2016, thereby opening opportunities also for new innovative smart data and smart energy management applications and solutions.

Transport

15. The transport infrastructure of the Republic of Serbia consists of 44,604 km of roads, 3,819 km of railways, 1,680 km of inland waterways and four airports used for commercial purposes. Road transport represents the most common and developed transportation mode. The main part of the freight traffic is on the railway and roads, but with a significant share also on inland waterways. In 2013, the transport sector contributed by 11.7% to the total energy sector GHG emissions. The main GHG mitigation measures listed in the FBUR and SNC are to reduce the volume of road transport, revitalization of railways and improvement of water transport.

Agriculture, Forestry and Other Land Use (AFOLU)

16. Agriculture is an important part of the Serbian economy and the third largest contributor to Serbia's GDP, accounting for 11.4% of GDP in 2013. During 2000-2012, the total volume of agricultural production

[7]Source: EPS Technical Report 2014

[8]Source: Balkan Energy News, Country Report on Energy Business Serbia, September 2015

doubled with an average annual growth rate of 9.4%, thereby being the only sector with a positive foreign trade balance and making the largest contribution to total exports. The Census conducted in 2012counted 631,522 agricultural holdings, of which the vast majority is family owned. Approximately 90% of arable land is privately owned and 10% belongs to the government.

17. According to the National Forest Inventory done in 2009, the forests covered 25.5% of the total territory of the country. State owned forest covered 53% of the forest area and 47% were privately owned. In 2000-2013, 1.15% of total land area was subject to a land use change. The most significant changes occurred in urban areas, where pastures and agricultural land was taken for construction.

Waste Management

18. The waste management sector contributedby 1.2% to the national GDP, with a real growth rate of 0.3% in 2012. According to 2010 data, 2.65 million tonnes of waste was generated, and the quantity of collected and disposed waste was around 1.59 million tonnes. In 2011 and 2012, the amount of collected waste was 2.71 million tonnes and 2.62 million tonnes, respectively.

19. Over the past twenty years, the composition of waste has changed as a result of the socio-economic development in the country. The improved life quality has resulted in an increased quantity and ”quality” of waste. Approximately 72% (2010) of all municipal waste is collected by organized waste collection, which is developed only in urban areas. Other areas, particularly rural ones, are not served by municipal waste collection services. The equipment of public utility companies is inadequate, outdated and poorly maintained. Waste is disposed at sites that often are unsanitary dumps.

20. In 2013, the GHG emissions from the waste management sector amounted to 3,207.45 Gg CO2eq, or 5.1% of total GHG emissions. In 2010, the emissions increased by 2.1% due to higher emissions rate from waste water treatment and discharge. Approximately 62% of the emissions were estimated to originate from solid waste disposal and 38% from wastewater treatment

Monitoring, Reporting and Verification (MRV)

21. Establishing a good MRV system is one of the key requirements for both the UNFCCC and the related EU legislation. This was initiated with financial and technical assistance from the EU (through the IPA project "Establishing a mechanism for the implementation of MMR," IPA 2013) with the ministry in charge of environmental issues and climate change. Development of some components of the MRV system was also supported by IPA 2012 such as the legislative and institutional framework for the EU Emission Trading System (ETS). The law obliging the MRV for industrial and power plants should come into force in 2017 at the latest, while the entire MRV system is expected to start in 2019.

Role of Municipalities

22. The territorial organization of the Republic of Serbia is regulated by the Law on Territorial Organization. According to the Law, the units of the territorial organization are: municipalities, cities and autonomous provinces (Vojvodina and Kosovo). The Republic of Serbia (without Kosovo[9]) comprises of 166 municipalities and 24 cities, of which 4 include several municipalities (Belgrade, Novi Sad, Nis, Pozarevac). Belgrade, as the capital and the largest city comprising of 17 municipalities, has a special status with its own legislation.

23. 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.

24. 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

[9] References to Kosovo shall be understood to be in the context of Security Council resolution 1244 (1999).

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 (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.

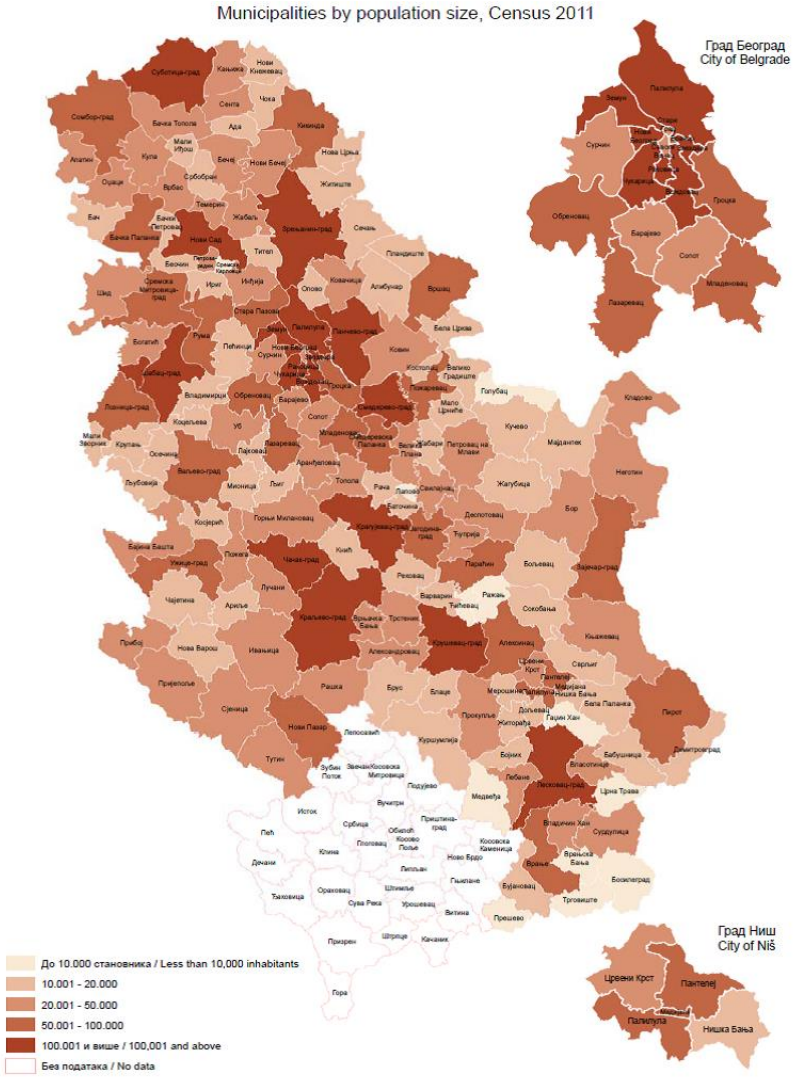


Figure 1.2 Map of Serbian municipalities by population in 2011

Table 1.3: Population of Serbian municipalities[10]

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

25. Territories with the status of "city" have more than 100,000 inhabitants or have been given this status by being the center of their respective region or due to other special interest, but are otherwise very similar to municipalities. Only, if the city includes more than two municipalities, competences of cities and their municipalities are divided. Municipalities and cities are gathered into larger entities known as administrative districts, which are regional centers of state authority, but have no assemblies of their own. They present only administrative divisions and host various state institutions such as funds, office branches and courts. Districts are not defined by the Law on Territorial Organisation. Serbia is divided into 29 districts (7 in Vojvodina and 17 in the rest of Serbia), while the city of Belgrade presents a district of its own.

26. The Law on Local Self-Government and the Law on Public Property provide the legal basis for the establishment of the local self-government's (municipal) competence over and management of the public property it possesses. All municipalities are founders of their public companies, of which some perform municipal utility services.

27. According to the Law on Local Self-government and the Law on Planning and Construction, municipalities apply the local economic and social policy, they can set some incentive mechanisms, elaborate spatial, economic development and other plans, issue municipal regulations and decide on investments in the municipal infrastructure, all of which can have far-reaching effects. They also set requirements and conditions and issue location, construction, operational and other permits as well as those for the performance of business activities.

28. Local governments derive the majority of their revenues from four sources: i) centrally administered personal income tax, ii) a formula-based recurrent transfer from the central government, iii) local taxes and iv) local fees. The personal income tax is the largest single municipal revenue sources in all municipalities while transfers are a more important source of revenue in smaller municipalities. The principal local tax is the annual property tax, the level of which can be set by the local authority, subject to ceilings set in the law.

29. Similar to the country as a whole, the biggest source of greenhouse gas emissions at the municipal level are various energy consuming activities and services. The Law on Energy stipulates the roles and responsibilities for municipalities and cities in the energy sector. The energy policy at the local level is expected to be implemented through the elaboration of local energy sector development plans and their adjustment with the national strategic documents. Besides, municipalities are obliged to:

- provide data for the preparation and implementation of energy sector development strategies and for the annual Energy Balances as per the request of the Ministry in charge of energy;
- issue permits for heat production facilities;
- regulate local heat market;
- determine tariffs for billing the delivered heat;

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

- define requirements and procedures for acquiring a status of a privileged heat producer and criteria for meeting these requirements;
- keep a register of privileged heat producers; and
- elaborate energy development plans.

30. It is estimated that municipalities are directly responsible for and cover the cost of approximately 6% of final energy consumption in Serbia. In addition, being in charge of the local energy policy, heat market and municipal services, municipalities decisively influence up to 10% of final energy consumption in Serbia. On the top of this, the municipalities have a strong influence on the large share of final energy consumption in households and commercial activities. No detailed statistics on energy consumption of Serbian municipalities exist, but some rough estimates can be made by combining data from various sources, as illustrated in table 1.4 below.

Table 1.4 Approximate allocation of the public sector energy use in 2012 (without public transport)

Sector	**Heating**			**Electricity used for other than space heating**	
	TJ	GWh	kWh/m2	GWh	kWh/m2
Public and commercial sectors	**27,690**[11]	7,692	144	4,180	60
Street lighting				507[12]	NA
Other public utility services	3,579[13]	994		500[14]	NA
Public and commercial buildings, of which:	27,690	7,692	144	3,173	
Commercial buildings		2,600[15]	144	1,073	60
Public buildings		5,092[27]	144	2,101	60

31. Energy-wise the most relevant municipal service is **district heating(DH)**. District heating systems with total installed thermal capacity of approximately 6,700 MW exist in 59 municipalities and cities and supply heat to approximately 24% of all households in Serbia. Households comprise 82% of the DHS users and the rest are commercial and public sector consumers. Heat is produced by using fossil fuels, primarily natural gas, followed by lignite and oil products. Sanitary hot water supply is served by district heating systems only in few towns. With a few exceptions, DH services are managed by public utility companies (PUCs) founded by municipalities. In addition to DH, almost all municipalities own and manage block boiler plants, which supply several public buildings and, sometimes residential buildings in the vicinity of the plant. The efficiency of both types of heat supply systems is typically low. The systems are old, poorly maintained, often based on oversized heat only boilers and controlled manually resulting in significant energy losses both in production and distribution.

32. Price of the DH services is regulated by the local municipalities with a cap put by the Government on the maximum percentage of annual price increases. In general, the tariffs are not adequate to allow full cost recovery of the services provided since district heating is also considered as a social service. In most cases, the billing is still done based on a flat rate per m^2 of the heated area, although the DH companies gradually move towards consumption based billing, as required by the new Law on Efficient Use of Energy. The prices vary from town to town and depending on the type of customer.

33. A big energy saving potential for heating also exists at the demand side. Municipalities are responsible for the regular and investment maintenance of public buildings (schools, kindergartens,

[11] From MoME Energy Balance 2012 by assuming that all direct fuel use together with heat and 15% of electricity in the final energy consumption category "Others" is used for space heating of public and commercial buildings

[12] EPS Technical Report 2012

[13] Including own use and estimated losses of DH plants, as presented in the MoME Energy Balance2012

[14] Own estimate

[15] In the absence of better information allocated based on the known floor space of each sector

administration buildings, health centers, sport centers, social care institutions, etc.) and public lighting, for which they pay the energy costs.

34. Much of the building stock in Serbia was built in the 1970's and 1980's or even earlier with brick walls and no other thermal insulation. The heat substations of the consumers are frequently without automatic control and heat metering. Small autonomous boilers in apartment buildings (usually burning coal or fuel oil) are typically in poor condition and inadequately maintained. The internal heat networks may not be properly insulated and have non-operating or non-existing control equipment such as thermostatic radiator valves. A study published by World Bank in 2012[16] indicated savings potential in public buildings, mainly schools and hospitals, in the order of 40% to 47%.

35. **Public lighting** (PL) is a municipal service provided by all Serbian municipalities. Although municipalities are solely responsible for the maintenance of the PL system, the responsibility of maintaining the low voltage electricity grid is with the local distribution companies. One of the important characteristics of the development of most of PL systems in Serbia in the past was that they were installed in smaller towns by financial contributions of the citizens, which is why modest technical solutions were applied. Very few municipalities have detailed records on their PL systems, therefore no regular monitoring of electricity consumption, operation of the system, maintenance and operational cost of the systems exist. Typically, only malfunction driven maintenance is performed. The total installed capacity of the PL systems in Serbia is estimated at about 100 MW. No integral data base on public lighting in Serbia exists, however.

36. It has been estimated that about 60% of public lighting is obsolete with inefficient lighting equipment. Energy savings of about 35% could be achieved by moderate investments i.e. by replacing the current incandescent and mercury light bulbs with more energy efficient high pressure sodium or metal halogen light sources and replacing the old inefficient reflectors with new ones. For new lighting systems, it would also be possible to apply advanced control systems to match the lighting intensity with the actual needs. Given the low price of electricity, installation of LED lamps has not been considered as economically feasible yet, but the situation may rapidly change as the costs of LED lamps decrease.

37. **Water supply** is a municipal service which exists in all Serbian municipalities. Municipalities are responsible for provision, operation, maintenance and investment into water supply and sanitation services. Municipal water supply and wastewater systems are operated and maintained by local public utility companies (PUCs), founded and managed by the municipalities. Billing is based on water consumption i.e. water and wastewater fees are charged for households and industries corresponding to their consumption of potable water. The fees cover the operation and maintenance costs inclusive of staff costs. They are calculated by the PUCs and approved by the municipal authority.

38. Although the situation in the water supply sector in meeting the current demand may be assessed as satisfactory, there is a need to improve the operation of the existing systems. Some parts of water supply network are very old and not up to modern standards, which is causing problems with operational reliability and water quality. Typically, water losses are very high, pressure control is poor and energy efficiency of the pumping facilities is low. Installed water meters are not calibrated regularly and not replaced as often as needed. Water meters are often missing or are deliberately removed or destroyed. In some municipalities illegal connections to the network exist. The collection rate is not satisfactory and a large discrepancy exists between the produced and billed water quantities. In general, there is a growing need to increase the efficiency of the water supply companies and introduce the demand side management i.e. to decrease the water consumption by different consumers. In that respect, water consumption in public buildings and public services is of particular relevance.

[16]National Building Energy Efficiency Study for Serbia, World Bank 2012

39. Another issue is that just slightly over half (51%) of all households are connected to public sewage water systems. At present, only 21 municipalities have operational municipal waste water treatment plants. The percentage of treated wastewater in 2009 was 15%.

40. The fourth significant energy related municipal service is **natural gas distribution**, although it is not regulated by the Law on Municipal Services. This activity is performed by municipal PUCs, but also by other companies. Out of 34 companies licensed for gas distribution, 20 are PUCs, of which the biggest ones are Srbijagas (City of Belgrade and 57 municipalities) and Yogorosgaz (City of Nis and 4 municipalities in southern Serbia). Usually, however, the PUCs distribute gas on the territory of one municipality only. The municipalities have a direct influence on the operation of the gas distribution system only, when the distribution is performed by the local PUCs. In all cases, however, the municipalities can influence the gas sector development by energy and spatial planning with an impact on the construction of new gas distribution networks and connection of new consumers.

41. In addition to the above, Serbian municipalities are performing several other services, typically by specific PUCs for each service, such as: public transport, municipal police (only in cities), waste management (collection, recycling, disposal), cleaning and maintenance of streets, roads, parks, green and recreational areas (served by different PUCs), funeral services and maintenance of cemeteries, management and maintenance of green markets, chimney sweeping services, organization of parking service and maintenance of public parking lots, etc. Some of these services can produce significant amounts of GHG emissions due to the use of a large number of vehicles and machinery. In addition, many municipal public entities (health centers, social care centers, veterinary centers, inspections, etc.) use and maintain their own fleet of vehicles and/or machinery, whose cumulative fuel consumption is significant. Except for large cites, which have invested significant resources in public transport fleet modernization, public transport vehicles in small municipalities are usually very old and poorly maintained. In particular, this applies for specialized vehicles and machinery, which are used by municipal services. Just keeping them in operation is the main challenge for many municipalities. In such conditions, their emission reduction is not really gaining adequate attention.

Smart Cities and Climate Smart Urban Development

42. 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.

43. There is also no commonly agreed criteria yet to assess the performance or rank different cities in terms of how smart they may be. Some attempts towards that direction has been made, however, such as the early work of a research group from the Universities of Vienna (AT), Ljubljana (SI) and Delft (NL)[17], the work currently underway in the frame of the UNECE United Smart Cities project[18] and suggestions made by some private initiatives. A good overview of the smart city indicators and required standards is also provided in a recent Smart City report of the International Organization for Standardization (ISO).[19]

[17]http://www.smart-cities.eu/model.html

[18]http://www.unece.org/housing/smartcities.html

[19]http://www.iso.org/iso/smart_cities_report-jtc1.pdf

Figure 1.3 Draft indicators proposed in the frame of the multi-stakeholder UNECE "United Smart Cities" project (2015)[20]

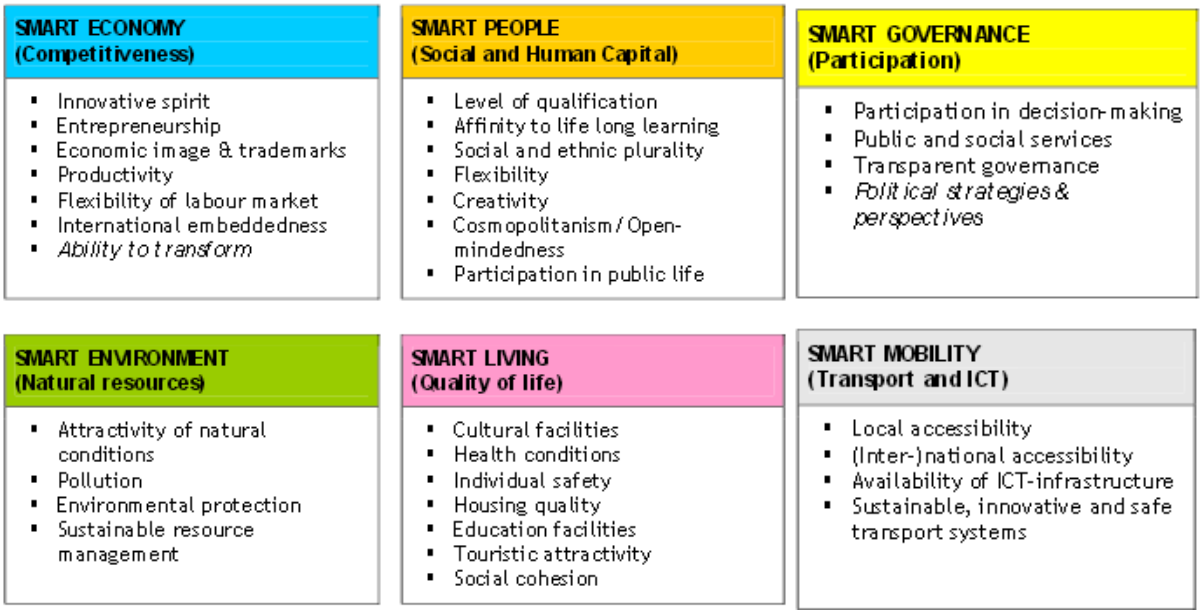


Figure 1.4 Smart City Indicators from "Ranking of European medium-sized cities" by the Centre of Regional Science, Vienna Technical University; Department of Geography, University of Ljubljana; and Research Institute Housing, Urban and Mobility Studies, Delft University of Technology (2007)[21]

[20]http://www.unece.org/fileadmin/DAM/hlm/prgm/other/Workshop_on_SmartCityIndicators/Rakvere_presentations/D.Carriero_-_USC_Towards_UNECE-approved_SC_indicators.pdf

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

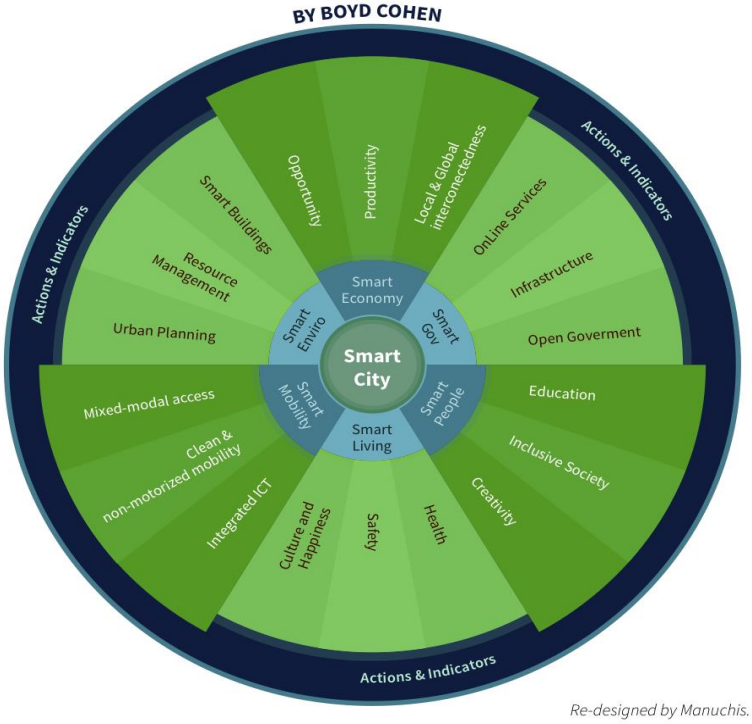


Figure 1.5 Cohen's smart city wheel (2014)[22]

Open Data

44. As elaborated by the joint World Bank and UNDP Serbia Open Data Initiative: "Open data refers to digital data that is available online, for free or at a marginal cost, for anyone to use and republish for any purpose, and in a format that can be readily processed and analysed by computers. Open data initiatives in many cases refer to turning data that is already publicly available into formats that can be reused, making it a powerful resource for private sector, development, jobs creation, economic growth, and more effective governance and citizen engagement. Open data has been recognized as the key enabler for achieving thepost-2015 UN Sustainable Development goals." As such, it provides an essential basis and building block also for any climate smart urban development initiatives.

45. A joint UNDP and World Bank team visited Serbia in June 2015 in order to conduct an Open Data Readiness Assessment (ODRA) in partnership with the Directorate for e-Government and the Ministry of Public Administration and Local Self-Government. Further details on the assessment and discussion on its planned follow-up and potential links to the proposed CSUD project can be found from chapter 1.4.

Urban Land Use and Mobility Planning and use of ICT

46. The current demographic development of Serbia is characterized by a decreasing trend in the total number of population, but there are big regional differences due to the continuing high internal migration. By this, the rural areas and small villages are typically suffering from population loss and its rapid ageing, while the big cities continue to attract new residents to the extent that the net inbound migration exceeds the natural population decrease determined by the rate of births and deaths. These demographic differences are also correlating with the highly uneven general development of the country "with the ratio of 10:1 between the most and least developed regions", as estimated by one source.[23] The most

[22]http://www.fastcoexist.com/3038818/the-smartest-cities-in-the-world-2015-methodology

[23]http://www.doiserbia.nb.rs/img/doi/1450-569X/2012/1450-569X1228007P.pdf

developed areas of Serbia are located at or close to the Pan-European multimodal transport "Corridor X" running from north to south through the cities of Novi Sad, Belgrade and Nis.

47. While the largest cities with main administrative, cultural, scientific and higher education centers and best transport connections can typically attract the majority of new investments to boost their economic development, many small and medium-sized towns can still be perceived as important for regional and national economies. They can also provide a critical link between big cities and rural areas, prevent urban sprawl and slowdown the suburbanisation process of big cities, if well connected by modern urban transport and other networks[24]

48. As broadly recognized by the international community, cities are major contributors to climate change. Although the cities cover less than 2 per cent of the earth's surface, cities consume 78 per cent of the world's energy and produce more than 60% of all carbon dioxide and significant amounts of other GHG emissions, mainly through energy generation, vehicles, industry, and biomass use.[25]At the same time, cities and towns are vulnerable to climate change affected by rising sea levels, increased precipitation, inland floods, more frequent and stronger cyclones and storms, and periods of more extreme heat and cold depending on the location.

49. Urban land use and mobility planning can obviously contribute in a major way to how effectively the cities can combat climate change by reducing GHG emissions originating from different urban activities, while also preparing the cities for the foreseen and to some extent already experienced adverse impacts of climate change. Topics such as location and connection of residential areas *vis a vis* required services and working places, orientation and other construction requirements of buildings, design of transport networks and those of other public services, optimization of public transport schedules, routes and intermodal connection points, facilities for non-motorized transport and other low carbon emitting activities, design and location of green and other recreational areas can all be considered in this context and also supported by modern ICT technology and software tools.

50. Urban transport has been estimated to account for more than 40% of the total GHG emissions in the urban areas.[26]The UNDP-GEF project "Support to Sustainable Transport in the City of Belgrade", implemented in partnership with the City of Belgrade (through the Land Development Agency and the City Secretariat for Transport)under the auspices of the Ministry of Energy, Development and Environmental Protection of Serbia, supported the City of Belgrade in initiating its first comprehensive Sustainable Urban Mobility (or Transport) plan (SUTP). The SUTP aims at providing a new policy tool putting the urban mobility and transport system development into environmental context, while at the same time addressing the economic and social aspects. Within the mentioned project, the first phase of SUTP (out of four in total) was finalized, as a basis for subsequent efforts of the City of Belgrade in their bid to complete the cycle and produce a full-fledged SUTP. The establishment and implementation of integrated city transport management and control system, as part of the Sustainable Urban Transport Planning of the city of Belgrade was estimated to bring an annual reduction of approximately 20kt of CO2-eq[27].

51. The Terminal Evaluation (TE) of the mentioned UNDP-GEF project was finalized in February 2015. Some of its recommendations can be linked directly to the proposed CSUD project such as the need for more systematic collection of complementary baseline data on transport demand, existing traffic flows and user preferences as well as purchasing and building the institutional capacity on the use of new state of the art ICT and software tools for transport planning and monitoring, including public transport. The

[24]http://www.doiserbia.nb.rs/img/doi/1450-569X/2012/1450-569X1228007P.pdf

[25]http://unhabitat.org/urban-themes/climate-change/

[26]http://www.rs.undp.org/content/serbia/en/home/ourwork/environmentandenergy/successstories/making-urban-mobility-safer--healthier-and-more-efficient-.html

[27]http://www.klimatskepromene.rs/uploads/useruploads/Documents/Sustainable-Transport-and-GHG-emissions-in-Belgrade.pdf

evaluation also suggested the need to identify other revenue streams and saving opportunities e.g. by improving the energy efficiency of public facilities by an integrated "green cities approach" that may assist the Municipal Government to cope with public transport subsidies.

Energy management

52. Energy management is not yet systematically applied in Serbian municipalities. As defined by the ISO 50001:2011 standard on Energy Management Systems, an energy management system (EMS or EnMS) means "a set of interrelated or interacting elements of a plan, which sets an energy efficiency objective and a strategy to achieve that objective". In essence, they help to identify where energy is lost, set feasible energy efficiency targets, prioritize measures to achieve those targets, leverage financing for them and monitor the results. An Energy Management Information System (EMIS) normally refers to a computer based system to collect, store and analyze information on the energy performance of the monitored objects, thereby being an excellent source of information for any CSUD related open data initiatives as well as an essential part of a well-established EMS in general.

53. The new Law on Efficient Energy Use, adopted by the Serbian parliament in March 2013 requires all municipalities with population above 20,000, or so called "designated municipalities", to establish municipal energy management system. They are also obliged to elaborate Energy Efficiency Programmes for the period of three years and set the mandatory energy savings targets as well as to submit annual reports to the Ministry on their annual energy consumption and on achievement of their energy saving target. All this is further supported by the recently (November 2015) started, UNDP/GEF funded project "Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia". A good presentation on the planned structure and organisation of the EMS in Serbia can be found, for instance, from: http://www.energy-community.org/portal/page/portal/25331A0476AB7925E053C92FA8C07520

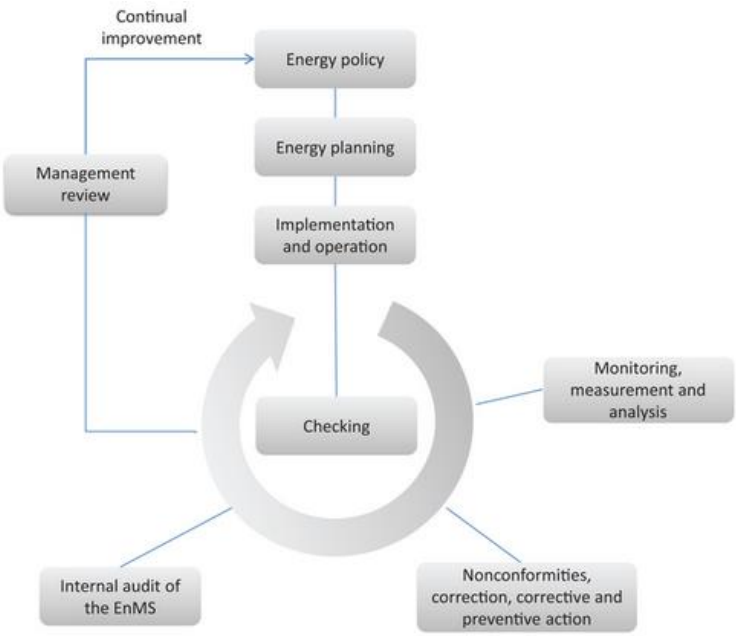


Figure 1.6 An Energy Management System model for ISO 50001:2011[28]

Building Stock

54. The majority of the residential building stock in Serbia has been constructed in 1945–1980. Construction of new apartment buildings slowed considerably in the 1980s and 1990s due to the difficult

[28]Source: https://www.iso.org/obp/ui/#iso:std:iso:50001:ed-1:v1:en

political and economic situation. According to the 2011 Census, the multi-apartment buildings made up only 3% of the total residential building stock in Serbia (for the number of buildings), but included 27% of all dwellings and close to 40% of the total residential floor area. From the municipal energy management point of view, the importance of multi-apartment buildings also lies in being more common users of the municipal heat supply services.

55. While the public sector buildings represent a significantly smaller share on the overall building stock than, for instance, residential buildings, they are among the least efficient ones of any building category. This provides a strong rationale for many EE and CSUD measures to focus on public buildings. Several public buildings were constructed 40 or 50 years ago. In most cases, the thermal properties of the building envelope, including walls and windows, are poor resulting in high heat losses and related heat demand of up to 350 kWh/m^2per year. The heat generation systems in public buildings are typically outdated and inefficient without automatization and sufficient controlling opportunities. Sanitary hot water is usually produced by electricity. For lighting, many public buildings are still using inefficient incandescent light bulbs or outdated fluorescent tubes with inefficient starters. Municipalities are responsible for the maintenance of public buildings (schools, kindergartens, administration buildings, health centers, sport centers, social care institutions, etc.) and for which they also pay the energy costs. As such, any energy savings in those buildings will mean direct savings in the municipal budgets and preferably should also benefit the building users by having or introducing a municipal financial management system allowing this.

56. Even in the construction of new buildings, the default heat demand is typically around 100 kWh/m^2, while in many other European countries with similar climate conditions, buildings are currently constructed with annual energy demand for heating, hot water and air-conditioning all together lower than 100 kWh/m^2 and with a stated target for EU countries to move towards "nearly zero-energy buildings" for all new buildings to be owned by public authorities by 31 December, 2018.

Economy and Policy framework

57. After the democratic changes in 2000, Serbia experienced a brief period of economic recovery with fast growth of the GDP and improvement of all macroeconomic indicators. In 2009, however, the still fragile economy was seriously affected by the world economic crisis and the period from 2010 to 2014 was characterised by negative macroeconomic trends. The biggest concerns are the long-standing, over 20% unemployment rate, high debt rate being 20% higher than the legal limit and high foreign trade deficit. In 2014, the economy was further damaged by massive floods resulting in sharp decline of the GDP and ending the year in recession. The high level of Government debt (currently 70% of the GDP) has made it more difficult for the government to climb out from the financial crisis. In such an environment, investments in CSUD and climate change mitigation are often seen as a luxury, which cannot be afforded despite the fact they often represent win-win opportunities, which in the longer-term can also lead to significant cost savings in other fields and increase in the quality of services.

58. All the current laws and policies in Serbia have been developed with the aim of harmonizing and integrating them with those of the European Union. Serbia has been an EU candidate country since March 2012 and talks are ongoing concerning Serbia's possible EU membership. In October 2014, the EU leaders agreed on new aggregated targets for the reduction of GHG emissions by at least 40% below the 1990 level by 2030 (including improved energy efficiency and increasing the share of renewable energy both by at least 27% by 2030), which is to provide the basis for future EU climate change mitigation policy.

59. Preparation of the National Climate Change Strategy, with an action plan, is in the initial phase and will provide a clear framework of activities in the fight against climate change during the period 2020 and 2030, as well as the framework for 2050. The Government of Serbia has also initiated measures to strengthen its MRV system, including information relevant for the EU Emission Trading System. These activities have been implemented with the financial and technical support of the EU.

60. The basis for reducing GHG emissions is strategic planning in relevant sectors in a way that will ensure further economic growth accompanied by low GHG emissions. Some sectoral documents have defined climate change as one of the key risks that need to be included in further development planning. Other documents, although not directly referring to climate change, anticipate activities and measures that will lead to a reduction of GHG emissions. Such documents are, for instance, the Environmental Approximation Strategy for the Republic of Serbia for the period 2011-2019 (2011) and the Waste Management Strategy of the Republic of Serbia for the period from 2010 to 2019 (2010).

61. Energy policy, as a key factor for GHG emission reduction, is addressed directly or indirectly by the following strategies and degrees: Draft Energy Development Strategy until 2025 with projections to 2030 (2015), the Second Energy Efficiency Action Plan for the period from 2013 to 2015 (2013), the National Renewable Energy Action Plan of the Republic of Serbia (2013), and the Decree on Incentive Measures for Privileged Energy Producers – Decree on feed-in tariffs (2013).The Law on Efficient Energy Use was adopted by the Serbian parliament in March 2013. A more detailed description of the energy sector policy framework can be found from the project document of the recently started UNDP/GEF project: "Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia".

62. Government Innovation Policy is defined in the “Law on Innovation Activity”, adopted first in2005 and with further amendments in 2009 and 2013. In accordance with the Law, the innovation policy is implemented through innovation activity programmes. Furthermore, it is stated that the ministry in charge of the scientific and research activity and technological development (currently the Ministry of Education, Science and Technological Development) shall be responsible for the establishment and implementation of the innovation policy, stimulation of “techno-entrepreneurship”, transfer of knowledge and technologies into the economy, development and upgrading of the innovation system and regulations in the sphere of protection and sales of intellectual property rights. The Ministry shall also “maintain electronic and publicly available database and record database on the registered innovation activity subjects, innovation and development projects and innovation activities by means of which the innovation activity programmes are carried out, pursuant to this law.”

63. The Law also provided the basis for the establishment of the Serbian Innovation Fund to promote innovations by providing funding for their further development and commercialisation, in particular through cooperation with international financial institutions, organizations, donors and the private sector. Further details about the ongoing programs of the Serbian Innovation Fund are provided in chapter 1.4.

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

64. 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 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.

65. 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 (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.

66. As concluded also by the First Biennial Update Report (FBUR) of Serbia to the UNFCCC: "In general, the level of integration of climate change issues in the sectoral and the general development strategies, the level of knowledge, institutional and individual capacities, the available technology and, above all, the financial resources are not sufficient for effective and prompt response to climate change and to combat its impacts and effects. Due to these reasons, the strengthening of cooperation at the bilateral, regional and international levels, as well as continuation of cooperation with the GEF is essential."

67. To effectively address climate change mitigation, there is a need to identify win-win opportunities addressing the primary concerns of municipal authorities and the city residents, while also producing tangible GHG reduction benefits. There is a wide and constantly growing spectrum of new technical and systemic solutions available, which can improve the quality and efficiency of public services and create new business and employment opportunities for local communities, while simultaneously contributing to climate change mitigation. The problem is that such new innovations and approaches may never make their way to the actual implementation stage due to different administrative, financial, public perception or other barriers - or simply, because the innovators and possible adopters and beneficiaries of these ideas are not aware of or do not trust each other. There may also be no concrete incentives, venues and initial resources to jointly develop such ideas further.

68. Some key barriers to climate smart urban development (CSUD) of Serbian municipalities are briefly summarized below:

Table 1.5 Key Barriers to Climate Smart Urban Development of Serbian Municipalities

Barrier Explained	Means of Overcoming Barrier
Information: The available public data on sectors and activities contributing to and/or affected by climate change is scarce, scattered, uncoordinated, difficult to access and not detailed enough to: i) conduct adequate baseline analysis; ii) identify attractive win-win opportunities for CC mitigation; iii) make informed decisions, develop proposals and attract financing for the proposed solutions; and iv) monitor the results.	In co-operation with the other ongoing donor funded activities and Government initiatives, supporting gradual build-up of an open data management system and data exchange platform, facilitating free public access to broad, credible and regularly updated information and data from various sectors contributing to or affected by climate change. Working examples of such approaches and development can be found, e.g. from Estonia by the "X-road" data exchange platform.
Institutional: Inadequate co-ordination of public entities in collecting and managing data from CSUD related sectors and services leading to overlapping and uncoordinated activities and inefficient use of resources.	New regulations or inter-ministerial and -sectoral agreements on co-ordinated data collection, data exchange and data management activities on the basis of jointly agreed data exchange platform(s) and data management principles.
Awareness and capacity: Lack of awareness and knowledge of municipal decision makers on the concept of smart cities and the opportunities provided by new IT and other technologies, new implementation modalities, new business and financing models and other solutions to improve the efficiency and quality of public services, while also reducing their costs and environmental impacts.	In co-operation with the MoAEP, SCTM, UNDP and other key stakeholders raising the awareness of key municipal decision makers by direct meetings, seminars and workshops, public and social media, different web-based applications as well by a launching a specific challenge program for climate smart urban development of Serbian cities.
Incentives, capacity: Lack incentives, venues and business incubator programs for developing, in co-operation with Serbian municipalities, new and innovative ideas, applications and solutions for climate smart urban development into mature business endeavours	In co-operation with the MoAEP, MoESTD, UNDP, Serbian municipalities and other stakeholders such as the Serbian Innovation Fund develop and implement a Challenge Program including capacity building of both the private sector and participating municipalities to define municipal challenges, acknowledge and evaluate proposal with innovative approaches and further develop and implement

	them with a particular focus on climate change mitigation within climate smart urban development in general
Financial: Lack of public funding and inadequate access to private sector funding to finance actual CSUD investments.	Collaboration with relevant Government agencies, other donors and private investors to identify and structure financing for the projects and, as applicable, support launching of new financing mechanisms targeting such CSUD related financing needs that are not covered yet by existing grant and lending programs.

1.3. Institutional Framework and Stakeholder Analysis

69. Similar to the data, the institutional responsibilities for climate smart urban development are scattered. While at the state level the Ministry of Agriculture and Environmental Protection (MoAEP) is the main Government entity responsible for climate change related issues in general as well as for any sectoral policies and measures affecting the agriculture and forestry sectors, the Ministry of Mining and Energy (MoME) is the key agency in charge for climate change mitigation related policy work in the energy sector and the Ministry of Construction, Transport and Infrastructure in the areas falling under its responsibility.

70. The Ministry of Education, Science and Technological Development (MoESTD) is managing areas dealing with education, research, innovation and intellectual property rights and is also hosting the Serbian Innovation Fund, while the Ministry of Finance (MoF) is the key stakeholder when it comes to the establishment of any new financial support mechanisms. Other key Government stakeholders and public entities at the state level include the Ministry of Public Administration and Local Self-Government(MoPALSG) and the Directorate for eGovernment working under that, the Ministry of Trade, Tourism and Telecommunications (MoTTT), Serbian Energy Agency (AERS), Serbian Environmental Protection Agency (SEPA) as a part of the MoAEP, the Statistical Office of the Republic of Serbia (SORS), State Hydrometeorological Services (SHS), Public Procurement Office (PPO), Institute for Standardization (ISS) to just mention a few.

71. In order to strengthen the cooperation and exchange of information between the relevant Governmental institutions, scientific and other professionals and local communities on climate change issues and policy, as well as to popularize them at the national level, the Government of the Republic of Serbia established the Climate Change Committee in November, 2014. Among the tasks assigned for it, the Committee shall:

- monitor development and implementation of national policies on climate change, sectoral policies and other planning documents, in terms of consistency with national climate change policies and propose measures for improving and coordinating policies, measures and actions in this field;
- monitor the fulfillment of international obligations of the Republic of Serbia in the field of climate change;
- review reports with regard to fulfillment of UNFCCC obligations, propose measures to mitigate climate change, greenhouse gas emission reductions, and adaptation measures;
- discuss amendments to laws and regulations relevant to climate change issues and provide its opinion to the Government;
- propose actions to combat climate change especially in the process of negotiation with the EU; monitor implementation and propose measures to improve the National Strategy on Climate Change with the accompanying Action Plan;
- promote the fight against climate change and mainstream climate change concerns into sectoral policies; and
- initiate changes in policies, legislation and measures with regard to climate exchange in accordance with European regulations and United Nations' standards, as well as draft decisions

important for the implementation of relevant projects and other activities in the field of climate change.

72. Members of the Committee are representatives of all relevant ministries and other governmental institutions, as well as representatives of universities and scientific institutions, including the: Ministry of Agriculture and Environmental Protection; Ministry of Finance; Ministry of Mining and Energy; Ministry of Economy; Ministry of Construction, Transport and Infrastructure; Ministry of the Interior; Ministry of Education, Science and Technological Development; Ministry of Health; Ministry of Foreign Affairs; Serbian European Integration Office; Office for Cooperation with Civil Society; Agency for Environmental Protection; Republic Hydrometeorological Service of Serbia; Statistical Office of the Republic of Serbia; Institute for nature conservation of Serbia; Provincial Secretariat for Urban Planning, Construction and Environmental Protection; Provincial Secretariat for Energy and Mineral Resources; Secretariat for Environmental Protection; City of Belgrade; University of Belgrade; University of Novi Sad; University of Nis; and Standing Conference of towns and municipalities. The decision to establish the Climate Change Committee also envisages the possibility to include representatives of other institutions in the work of the Committee, including representatives of civil society.

73. The Directorate of eGovernment was established on 3 March 2011 (at that time as the "Directorate for Digital Agenda" as a body within the Ministry of Foreign and Internal Trade and Telecommunications) in accordance with Article 17 of the Law on Ministries ("Official Gazette of the Republic of Serbia" No. 16/2011). At the moment, the Directorate is operating within the organisational structure of the Ministry of Public Administration and Local Self-Government. Among its other obligations, the Directorate has been in charge for developing a strategy for Information Society development in Serbia by 2020.

74. At the local level, the key stakeholders are the local self-governments (municipalities). The biggest municipalities such as Belgrade typically have specific secretariats for energy, environment, transport, urban planning etc. to develop and implement local policies and measures in their particular area of responsibility.

75. The Standing Conference of Towns and Municipalities (SCTM) is a national association of local authorities in Serbia to facilitate discussion and formulation of opinions on common issues and problems and advocate this to the central authorities. It is also providing other services to its members through training, consultations and advisory support.

76. Private sector interest is represented, among others, by the Serbian Chamber of Commerce. There are also several other entities that could be engaged at various stages of project implementation. A more detailed stakeholder involvement plan is presented in Annex 8.4.

1.4 Baseline Projects and Other Related Past, Ongoing or Planned Activities

77. Several donors have supported and continue to support the development and implementation of climate change and urban development related activities, including both technical assistance and establishment of new specific purpose credit lines. Many of these activities may be seen to directly contribute also to the set objective and targets of the proposed UNDP-GEF funded CSUD project, but not necessarily in a fully co-ordinated way. The following paragraphs provide an overview of the achieved and/or planned results of these "baseline projects" in the context of each UNDP-GEF project outcome, to which these projects can be seen to primarily contribute. A more detail discussion on the project strategy and its complementarity to other past and/or ongoing activities can be found from chapter 2.1. There are no other ongoing GEF or other donor funded projects in Serbia with a particular focus on climate smart urban development.

Outcome 1: Improved access to and availability of data by an open data approach for development, management and monitoring of CSUD related performance of Serbian municipalities

78. At the request of the eDirectorate and the Ministry of Public Administration and Local Self-Government, UNDP and WB were conducting a joint Open Data Readiness Assessment (ODRA) in 2015.

As concluded by the final report of ODRA: While a wide range of government bodies were willing to move forward with open data and strong demand for open data was also found from the business community and civil society, "a successful national open data initiative in Serbia will also require:

- raising significantly greater awareness across government on what open data is and its potential as a policy instrument, thus creating more collective political commitment and sustained central leadership across government;
- Exploring creatively the possibilities of funding an open data program, or building blocks thereof, through both existing programs in e-government and administrative reform, as well as collaboration with donors (in both existing projects to strengthen public service and societal impact, and in specific open data projects);
- A strong collaborative effort between government agencies, civil society and the business and developer community, to build more trust between government and non-government stakeholders; and
- Leveraging the small clusters of relevant IT and data expertise across a wider section of government bodies."

79. By building on the findings of ODRA, an action plan for the proposed Open Data Working Group (ODWG) consisting of key Ministries and Agencies showing interest to move ahead with the open data concept was formulated with an attempt to define key steps to be taken by the end 2016. This action plan together with the Serbian e-government Strategy provides an excellent basis also for the proposed CSUD project to identify and implement activities of common interest, including pilot projects with a particular focus on CSUD related data and information.

80. There are also several projects supported by various donors that have been supporting or continue to support activities that enhance data availability from various CSUD related sectors and/or which have collected this data as baseline information for developing CSUD related inventories, scenarios, strategies, action plans, performance indicators and/or used it for monitoring and from which national level data can be integrated, to the extent feasible, also to the open data management system to be promoted by this CSUD project. Among these are:

- UNDP-GEF supported Serbia's Initial National Communication (INC) under the United Nations Framework Convention on Climate Change (UNFCCC) completed in 2010 and the Second National Communication (SNC) completed at the end of 2015, including data on national circumstance, sector specific greenhouse gas emissions, climate change impacts and vulnerabilities in Serbia as well as on possible mitigation and adaptation measures.
- UNDP-GEF supported Serbia's First Biennial Update Report(FBUR) under the UNFCCC completed in October 2015 and including updated information on national circumstances, greenhouse gas inventories, climate change mitigation (including developing a cadastre of NAMAs and GHG emission projections until 2020), as well as identified constraints, gaps, and financial, technology and capacity building needs. The FBUR also contributed to establishing arrangements for domestic Measurement, Reporting and Verification.
- EU funded Climate Strategy and Action Plan project, including assessment of the Serbian climate change policy framework, updated national GHG emissions baseline and mitigation scenarios for 2020, 2030 and 2050, assessing the economic, environmental and social impacts of the developed mitigation scenarios, identification of CC adaptation options for 2030 and 2050 and finalization of a draft climate change strategy and action plan. All these activities include also certain data collection and management activities, which can contribute to and benefit from the proposed CSUD Open Data Management component. The project is expected to start in early 2016; and
- The EU supported ETS twinning projects (http://mmr-serbia.info/ and http://ets-serbia.info/ for the establishment necessary legal and procedural framework defining the roles and responsibilities of different Government and other entities involved in the process of monitoring,

reporting and verification on GHG emission and other climate change related information and enabling the implementation of the EU Emission Trading System in Serbia.

81. Several projects supporting the establishment of local energy management systems, including **Norwegian bilateral assistance** in 2007-2009, the **GTZ** Assistance to Serbia in 2010 for "Planning for Sustainable Municipal Investment in the Area of Rational Use of Energy" and "Strengthening of the Local Self-Government", **Japan International Co-operation Agency (JICA)**since 2010 and continuing under the "Project for Assistance of Enhancement of Energy Management System in Energy Consumption Sectors in the Republic of Serbia" started in 2014 and more recently the new **UNDP-GEF** funded "Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia", the implementation of which was started at the end of 2015. The project objective is "to introduce and support the implementation of municipal Energy Management Systems (EMS), including Energy Management Information Systems (EMIS), throughout Serbia, to increase the energy efficiency investments in public buildings and municipal services and to facilitate their more energy efficient operation in general. While the minimum project target by the end of the project is to have at least 30 Serbian municipalities to formally adopt and start the implementation of EMS and EMIS, the project also seeks to facilitate their replication in other Serbian municipalities. More details on all of these projects can be found from the project document of the mentioned UNDP-GEF EMS project.

82. The main connection point of the activities listed above to the proposed new CSUD project will be an effort to establish a well co-ordinated and open data management system (avoiding overlapping activities and related waste of resources for basic data collection activities) for all key CSUD indicators and required baseline data, which can be used by different entities to monitor the CSUD related performance of Serbian municipalities, for identifying areas and subsectors with biggest opportunities for the promotion of CSUD, for using the data in different IT and other energy saving and renewable energy applications as well as for calculating the GHG reduction impact of the suggested innovations and other measures. The energy performance of Serbian cities both in terms of energy efficiency and the use of renewable energy will be among those CSUD indicators and much of the required monitoring data for this is expected to be possible to draw directly from the EMIS.

83. The proposed CSUD project and the component 1 in particular seeks to complement the EMIS by defining and adding monitoring data for other CSUD indicators such as from the transport, waste and eventually social sectors and also work on the interfaces and applications that may use the data both from EMIS and other databases in a fully integrated and easily interpreted and reusable form. For component 2 of the CSUD project, much of the baseline data for any eventual EE related challenges is expected to be drawn from EMIS. EMIS may also be used by the participants responding to such challenges in identifying the areas and subsectors for the biggest opportunities for energy savings as well as for calculating the GHG reduction impact of their suggested innovation.

84. The SNC together with the FBUR and the envisaged future preparation of the third national communication of Serbia and the Second Biennial Update Report, will link to the proposed CSUD project as it concerns, in particular, the preparation of national GHG inventories and mitigation plans. The open CSUD monitoring and information management systems should directly contribute to the preparation of future national GHG inventories and mitigation plans together with the Energy Management and Information Systems supported under the UNDP-GEF EMIS project.

85. The **Swiss Co-operation Strategy** for Serbia in 2014-2017 is defining three main objectives for the Swiss support: i) advance democratic, efficient and effective governance in Serbia; ii) enhance the competitiveness of the Serbian economy; and iii) increase energy efficiency and the use of renewable energy. The European Energy Award[29] is proposed to be used as an instrument for monitoring energy policies and project progress in the frame of the "Renewable Energy and Energy Efficiency project", which can be seen both as a beneficiary of and contributor to the CSUD project, also as it concerns the proposed Open Data component. Other components of this Swiss supported project with a link also to the CSUD

[29]http://www.european-energy-award.org/home/

project include, among others, capacity building of teachers, students and facility managers on energy efficiency and renewable energies and investments in thermal rehabilitation of school buildings in four selected municipalities (Krusevac, Paracin, Vrbas and Uzice).

Outcome 2: New innovative technical and systemic solutions and business models contributing to climate smart urban development identified, tested and replicated.

86. Both the central Government and several donor agencies have been and are active in Serbia providing technical assistance to municipalities on administrative as well as on technical issues, complemented by different grant and/or loan based financing instruments to support the actual investments. Among the projects and support mechanisms associated with climate change related sectors and topics, the following, for instance, can be mentioned:

87. **The Serbian Ministry of Mining and Energy** is managing a national energy efficiency budget fund with an allocation of 180 million dinars (about USD 1.7 million) for 2015 and which can co-finance public sector EE projects with up to 15 million dinars (about USD 140,000) and up to 70 % of the total projects costs. The annual budget allocations and funding levels are decided on an annual basis together with the other budget planning.

88. The implementation of the **UNDP-GEF project "Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia"** was started in May 2014 with a focus on institutional strengthening, awareness raising, capacity building and creating an enabling policy framework for increasing the use of biomass as an energy source in Serbia. As a complementary incentive to encourage private investments in biomass energy, the project includes an Investment Grant Support Mechanism to support at least 6 biomass/biogas projects that feed electricity into the grid, followed up by another twelve projects that are expected to be realized after the end of the project. Models for long term biomass supply agreements and appropriate licensing procedures necessary for developing biomass market in Serbia will also be prepared. The areas for co-ordination between the CSUD and the UNDP-GEF biomass projects consist of information sharing as it concerns any biomass related activities as well as possible challenges within the challenge program that may complement the activities of the biomass project for topics and areas that may require such complementary support. An illustrative example of such support could be, for instance, a challenge prize for launching and successfully implementing a new business idea for improving the collection of industrial waste wood, forest residues or other organic materials for sustainable long term fuel supply to the planned bioenergy plants or a challenge for new, more efficient and environmentally friendly wood stoves used by households.

89. **KfW Municipal Environmental Grant Loan Investment Programme (MEGLIP)** supporting investments in energy efficiency and environmental measures of municipalities through long-term financing, investment incentives and technical assistance and consisting of a credit line disbursed through two local banks with total amount of 30million Euros. Renewable and energy efficiency projects with energy savings of at least 20% (or projects with significant "environmental benefits") are eligible for funding and may include, among others, projects on EE improvement of public buildings, district heating systems, sewerage, waste water, solid waste, street lightning and public transport. Available financing includes soft loans with a maturity of up to 9 years and a complementary investment grant (funded by EU IPA) of 15% for EE and RE projects and 20% for other environmental projects. In addition, the project can provide technical assistance for partner banks to increase their internal capacity to evaluate and finance EE and RE projects and to municipalities to develop eligible projects.

90. **EU funded European PROGRESS[30](EP)** and **EU-IPA funded Municipal Infrastructure Support Program (MISP)[31]**. While the **EP** project as per its stated objectives is to support Serbian municipalities by contributing to sustainable development through improved coordination between the national and local authorities, strengthening local self-governments- planning and management capacities and creating a

[30] http://www.europeanprogres.org

[31] http://www.misp-serbia.rs

more favourable environment for employment, business and infrastructure growth as well for enhanced good governance and social inclusion in general, the **MISP** is to assist the Serbian municipalities: i) in developing infrastructure policy and coordination mechanisms, ii) to develop the project pipeline and it's management mechanisms; iii) to develop municipal capacity to prepare projects; iv) and to carry out the highest priority projects with an overall objective of MISP IPA 2010 "to contribute to the decentralization process and to prepare Serbian Municipalities for EU accession." The projects supported so far have primarily focused on the waste management sector (solid waste management and waste water treatment).

91. **EU/EBRD Western Balkans Sustainable Energy Financing Facility (WeBSEEF)** with a credit facility of 92 million Euros able to finance private sector EE and RE investments by loans up to 2 million Euros (complemented by financial incentives i.e. grant of 5–10% of the loan amount) and municipal EE and RE investments by loans up to 2.5 million Euros (complemented by financial incentives of 10–15% of the loan amount). Other eligibility criteria include energy savings or CO_2 reduction of at least 20% from the initial level (for building EE measures at least 30%) and for renewable projects a simple pay-back period below 15 years at the time of the approval. For municipalities typical investments include: Replacement of old and low efficient lighting, window/door replacement, thermal insulation of the building envelope (external walls, roofs, basements), rehabilitation of existing heating (thermal insulation of pipes, tanks and machinery equipment, rehabilitation of street lighting (only measures relevant to improvement of energy efficiency), rehabilitation of air-conditioning/ventilation system, on site co-generation/tri-generation, replacement of existing boilers with more efficient ones (e.g. condensing boilers) or due to fuel switching, rehabilitation of heat distribution systems including implementation of heat control and measurement measures, implementation of solar thermal collectors and implementation of building management systems. Eligible borrowers for the public sector loans include municipalities, public or private companies delivering municipal services and directly responsible for the implementation of the investments or Energy Service Companies (ESCOs) implementing energy efficiency investments in co-operation with one or more municipalities or public companies.

92. The Swedish Co-operation Strategy for the period of 2014-2020 is defining three main objectives for the Swedish support in the Western Balkans sub-region, including "better environment, reduced climate impact and enhanced resilience to climate change. The activities supported under this program and the related co-operation opportunities with the UNDP project are elaborated in further detail in the letter presented in Annex 8.2

93. **The GTZ bilateral cooperation** in the energy efficiency field supported two projects in 2005-2010:

- "Modernization of Municipal Services" (2005-2008) with the focus on small scale investment projects in the field of energy efficiency, water provision and waste management, and
- "Strengthening the Local Self Government" which was mostly oriented to capacity building of Serbian municipalities for sustainable investments in municipal infrastructure (energy efficiency, water provision and waste management) in terms of planning and designing.

94. Both projects had a large component to promote municipal energy efficiency. Within the first project GTZ co-financed some 16 municipal EE investments, such as modernization of public lighting system, EE retrofits of public buildings and DH substations totalling approximately 1 million EUR. As a part of the second project, GTZ supported energy audits in several public buildings and elaboration of the planning and design documents of 17 municipal energy efficiency projects. The capacity building activities focused on training of municipal energy managers for the elaboration of municipal energy balances and the preparation of municipal energy efficiency projects by continuing the support provided earlier by the Government of Norway. In total, representatives of 103 municipalities were trained on data collection and the elaboration of energy balance on a local level and 60 municipalities developed their local energy balance along with municipal energy efficiency project proposal. With the exception of few municipalities, however, this has not been systematically followed up.

95. A joint UNECE and UN-HABITAT regional project "Strengthening national capacities for sustainable housing and urban development in countries with economies in transition"[32]The project to be implemented in 2014 – 2017 will support sustainable housing in four selected countries with economies in transition (Armenia, Republic of Moldova, Serbia and Tajikistan) by assisting their national governments in the formulation and implementation of relevant policies and by developing National Action Plans for Sustainable Housing and Urban Development. The most recent workshop in the frame of this project in Serbia was organized in November, 2015. [33]

96. Last but not least, the **Serbia Research, Innovation and Technology Transfer Project** was launched on February 2, 2015 at the Serbian Academy of Sciences and Arts in Belgrade. This joint project of the Ministry of Education, Science and Technological Development, the European Union and the World Bank is financed with €2.5 million Euros from EU's pre-accession funds through July 2018. The project builds on the successes of the ongoing EU-funded Serbia Innovation Project, which helped establish the Serbia Innovation Fund. With an EU grant of 8.4 million Euros, the Innovation Fund has successfully supported 53 innovative start-ups between 2011-2014.

97. The new Serbia Research, Innovation and Technology Transfer Project is aimed at helping the Ministry and the Innovation Fund to further boost research and development (R&D), and innovation in Serbia and to pilot a system of technology transfer in order to foster a knowledge-based economy. Support is currently provided through two specific programs: [34]

98. "The MINI GRANTS financing Program is aimed to support an early-stage, private, micro- and small-enterprises, which possess a technological innovation that have a potential for creation of a new intellectual property (IP), and clear market need. The purpose of the MINI GRANTS Program support is to stimulate creation of innovative enterprises based on knowledge via private sector start-ups or via spin-offs by providing financing for market-oriented innovative technologies and services with high commercialization potential."

99. "The MATCHING GRANTS Program aims to expand collaboration opportunities for Serbian innovative micro, small and medium sized companies with strategic partners (e.g. private sector industry, R&D organizations and venture capital/private equity funds) with the goal to increase private sector investment in technology development and commercialization projects for new and improved products/services."

100. The first Clean Development Mechanism (hereinafter CDM) project of the Republic of Serbia was registered by the UNFCCC in November 2011. Seven CDM projects were registered by June 2013. Out of the seven CDM projects registered so far, four are wind energy projects.

101. In April 2013, 12 Nationally Appropriate Mitigation Actions (NAMA) plans, seeking support for implementation, were submitted to the NAMA Registry operated by the UNFCCC Secretariat. NAMAs plans mainly refer to the energy supply sector (65%), construction (29%) and transport (6%). The identification of these NAMAs and preparation of the necessary documentation was accomplished through the project "Strengthening capacity to prepare nationally appropriate mitigation actions" in cooperation with the Japan International Cooperation Agency (JICA).

102. The proposed CSUD project will complement these initiatives by supporting and encouraging a variety of stakeholders, including local public authorities, CSOs, private companies and individual citizens to get access to and leverage these financing resources by facilitating better and open access to the required baseline data, put mechanisms in place for effective monitoring and evaluation of the results, encourage and provide required publicity for the development of new technical solutions and business models by the "challenge fund" approach and provide required backstopping by the project's knowledge

[32]http://www.unece.org/housing/unda.html

[33]http://www.unece.org/index.php?id=40615#/

[34]http://www.innovationfund.rs/about-if/

management and “coaching” activities with a specific focus on technologies, investments, new business ideas and financing modalities that will contribute to climate change mitigation and Serbia’s Intended Nationally Determined Contributions under the UNFCCC.

2. PROJECT STRATEGY

2.1. Project Objective, Outcomes and Outputs

103. 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.

104. 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".

Outcome 1: Improved access to and availability of data by an open data approach for development, management and monitoring of CSUD related performance of Serbian municipalities

105. Along with the rapid development of the information and communication technologies (ICT), the need and new technical possibilities for open information sharing by public authorities has drawn much attention in recent years. While improving the transparency of public decision making in general, this "open data" approach may also encourage the users of different communal services to think how to deliver such services in a more cost-effective, socially acceptable and/or environmentally friendly way as well provide a ground for new innovations that may either directly or indirectly use the data made available.

106. The activities and outputs contributing to outcome 1 of the project will assist the participating municipalities to develop their capacities to gather and monitor CSUD related and, to the extent possible, real time data with an emphasis on integrated, cross-sectoral data management systems and development of web portals and mobile platforms for facilitating public access to this information. By a step-wise approach, gradually increasing development and implementation support will be made available for solutions and sites demonstrating best progress and success. More specifically, support is foreseen to be provided in the following areas:

- Review of the current monitoring and information management systems and related institutional arrangements and data collection procedures both at the central and local government levels in CSUD related sectors such as energy, transport, construction, urban planning, water and waste management and on the eventual administrative and other barriers to implement such systems in a more integrated and co-ordinated way;

- Initial awareness raising and capacity building of the key public sector and other stakeholders such as CSOs, research and academic institutions, the private sector(incl. ICT system developers) and the general public on the Open Data concept, related challenges and opportunities as well as organisational and technical options to implement such systems in practice, while also collecting their views, ideas and, as applicable, Expressions of Interest / MoUs to participate and contribute to this work;

- By building on the results and conclusions of the initial consultations, developing and launching an Open Data Challenge (ODC) for encouraging innovations and broad stakeholder engagement with related public outreach, awareness raising and capacity building targeting both the municipalities and the other key stakeholders for the conceptual design and implementation of an integrated on-line and, to the extent possible, real-time CSUD monitoring and information management system (CSUD-MIMS);

- Based on the agreed selection criteria and further consultations with the municipalities that have expressed initial interest, sign agreements with up to 10 municipalities to participate in further development and piloting of the CSUD-MIMS, including agreed institutional and financing arrangements for facilitating this in practice;

- Further elaboration of CSUD indicators and benchmarks, on the basis of which the participating municipalities can set targets, assess their performance and monitor their progress towards these targets that may relate to energy use, generation and related GHG emissions, urban transport and waste management or different social indicators, which may be later linked also to urban NAMAs.

- Complementary TA and coaching of the teams and municipalities leading to finalized design and implementation of the CSUD-MIMS based on an open data approach. This shall include, among others, training and required ICT hard- and software support for establishing CSUD data collection, data exchange and reporting platforms as well as support for selecting appropriate methodologies and development of templates for preparing GHG inventories and CSUD action plans at the municipal level;

- First annual CSUD performance reports (including local GHG inventories) by participating municipalities based on the first year implementation of the CSUD performance monitoring and information management system established during the project;

- The most advanced and progressive municipality/ies in Serbia in implementing and further developing an integrated CSUD performance monitoring and information management system awarded with the CSUD Open Data Challenge Prize; and

- Public outreach and capacity building to encourage replication of similar system(s) in other Serbian municipalities and further development of municipal on-line services in general.

107. For any energy related data, the project can build on the groundwork to be laid by the recently started UNDP-GEF EMIS project (PIMS 4588, GEF ID: 5518) to introduce and support the implementation of municipal Energy Management Systems (EMS), including Energy Management Information Systems (EMIS). Compared to the EMIS project, however, the new CSUD project is seeking to apply a more multi-sectoral approach across the different secretariats of municipal administration addressing the environmental, housing, construction, urban planning, waste and water management, transport, energy and social issues in line with the smart city concept and ideas.

Outcome 2: New innovative technical and systemic solutions and business models contributing to climate smart urban development (CSUD) identified, tested and replicated.

108. By building on the better access to CSUD related data supported by the first project component, the activities contributing to Outcome 2 will support the design, establishment and operation of a CSUD challenge program to initiate and support new innovative measures leading to actual GHG emission reduction. The program will target businesses, academic and research institutions, civic society organisations (CSOs), communities and their citizens, and will seek to identify solutions, which involve partnerships between these groups. In doing so, the aim is to harness entrepreneurship and innovation and foster shared goals around CSUD in co-operation with the participating municipalities, which will be the primary beneficiaries of the activities funded and implemented.

109. The challenge program will be designed by taking into account the latest international experience and lessons learnt, while at the same time considering the specific challenges and framework conditions in Serbia. The design considerations will include, among others:

- Clear definition of the challenges around specific public service (e.g. district heating, public transport, waste management, energy supply, lighting, etc.), which has to be improved, while at the same time secure clear climate benefits (GHG emission reduction). The priority areas (initially up to three), for which the challenge program should invite proposals, will be identified in co-operation with the municipalities that have expressed their interest to participate in the program implementation;

- Focus on innovative, but at the same time implementable solutions that can be implemented and brought to development quickly and bring direct economic and social benefits to the local communities, while also producing real and tangible GHG reduction benefits in a cost-effective way. Solutions based on new business models, effective use of ICT for CC mitigation and those advancing behavioural shifts (e.g. by "nudging") will be encouraged;

- An approach of multiple stages. Applicants will be guided through multiple stages, with low-barriers to entry for early rounds, followed by increasingly demanding stages. These stages will be scheduled on a tightly focused timetable, generating a sense of momentum to turn ideas into action. Technical and financial support will be offered at each stage strengthening proposals as they advance; and

- Substantial financial prizes and other support for the winning solutions to encourage their initial development as well as testing them in practice. In addition to GEF funding, co-financing will be sought from other stakeholders including, as applicable, large private sector IT and other companies

110. By taking into the considerations above, the specific outputs contributing to Outcome 2 are envisaged to consist of:

- An updated baseline and scoping study and consultative meetings, workshops and other means and mechanisms for advocacy and community engagement (such as different ICT based solutions) for elaborating the specific framework conditions and priority challenges and provide a basis for the final design of the CSUD Challenge Program in those specific areas and sub-sectors, for which launching a CSUD Challenge Prize appears as an attractive and feasible option;

- Finalized design and implementation plan of the CSUD Challenge Program;

- Established CSUD coaching team to support the evaluation and further development of the ideas presented for the CSUD Challenge Program, including a network of international research institutes and professionals that may provide technical backstopping and share knowledge on the latest international developments in their particular field (e.g. by on-line support, specific support missions and/or as invited speakers to the events organized by the project).

- Launching of the CSUD Challenge Program together with related public outreach events and materials (including a dedicated CSUD Challenge Program website/portal[35]), networking and joint

[35]An option to integrate this with the www.klimatskepromene.rs will be considered during project implementation

innovation events such as “hackathons”, events for start-up companies having ideas contributing to the CSUD project goals to meet investors;

- Selection of the projects / project ideas (initially around 10) for the first phase of the Challenge Program and supporting their further development and, as applicable, initial testing;
- Selection of the winner or 2-3 finalists for the final round of the Challenge Program (to be decided during the project implementation) and supporting its/their actual implementation in co-operation with the selected municipalities[36];
- The final awards granted based on the one year monitored, reported and verified performance of the supported pilot initiative(s); and
- Public outreach to encourage and facilitate the implementation of the winning solutions in other Serbian municipalities, including structuring financing for them.

111. The activities supported by the CSUD challenge program will be closely monitored throughout their implementation and the gathered information and lessons learnt analyzed, documented and disseminated. The innovations and solutions showing potential for replication will be promoted by specific events, eventual documentaries, web-based information sharing platforms (incl. eventual virtual CSUD market places) and other supporting materials and actions to raise awareness, facilitate contacts and establishment of new business and other partnerships as well as by building the capacities of both the innovators and foreseen beneficiaries to further develop the proposed solutions and structure financing for them. Such marketing and business development support by open data, information and knowledge sharing platforms can also benefit the non-awarded innovators and proposed solutions.

112. As required, the project will also support further development of an enabling policy environment for climate-smart urban development, including social innovations with links to smart urban planning policies and community engagement, efforts to create new "green" jobs, promoting "circular" and "sharing" economies together with decentalized renewable energy generation, "zero energy" facilities etc. For this, the project looks forward to work in close co-operation with the relevant institutions of the participating municipalities, as well as with national authorities, such as the Ministry of Agriculture and Environmental Protection, the Ministry of Mining and Energy, the Ministry of Construction, Transport and Infrastructure, the Ministry of Public Administration and Local Self-Governments, the Ministry of Education, Science and Technological Development and others. An essential part of this work will also be to support both the national and local public authorities in further development and operationalisation of the public financial support mechanisms such as the Green Fund to encourage innovation and their efficient use to maximize the climate change mitigation and other environmental benefits *vis a vis* the resources available. By guiding and directing the Green Fund, for instance, on how to build partnerships and combine national public funding with international donor funding as well as with the resources of the private sector (by a PPP model) to co-finance CC interventions at the local level, the project seeks to contribute to the sustainability of the effort.

113. Apart from the envisaged outputs and activities described above, the project success in reaching its stated targets at the objective and outcome level will ultimately depend on the adaptive management skills of the project management to reflect the changing project environment, new emerging opportunities and often unpredictable challenges that are faced during the implementation of the project. Therefore, while the overall project objective and targets at the outcome level should remain similar to those defined above as well as in the project’s strategic results framework in chapter 3, the specific outputs and activities shall be subject to constant monitoring and evaluation of their adequacy and

[36]For all candidates applying for the final round of the challenge program, a letter of commitment from at least one municipality to test the idea and co-finance its implementation (if awarded by a grant) will be considered as a prerequisite for participation. The share of co-financing by the amount stated in the letter will also be considered as one of the evaluation criteria.

relevance for reaching the stated project targets and to adaptive management during project implementation, when and as needed.

Outcome 3: Knowledge management and M&E to facilitate learning, scaling up and replication of project results.

114. The outputs and activities under Outcome 3 will mainly consist of those standard UNDP M&E procedures and requirements, which are described in further detail in chapter 6. Besides, a particular emphasis under outcome 3 will be placed on generating, maintaining and disseminating knowledge and lessons learnt to encourage and facilitate further development, scaling up and replication of the project results and intervention strategy. Some particular outputs in this respect will consist of:

- Well maintained and regularly updated CSUD knowledge management web-portal with institutional arrangements and agreements in place to continue its operation also after the project;
- An end of the project "lessons learnt" report and recommendations for future work; and
- An international mid-term and final knowledge management seminar

2.2. Project Indicators, Risks and Assumptions

115. In accordance with the indicators of the GEF-6 Results Framework adopted by the GEF Assembly in May 2014[37] and shared by all the strategic objectives and programs for climate change mitigation, the key success indicators of the project should consist of:

- Tons GHG reduced or avoided;
- Volume of investment mobilized and leveraged by GEF projects for low GHG development, and
- Having a MRV systems for emissions reductions in place and reporting verified data,

116. As it concerns the UNDP Strategic Plan (2014-2017) and its Outcome 5 ("Countries are able to reduce the likelihood of conflict, and lower the risk of natural disasters, including from climate change"), as well as the new UNDP Country Program Document (CPD 2016-2020), the key success indicators of the project should reflect on:

- Number of sector and subsector policies, strategies, regulations that incorporate climate change mitigation and adaptation measures;
- Share of renewable energy in gross final energy consumption;
- Number of priority adaptation and mitigation measures started and under implementation

117. For gender related indicators, it is to be noted that females are responsible for the bulk of household work and are performing the biggest part of the so called "non-paid" activities in house, including cooking, ironing, washing and similar. Hence any climate smart urban development activities and services that relate to such works can affect differently the men and women.

118. In relation to the Open Data concept, the project will insist on provision of gender disaggregated data. It will also be important to show the impact of making such data public and create public awareness campaigns in such a way that they reach the "real" beneficiaries.

119. When it comes to the actual investments i.e. the challenge program, the project will develop gender-sensitive criteria and each of the programs should elaborate their impact on both women and men. Possible examples of gender-specific activities may include: energy efficient lighting systems to contribute to a safer environment for women; improved irrigation systems and other alternative energy sources may contribute to energy savings for women gardeners and small rural households; looking at possible improvements in public transportation both in terms of using electric buses and looking at the alternative

[37]https://www.thegef.org/gef/GEF6-Programming-Directions

routes that would match the specific needs of women (bus stop close to the kindergartens and schools, as well as the main grocery stores and green markets) etc.

120. The main identified risks to the successful implementation of the project include:

- Political risk due to the lack of political will either at the central or local governmental level to effectively participate in the implementation of the challenge program and/or the winning solutions. Another significant factor contributing to this are the upcoming state and municipal elections, which may influence the project progress both before and after the elections. This risk is sought to be mitigated by identifying win-win opportunities not addressing climate change mitigation only, but challenges, on which there is a common agreement within the participating municipalities to be among the most pending ones. Furthermore, the final selection of the participating municipalities is suggested to be done only during the final design and/or implementation of the Challenge Program on the basis of their demonstrated interest and commitment to effectively participate in and contribute to project implementation;

- Financial risk that the municipalities do not have the financial resources to invest in the proposed solutions or for their effective replication. Some uncertainties also still remain with the establishment of the National Green Fund as one of the main envisaged co-financing sources of the project. This risk is sought to be mitigated by exploring also alternative Government funding mechanism throughout the project implementation. A number of ongoing parallel projects funded by both bi- and multilateral donors and the already existing environmental funds managed at the level of local governments will also mitigate this risk, since the solutions showing biggest potential for success may also be picked up for their financing;

- A risk that the announced challenges and prizes do not motivate the innovators i.e. no proposals of decent quality and amount are received. This risk is obviously very real, while also difficult to predict in advance, but is sought to be mitigated by careful preparation and design of the set challenges, including a comprehensive scoping study, consultations and capacity building of both the municipal and other key stakeholders in prior to launching the challenge. The reward for winning solutions (in terms of money, recognition, visibility or potential for replication) should be assessed as high enough by the innovators considering their participation to justify the risk of not being awarded. Adequate follow-up should also be secured for those non-awarded, but still promising solutions that may benefit from the complementary information sharing and networking activities of the project;

- Technology risk: Due to technical failure of the equipment and/or software used, the trust of the key stakeholders and investors on the proposed solution(s) is lost. Given the innovative nature of the proposed solutions, this risk is definitely present, but is sought to be mitigated by adequate pre-testing of the proposed solutions. As a part of that, adequate emphasis also needs to be put on the network safety and data protection of any ICT solutions tested and taken into use;

- Environmental risk: The proposed solution(s) may generate waste that is harmful to the environment, if not properly managed and disposed. The project will mitigate this risk by having as an obligatory component for all challenges that the proposed solutions need to include an environmental impact assessment (not a full-fledged, but of a scale corresponding to the type and stage of development of the proposed solution) addressing also the waste issue;

- Organisational risk of overlapping project activities with other donor funded projects leading to duplication, inefficient use of resources and “donor fatigue” of the targeted beneficiaries. Given the nature of the project, this risk is considered to be relatively low. A considerable effort has also been made during the project preparatory phase to fully co-ordinate the design of the project with the activities supported by other donors. This effort will be continued by UNDP and the operational project management during project implementation and is expected to be supported also by the Ministry of Agriculture and Environmental Protection as the main Government counterpart agency of the project;

- Operational risk concerning inadequate local capacity at the municipal and central government level to effectively run or participate in the Challenge Program. The strong focus of the project on capacity building and coaching is expected to mitigate this risk;

- Operational risk due to inadequate and/or non-capacitated human resources of the core project team to successfully implement the project and support the mainstreaming of its results. Due to the innovative and somewhat exceptional project implementation approach, this risk is considered to be relatively high. Given the critical role that the project manager and the rest of the project team has in achieving the project results, duly emphasizing and taking into account the required qualifications to be presented in greater detail in the Terms of Reference of these positions will be of utmost importance for project success. Furthermore, this risk is foreseen to be mitigated by teaming up with an international expert entity having experience of designing and running challenge programs in other countries as well as by benefiting from the resources of the coaching team to be established under component 2 of the project.

121. A typical risk for different training and capacity building activities is that after the completion of training, there will be no real demand for the services of the trained experts. The integrated approach adopted by the project is expected to mitigate this risk by combining the training with concrete possibilities to apply the new skills in practice in implementing the challenge program(s) and the proposals submitted under them.

122. For addressing the operational project management risks, a professional and committed project management team with adequate adaptive management, outreach and networking skills is absolutely essential for the success of the project. It should have an ability: i) to engage the key stakeholders into constructive discussion about the future development and implementation of the challenge programs and the proposed CSUD solutions; ii) to guide and supervise the studies done and effectively co-operate with the international experts who are engaged to support this work; iii) to present their findings and recommendations in a convincing manner to key policy-makers and opinion leaders by taking into account the main macroeconomic and policy drivers to support the adoption and implementation of the challenge programs and the proposed CSUD solutions; iv) to support the participating municipalities to leverage financing for the identified follow-up investments; and v) by ongoing monitoring and evaluation of the project progress against its targets, an ability to adapt the project implementation to the changing circumstances, main support needs and challenges, which may have not been fully reflected or be in place at the original project design. During the project implementation, the project management also needs to be supported by qualified national and international technical, PR and legal experts.

123. As specific institutional challenges or risks, the following, among others, can be mentioned:

- As a result of frequent and, sometimes, radical changes, the Serbian institutions operate in a continuing state of transition, which significantly affects the pace of setting and implementing progressive policies and achieving their goals. As an example, the Ministries responsible on energy and environment were restructured several times during the past few years. Each change in the set up typically causes delays of at least two months in implementation of ongoing activities;

- Due to required budgetary savings, the role of the public utility companies (PUCs) is currently being discussed in effort to force them to work on a more commercial basis. In the case the municipalities do not see this as possible, they may consider abolishing them, which needs to be taken into account when planning the project activities and the counterparts the project will work with;

- Inadequate staff resources in public administration, with the current staff often overwhelmed by day-to-day administrative burdens, including a need for major legislative work to bring the current legislation in line with the EU Acquis, which leaves less time for other new initiatives;

- Frequent changes in the political set-up significantly affect local self-governments (municipalities and cities). Typically, a few months before the elections both decision making and operational structure of the local self-government operate on idle, anticipating changes. Also after the elections,

local self-governments stay for some time non-functional before the new leadership is appointed. In other words, elections may result in several months of standstill in developing and implementing any new policy measures. Frequent practice of the newly appointed leadership is also to replace all decision-making staff even at the technical level, including the staff in PUCs. Institutional discontinuity along with the lack of qualified human resources may result in a very low capacity of the local self-governments to deal with modern technical and management practices;

- Co-operation between the local self-government and state authorities highly depends on political affiliation of municipal leadership. Should the prevailing party in the local self-government be different than the one, from which the minister comes, the cooperation is usually poor;

- Day to day politics has excessive influence on both the strategic as well as on short term policy planning. As an example, the ministries from different political parties may struggle for domination in areas where funds are available or budgetary allocations are higher;

- Only few municipalities and big cities have some form of demand side management, but the actions are mainly focused on the production side. The main driver is the need to provide technically reliable supply of energy and other municipal services. Although in some municipalities efforts towards improved demand side management have been made, the entities expected to be in charge of this have also suffered from quite small operation budgets and inadequate staffing. In addition, they are quite vulnerable to any future political changes;

- The technical and financial management of public assets and utility services is done separately. As an example, the energy purchases and payments may be under the responsibility of the financial departments, while the people dealing with the operative work and having direct insight and influence in the technical management and maintenance of public buildings and utility services belong to another department, the success of which may be assessed only by technical merits;

- Most municipalities have no systematic data collection on typical climate smart urban development indicators (see figures 1.2–1.4), thereby leaving the municipal decision makers without an adequate basis to set up local policies and targets to develop their cities as “smart” ones. For any energy related data, the obligation for all municipalities with over 20,000 inhabitants to establish an energy management system (also supported by the recently started UNDP-GEF EMIS project) should improve the situation in this area, however.

124. As illustrated above, the institutional challenges for effective introduction and implementation of climate smart urban development initiatives and practices are significant, manifold and complex. They are not, however, impossible to overcome step by step in the case adequate and broad political support from the key stakeholders can be ensured and adequate number of municipalities is found, where both the management and the operational staff are motivated to champion the challenge and provide a precedent for others to follow.

125. Smaller municipalities may sometimes show bigger interest in co-operation on climate smart urban development related topics, which could be explained, among others, by following reasons:

- Budget structure of smaller municipalities is simpler, hence the relatively high costs of energy and other public utility services are more visible;

- Budget of small, and poor, municipalities is stretched to the limit, therefore opportunities for savings will be considered more carefully;

- A number of donors were active in small municipalities. They trained municipal officers how to collect and interpret data on different public services and prepare proposals for improving their efficiency. Many donors have also financed a number of such projects;

- Municipal officers who passed trainings have less internal administrative hurdles to deal with data collection and preparation of proposals for improving the efficiency and quality of public services; and

- Experienced and skilled municipal officers may have relatively straight forward communication with municipal decision makers and hence eventually more backing for their initiatives, provided that the decision makers and mayors understand the topic.

126. As an example, some smaller municipalities such as Vrbas and Varvarin have made some good progress on energy efficiency. This also reveals the main deficiency of the current institutional framework, however: The achievement of results depends too much on the commitment and efforts of individuals, for whom it may be easier to proceed in smaller municipalities. In bigger municipalities, administration is typically more bureaucratic and more vulnerable also to political influence, under which individual "bottom-up" initiatives are easily ignored. On the other hand, the GHG emission reduction potential and the impact of the measures contributing to this in the bigger municipalities may obviously be much larger than in smaller ones, which also needs to be taken into account in the light of the overall GHG reduction targets of the project.

127. Further details on the risks discussed above together with their probability and impact analysis and related mitigation measures, are presented in the "Offline Risk Log" in Annex 8-1.

2.3. Project Rationale and GEF Policy Conformity

128. 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.

129. Furthermore, it is requested that projects addressing climate change mitigation issues in urban systems shall "include a robust MRV system to assess the expected tangible results in terms of mitigation benefits. Such support may be particularly relevant for the transport sector, which faces challenges in developing sound MRV systems."

130. The indicators of the GEF-6 Results Framework shared by all the strategic objectives and programs for climate change mitigation include: 1) Tons GHG reduced or avoided; 2) Volume of investment mobilized and leveraged by GEF projects for low GHG development, and 3) MRV systems for emissions

reductions in place and reporting verified data. The complementary indicators for Program 3 under the CC Strategic Objective 2 include the: i) Degree of support for low GHG development in the policy, planning and regulatory framework; and ii) Degree of strength of financial and market mechanisms for low GHG development.

131. The project objective and outcomes are fully consistent with the eligibility criteria and contribute to the targets set in GEF-6 Programming Directions for Program 3 of the Climate Change Objective 2. The related success indicators have also been included into the Project Results Framework of chapter 3 of this project document.

132. 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.

133. The known history of challenge prizes goes back to the 18th century with the British Government offering a prize of £20,000 for anyone developing the most practical instrument and method for accurately determining the longitude in marine navigation – a critical and long pending challenge at that time. Another example is the still used food preservation method of canning, encouraged by a cash offer awarded in 1809 by Napoleon for a solution to preserve enough food for his far-reaching military campaigns. One of the best known challenge prizes of modern times is the USD 10 million Ansari X prize awarded in 2004 to the developer of the first reusable and privately funded space craft.

134. There have been some attempts to apply the challenge prize idea also for combating climate change, including the £1 million Big Green Challenge launched by a British Innovation Charity NESTA in 2007 to encourage and support community-led responses to climate change and the USD 20,000 Renewable Energy Challenge launched jointly by UNDP and NESTA at the end of 2012 for a renewable energy solution capable of providing off-grid power to cover the basic needs of an average war-returnee family in rural Bosnia and Herzegovina. In any GEF financed projects, however, such an approach has not been effectively tested yet.

135. In essence, the project design is building on the open innovation strategy, by which the identified problems and challenges are not sought to be addressed by centralized, linear and greatly predefined innovation activities, but rather as an outcome of a co-creation process seeking to involve a variety of stakeholders and knowledge flows across the entire economic and social environment. Several key documents guiding, for instance, the current EU innovation and R&D policy [38,39,40] are suggesting that such an open innovation strategy is not just a matter of cost-efficiency, but it is "a must" to keep up with the rapidly evolving and highly challenging global market environment.

136. While the term "open innovation" was initially introduced and discussed in the context of the private sector R&D strategies[41], it can be easily applied for the pending environmental and social challenges of the public sector as well. The GEF project subcomponents promoting open data and broad community engagement by knowledge and information exchange platforms, challenge prizes, hackathons, innovation "jam sessions" and similar are in the core of such a strategy.

137. The effectiveness of well-designed challenge prizes has been demonstrated since the first "Longitude Prize" launched by the British Government in 1714. While studies to assess more explicitly their cost-efficiency vs. other financing modalities are more difficult to find, a good discussion on the general

[38] https://ec.europa.eu/digital-single-market/en/news/open-innovation-open-science-open-world-vision-europe

[39] http://www.highlevelgroup.eu/en/reports-recommendations/report-september-2014

[40] https://ec.europa.eu/digital-single-market/en/open-innovation-20

[41] http://openinnovation.net/books/

experiences and lessons learnt from challenge prize programs (addressing also the cost-efficiency aspects) can be found, for instance, from the article "What 205 Prize Challenges Have Taught Government Agencies"[42] compiling the views of US Government officials responsible for the implementation of the "Challenge.gov" program launched by the US Presidential Administration in 2010. The quoted views included, among others, the following:

- Well-designed incentive prizes enable federal agencies to establish ambitious goals, pay only for success, reach beyond the "usual suspects" to increase the number of minds tackling a problem and bring out-of-discipline perspectives to bear;
- Prizes have a good track record of spurring innovation in the private and philanthropic sectors. Early adopters in the public sector have already begun to reap the rewards of well-designed prizes integrated into a broader innovation strategy;
- Innovation competitions listed on Challenge.gov are realizing meaningful results that can be practically applied to mission goals. They aren't simply isolated experiments that spur clever results from crowd-sourcing. Incentive prizes also turn out to be a great deal for taxpayers;
- Prize competitions are not meant for every problem, however, but need to be carefully selected as one tool in the toolkit. They work in a couple of situations particularly well. One where an agency has a sense of the goal they want to accomplish, but not a clear sense of how they're going to get there. Secondly, it works in situations where an agency is looking to get new minds on an unsolved problem, where they're looking to call in expertise from outside of the area of research from some other field. On the other hand, if agency officials know exactly what they want to accomplish and who is the most likely candidate to solve the problem, crowd-sourcing is not the way to go. Instead, a performance-based grant approach would probably deliver the solution they want.

138. Similar views have been expressed by the US White House Office of Social Innovation and Civic Participation [43] stating that: "Over the past five years, prize competitions have become a proven way to increase innovation for the public, private, and philanthropic sectors. Today, incentivized, open competition has become a standard tool in every Federal agency's toolbox for delivering more cost-effective and efficient services and advancing agencies' core missions."

139. The Swedish International Development Cooperation Agency (SIDA) has been one of the front-runners in testing the challenge program approach for international development assistance. The SIDA Guidelines for Challenge Funds[44] outlines their rationale by listing some factors that typically drive the interest in the donor community for this financing modality:

- Development assistance tries to engage more actors than in the past, in particular the business community;
- Competition is increasingly seen as a method of accomplishing development through triggering a search for smart and cost-effective solutions;
- Innovation is moving up the development agenda as a means of solving major societal problems, including poverty and environmental issues. Innovation lends itself to the challenge fund concept;
- Challenge funds provide leverage of donor funds by engaging private capital in matching financing of projects;
- Challenge funds are a mechanism that allows for directly working with commercial players without creating market distortions.

[42] http://breakinggov.com/2012/09/10/what-205-prize-challenges-have-taught-government-agencies/

[43] https://www.whitehouse.gov/administration/eop/sicp/initiatives/prizes-challenges

[44] http://www.sida.se/English/partners/resources-for-all-partners/Challenge-Funds/

140. Further observations and lessons are listed in the article "Swedish Experiences of Challenge Funds: Case of Innovations Against Poverty"[45] including, among others, the following:

- Challenge funds appear to be effective in terms of the projects funded achieving the stated objectives and of the funder being able to stimulate development, which otherwise would not have happened. This is especially the case in terms of the funds' ability to harness the private sector to drive and effectively deliver innovation in development. These conclusions are, however, primarily based on success stories rather than hard facts. More work is needed to improve the results measurement of the funds, which will require more resources to be set aside for M&E within the programmes.
- A key advantage of the challenge fund mechanism is that it provides a transparent and accountable process for selecting which private sector projects to finance. On the other hand, more hands-on development of the projects selected, through TA and a closer relationship between grantees and managers, also appears to lead to better projects. Delegation of fund management to independent organisations appears overall to have worked well to ensure professional management of the funds. Some reviews highlight management issues, primarily linked to the donors' role, including a tendency for micro-management.
- The funds are successful in leveraging private capital in a ratio of from 1:1 to 1:4, with the higher rates seen where multinationals or other larger companies are involved. Companies appear to apply for funding in order to access risk-willing capital, rather than to access subsidised or 'free' money, which would imply that repayment might be less of an issue. Alternatives to grants, such as conditional loans, could therefore be used to increase leverage of limited donor funding.
- If the purpose of the intervention is to support innovation, challenge funds appear to be effective instruments that encourage the private sector to implement innovative projects where the social impact is high, but the financial return is uncertain. To ensure that as much benefit as possible is derived from such funding, much effort is however needed to mentor the grantees and to develop good evaluation practices.

141. By building on the brief literature review outlined above, the project intervention strategy appears to be in par with the most recent international thinking by emphasizing the importance of broad community engagement, open data and open innovation strategies in solving the pending environmental and social challenges (whether in the area of climate smart urban development or somewhere else), while also supporting the cost-efficiency of the proposed approach. As rightly noted also by the comments above, however, the use of the challenge prizes should not be seen as the only method to promote innovation and community engagement, but a complementary tool among the others. A good overview of different methods and techniques for community engagement in general is provided, for instance, by guides such as the one referred to in the footnote [46] .

142. While the challenge prize as a process and method for crowd-sourcing new and innovative ideas has no fundamental new elements of innovativeness on its own, its application for GEF funded projects to identify new and innovative solutions for climate change mitigation and climate smart urban development in general has such elements. Those cost-effective solutions that are passing successfully the initial trials should also have a great potential for replication and scaling up, thereby supporting the sustainability of the effort. This requires, however, careful design of the Challenge Program and the challenges presented under that as well as effective follow-up, for instance, in finding partners and structuring financing for commercialisation of the winning solutions. To facilitate this, the project will invest in establishing contacts and a network of resources that can support this process, including private sector business developers and financiers.

[45] ecdpm.org/great-insights/promoting-development-through-business/challenge-funds-innovation-poverty

[46] http://www.qld.gov.au/web/community-engagement/guides-factsheets/methods-techniques/

2.4. Country Ownership: Country Eligibility and Country Drivenness

143. In accordance with the Instrument for the Establishment of the Restructured Global Environment Facility, Serbia qualifies for GEF financing on the following grounds:

- It has ratified the UN Framework Convention on Climate Change; and
- It receives development assistance from UNDP's core resources.

144. The Serbian Government has ratified both the UNFCCC (2001) and the Kyoto Protocol (2008). Under the Kyoto Protocol, Serbia is a Non-Annex I Party meaning that it can participate in clean development mechanism (CDM) projects, but not in international emissions trading. Serbia did not accept any firm commitments under the Copenhagen Accord, but the letter sent to the UNFCCC Secretariat on January 29th, 2010 indicated a reduction potential from 18% to 29% until 2020 compared to emissions in 1990. This assessment was reviewed during the preparation of the Initial National Communication (INC) of Serbia to the UNFCCC.

145. On June 30th, 2015 Serbia submitted its Intended Nationally Determined Contribution (INDC) to the UNFCCC with a pledge to reduce its GHG emission by 9,8% from the 1990 level by 2030. The climate change strategy and action plan to be finalized in 2018 is expected to further define the precise activities, methods and implementation deadlines.

146. The project objective is consistent with the INC and FBUR, which identified energy-efficiency in the power generation, industrial, and buildings sectors to have an important role in an effort to reduce GHG emissions in Serbia. The Second National Communication of Serbia is expected to be submitted to the UNFCCC Secretariat during 2016.A Technology Needs Assessment (TNA) or a National Programming Framework Exercise (NPFE) has not been carried out for Serbia yet.

147. The activities described above have contributed to the development and enhancement of national capacities in fulfilling Serbia's commitments to the Convention and have raised awareness and knowledge of government planners on issues related to climate change and limitation of greenhouse gas emissions. The SNC and FBUR are contributing to the incorporation of climate change issues into national and local development agendas and the CC mitigation measures presented in both documents are representing guidance not only for the central government, but for the local self-governments as well. CSUD project represents a good opportunity for local self-governments to initiate complementary activities in terms of collection and management of GHG emissions related data, as well as to initiate concrete actions and innovative solutions for direct GHG emission reduction, thereby also contributing to the national GHG reduction targets.

148. The main driver for the current legal and regulatory work and related strategies and implementation plans is to harmonize them with those of the European Union in accordance with the Energy Community Treaty signed in 2005. Serbia has been an EU candidate country since March 2012 and talks are ongoing concerning Serbia's possible EU membership. As such and for the time being at least, the consistency of the project design with the national strategies, and as it concerns the GHG mitigation, energy efficiency and renewable energy targets in particular, can also be compared with those of the EU.

149. The EU targets adopted in 2007 and commonly known as the "20-20-20" targets set three key objectives for 2020: i) 20% reduction in EU greenhouse gas emissions from 1990 levels; ii) raising the share of EU energy consumption produced from renewable resources to 20%; and iii) 20% improvement in the EU's energy efficiency.

150. In October 2014, the EU leaders agreed on new aggregated targets (so called 2030 Framework) calling for the reduction of GHG emissions by at least 40% below the 1990 level, improving the energy efficiency by at least 27% and increasing the share of renewable energy to at least 27% by 2030, which together are to provide the basis for future EU energy policy response. Although not yet reflected in the Serbian legislation, this is likely to come at some point in the form of new EU directives with more detailed

measures and policy requirements to meet such targets and which are to be transposed also into the Serbian legislation.

151. The EU roadmap until 2050 (COM 2011 - 112) goes further by suggesting a target for cutting the GHG emissions by 80% below 1990 levels and with a vision to transform EU into a low carbon economy by 2050. To reach this, the document is recognizing, among others, "the need for new and innovative solutions to mobilise investments in energy, transport, industry and information and communication". For the time being, however, such "new and innovative solutions" can still be considered as fully incremental to the existing baseline policies.

152. For smart cities, no particular policy framework yet exists either at the EU or Serbian national level, but several initiatives have been launched to promote the smart city concept such as the "European Innovation Partnership on Smart Cities and Communities (EIP-SCC)" launched in 2011. There is also no agreed common definition for a “smart city” yet, but typically it refers to a city actively engaging its residents for city development, green urban planning, “smart” use of ICT to improve the efficiency and/or quality of different public services, encouraging efficient use of resources and resource sharing, carbon free energy generation and transport and providing a healthy, safe and vivid living environment otherwise by effectively addressing the social and cultural needs of the various groups of city residents. Similar objectives are commonly found scattered in different sectoral policy documents both at the EU and national level, although not necessarily referred to as elements of "smart cities". The challenging and to the great extent still missing part is, however, how to reach these goals in practice, which is why the door still wide open for new and truly innovative solutions.

153. UNDP Serbia currently manages an environment portfolio of over US$ 34 million[47], including other ongoing GEF projects related to climate change mitigation and biodiversity. UNDP work in 2016-2020 is guided by the National Priorities for International Assistance, in 2014-2017 (NAD) and builds on results achieved to date. The focus of the new programme is on: (a) accountable and representative governance institutions serving people; (b) equal participation for women and lives free of violence; (c) inclusive and sustainable growth; and (d) low-carbon and climate-resilient development. The overarching theory of change is that by 2020 people in Serbia will have better opportunities for political, economic, cultural and social participation and will live in communities that are more resilient to economic, environmental or other sources of stress.[48]

154. The project fully complies with the comparative advantages matrix approved by the GEF Council, where UNDP is assigned a leading role for technical assistance and capacity building on climate change. UNDP has a strong comparative advantage in the implementation of projects both in the area of climate change mitigation and urban/local development. Lessons learned by UNDP in other countries on the implementation of energy-efficiency projects are also sought to be reviewed and taken into account throughout the implementation.

155. This project has been endorsed by the GEF Operational Focal Point of Serbia by a letter signed on December 4th 2015, including a statement that the project is consistent with the Government’s national priorities and those identified in the National Capacity Self-Assessment.

2.5. Financial Modality and Cost-Effectiveness

156. From the total requested GEF financing of US$ 1,950,000), US$700,000 has been allocated to be used as challenge prizes, of which USD 200,000 for the Open Data Challenge and USD 500,000 for Challenge Program for the actual GHG mitigation measures. The cost-efficiency of the proposed financing modality has been discussed in further detail in chapter 2.3 Project Rationale and GEF Policy Conformity

[47] Including co-financing

[48] UNDP Country programme document for Serbia (2016-2020)

157. From the remaining US$ 1,250,000, US$ 1,050,000 will be used for technical assistance type of activities, including some hardware support for MRV, in accordance with the Project Results Framework presented in Chapter 3 and the Total Project Budget and Work plan in chapter 4. US$ 105,000 of the budget will be used for administrative project management and US$95,000 for M&E.

158. The estimated combined direct and indirect global benefits of the project range from 1.6 to 3 million tons of CO_{2eq} depending on the calculation methodology used. With a GEF funding request of US$ 1.95 million, this corresponds to the abatement costs of less than US$ 1.3 per tonne of CO_2 reduced.

159. Given their new and innovative nature, the project activities are clearly incremental not addressed by any baseline activities yet. Co-financing for the proposed activities and especially for replicating and mainstreaming the most successful solutions is, however, expected from a variety of stakeholders:

160. One of the main envisaged sources of project co-financing will be the National Green Fund under the management of the Ministry of Agriculture and Environmental Protection. The Serbian municipalities are expected to contribute to and share the cost of the proposed CDUD investments and other project activities as well, but since the final selection of the participating municipalities in only done at the early project implementation stage based on a public call of proposals, no co-financing letters can be presented at this stage and, therefore, this expected municipal co-financing is not included in the current project co-financing structure either.

161. UNDP has agreed to contribute with USD 100,000 in cash from its core resources to project financing. The project will also co-operate closely with the activities described in further detail in the letters attached to this project document as Annex 8.2 and supported by the Governments of Switzerland and Sweden, EU IPA, the Serbia Innovation Fund, the Standing Committee of Towns and Municipalities, private banks such as the UniCredit Bank.

162. Finally, and similar to other challenge programs, the private sector has already invested or is likely to invest significant resources for bringing the ideas up to the stage that can be presented as a response to the challenge.

163. The estimated total project co-financing in the frame of the activities listed above will reach USD 10,200,000, of which at least 9,700,000 in cash in the form of grants or loans and USD 500,000 in kind. Further details about the project co-financing structure, sources and intended use are provided in chapter 4.

164. While the letters in Annex 8.2 of the project document indicate the maximum amount of co-financing that could be leveraged through the co-financing sources and initiatives mentioned in the letters, the final amounts presented as project co-financing in chapter 4 reflect a more conservative approach, thereby seeking to ensure that the project can accurately report at the end of its implementation that this co-financing has also been obtained and that it has directly contributed to reaching the stated project objective and targets. For each case, where the amounts stated in the letters differ from those presented in chapter 4, the basis of these estimates has been elaborated in further detail below.

165. In respect to the indicative combined cash and in-kind contribution of USD 12 million stated in the letter provided by the Ministry of Agriculture and Environmental Protection, the follow-up consultations during the final project preparation confirmed that out of these USD 12 million, the cash contribution that could be seen to directly contribute to reaching the stated project targets would be in the range of USD 5 million only, while the value of the in-kind contribution would be limited to around USD 400,000.

166. In the letter provided by the UniCredit Bank, the target for the total portfolio of municipal infrastructure investments for years 2016-2020 has been set at 50 million Euros, which may also include projects that do not directly contribute to climate change mitigation. What the share of those projects might be is, however, too early to define at this stage. Therefore, the project has set a conservative minimum target to leverage at least 2.5% of the mentioned amount (corresponding to approximately USD

1.5 million) for co-financing CSUD projects that have been initiated and/or further developed with the UNDP/GEF project support. As a result of successful project implementation, however, this amount could also reach significantly higher levels.

167. The letter of the Embassy of Sweden is listing several activities over the period of 2014-2020 with the funding allocation of approximately 12.5 million Euros (USD 14 million) contributing to improved environmental and climate performance of Serbian municipalities by facilitating sound management of natural resources, sustainable management of waste, safe water supply and waste water treatment, reduced environmental degradation and contribution to the reduction of GHG emissions. As agreed during the consultations during the project preparatory phase, the project will closely co-operate and co-ordinate its activities with the Swedish Embassy throughout the project implementation, including more detailed negotiations on the concrete co-financing arrangements of the investment projects initiated and/or further developed in the frame of and/or supported otherwise by the UNDP/GEF CSUD initiative. A target to leverage at least USD 1 million thought the mentioned Swedish support was set at the project development stage, but during the actual implementation and similar to the case of the UniCredit Bank, this amount could end up of also being significantly higher.

168. In the letter of the Swiss Co-operation Office (SCO), several initiatives were listed that can both contribute to and benefit from the related activities of the UNDP/GEF CSUD project with the total funding amount of 13.88 million Swiss Francs (about USD 14.5 million), including contributions from local self-governments in the amount of 1.74 million. In the consultations with the SCO during project preparation, it was agreed that the project will closely co-operate and co-ordinate its activities with those of the SDO, including more detailed negotiations on the concrete co-financing arrangements of the investment projects and other activities initiated by the UNDP/GEF CSUD or the CSO project with the minimum target for leveraging at least USD 1 million through the mentioned Swiss support for activities of mutual interest.

169. As it concerns the foreseen co-operation with and co-financing by the Innovation Fund of the Republic of Serbia, the letter attached to this Project Document confirms that an amount of 6.9 million Euros (about USD 7.8 million) will be available for commercializing R&D and supporting technology transfer. It is not possible to confirm at this stage, however, which particular companies or technologies will be supported, but this will depend on the applications received. The project has set a target, however, that at least 10% of the mentioned funding (or USD 780,000) could be leveraged to support such R&D and technology transfer that would directly contribute to reaching the UNDP/GEF CSUD project targets.

170. For the activities supported with the EU IPA funds at the amount of 1 million Euros for the preparation of the national climate change strategy and action plan, it was estimated that the analytical work conducted in the frame of this project, which would directly benefit also the CSUD project in terms of local GHG inventories and in prioritizing and estimating the impact of different climate change mitigation measures could correspond to about USD 320,000 worth of funding.

171. The Government in-kind contribution at the estimated value of US$ 400,000 is expected to cover the costs of:

- National Project Director and Project Board;
- the staff of the Ministry of Agriculture and Environmental Protection contributing to the project implementation
- experts from other public entities to participate in the implementation of the project;
- provision of office space for the project staff located and working in the premises of the Ministry of Agriculture and Environmental Protection;
- provision of information and data to the project staff and consultants as may be required for the implementation of project activities and the realization of project objectives; and
- provision of information gathering services and logistic support to the project staff for the implementation of the project's activities.

2.6. Sustainability (including Financial Sustainability)

172. For the sustainability of the project, it is essential that the measures and activities promoted and supported offer both long and shorter term "win-win-win" opportunities, including:

- environmental benefits by reducing energy consumption and related GHG emissions;
- municipal budget savings by improved energy efficiency and reduced energy costs; and
- eventually improved quality of the services concerned.

173. A number financing initiatives currently underway in Serbia (as discussed in further detail in chapter 1.4) support the idea that enhancing the capacity of municipalities to prepare credible CSUD investment proposals and justifying these initiatives with more accurate data and means for monitoring the results may leverage complementary financing and encourage also new financing models to support the project goals.

174. To ensure financial sustainability, the GEF cost-sharing for investments is controlled by the criteria discussed in chapter 2.1 under outcome 2 by also taking into account realistic cost-sharing opportunities by the participating municipalities and other investors concerned. The importance of effectively engaging the private sector for activities, into which they can contribute, is to be recognized throughout the project implementation.

175. An essential element to continue the development and implementation of new and innovative solutions for climate smart urban development is to ensure adequate financial resources to support this process also from the Government side as well as to have some predictability on such resources over several years rather than relying on annual budget decisions only. The National Green Fund has been established by the Law and accompanying bylaws for its full operationalization are being developed at the time of completing this project document. It is expected that the Fund will be fully operational on January 1, 2017. The establishment of the Green Fund as a "self-standing" Government entity is still being discussed. The project will continue to explore this or any alternative options during its actual implementation.

176. Sustainability of results also requires building of ownership with both state and local (municipal) level authorities. Among the measures to support this are: i)continuing need throughout the project implementation to raise the awareness of key decisions makers and demonstrate the direct financial and other benefits resulting from effective implementation of proposed solutions, ii) building the local capacity to operate and use them in a productive way leading to concrete GHG gas emission reductions; iii) completing and implementing public visibility plans and actions to present the achieved results also to the general public; and iv) focusing the initial project efforts to those municipalities with biggest interest, commitment and potential to benefit from the project activities, as well as from which financial commitments for co-operation can be obtained.

2.7. Replication

177. Once the benefits of the proposed solutions have been successfully demonstrated, the prospects for their further adoption are high. This can be further encouraged by the supportive legislation as well as by the knowledge and experience gained by the government and the participating municipalities during the course of this project, which will further enable the transfer of this knowledge and experience to the entire country, including development and adoption of new financing schemes within the Green Fund or other applicable financing frameworks. An essential part of the technical assistance offered to the MoAEP under component 2 will be to further develop and operationalize the Green Fund in such a way that it can continue to encourage innovation and efficient use of resources by having knowledge, capacity and required legal basis to build partnerships for and replicate (among its other funding modalities) similar challenge programs and public calls for challenge prizes, as piloted by this project.

178. Given the foreseen interest of several UNDP-GEF programme countries to similar activities, the materials developed and the results and lessons learned in this project are expected to be of direct

interest also to other countries. Close monitoring and evaluation of project implementation and documenting the results and lessons learnt will also in this respect be of primary importance. The final project results and "lessons learnt" report, visits and presentations in international seminars and workshops in other countries, partnerships and ongoing consultations with the international donor community in Serbia, co-operation with the international experts and coaching team during the implementation, professionally constructed and regularly updated multilingual project website and knowledge management platform as well as an international end of the project workshop will each for their part disseminate information on the project and its results and, if showing success, promote and encourage the replication.

179. Throughout its implementation, the project seeks to facilitate contacts and co-operation between the different stakeholder groups at the national and international level by organizing seminars, workshops and other public events, thereby bringing project proponents, policy makers and potential investors / other donors together. The co-operation between the different Balkan countries, for instance, from which many have been implementing or are initiating activities of similar kind can be seen mutually beneficial.

3. PROJECT RESULTS FRAMEWORK

This project will contribute to the following Sustainable Development Goal (s): SDG 13: Take urgent action to combat climate change and its impacts, SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable					
This project will contribute to the following country outcome included in the UNDAF/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 natural and man-made disasters					
This project will be linked to the following output of the UNDP Strategic Plan: *consult with the UNDP Country Office and the UNDP-GEF Regional Technical Advisor before selecting one of the following outputs. Delete the outputs copied below that are not selected. See opening section under further information for additional details.* Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste. **Output 1.4: Scaled up action on climate change adaptation and mitigation cross sectors which is funded and implemented.** Output 1.5: Inclusive and sustainable solutions adopted to achieve increased energy efficiency and universal modern energy access (especially off-grid sources of renewable energy) Output 2.5: Legal and regulatory frameworks, policies and institutions enabled to ensure the conservation, sustainable use, and access and benefit sharing of natural resources, biodiversity and ecosystems, in line with international conventions and national legislation.					
	Objective and Outcome Indicators	**Baseline**[49]	**Mid-term Target**[50]	**End of Project Target**	**Assumptions**[51]
Project Objective: Promote innovation and community engagement for climate smart urban development (CSUD)	*Mandatory IRRF indicator 1:* 1.4.1 a: Extent to which climate finance is being accessed	NA	At least USD 3.5 million complementary financing leveraged to support climate smart urban development in Serbia	At least USD 10 million complementary financing leveraged to support climate smart urban development in Serbia	The anticipated co-financing contributions by the project partners met in full.
	Mandatory indicator 2: Number of direct project beneficiaries with gender disaggregated data.	NA	5,000 people, from whom not more than 55% for the same gender	20,000 people, from whom not more than 55% for the same gender	A sum of targets for indicators 6 and 9
	Indicator 3: Direct incremental GHG emission reduction impact of the project	0	20 ktons of CO_{2eq}calculated over 20 years' lifetime of the investment	100 ktons of CO_{2eq}calculated over 20 years' lifetime of the investment	Successfully completed pilot/demo projects with adequate MRV systems in place

[49] Baseline, mid-term and end of project target levels must be expressed in the same neutral unit of analysis as the corresponding indicator. Baseline is the current/original status or condition and need to be quantified. The baseline must be established before the project document is submitted to the GEF for final approval. The baseline values will be used to measure the success of the project through implementation monitoring and evaluation.

[50] Target is the change in the baseline value that will be achieved by the mid-term review and then again by the terminal evaluation.

[51] Risks must be outlined in the Feasibility section of this project document.

Component/Outcome[52] 1: Improved access to and availability of data by an open data approach for development, management and monitoring of CSUD related performance of Serbian municipalities.	*Indicator 4:* Number of municipalities having an integrated cross-sectoral on-line information management system with open public access covering at least the energy, transport and waste sectors with regularly updated monitoring data and clearly defined sector specific performance targets, which are disaggregated, to the extent possible, by gender.	0	2	5	Commitment of the local public authorities to co-operate and assign required human and other resources to build and operate the system
	Indicator 5: Number of municipal CSUD indicators, for which data is publicly available on line	0	at least 3 indicators for each subsector (energy, transport, waste)	at least 5 indicators for each subsector (energy, transport, waste)	No legal obstacles or confidentiality requirements restricting the data access
	Indicator 6: Annual number of data users (combined for all the participating municipalities) and disaggregated, to the extent possible, by gender.		1,000	5,000	The number of on-line visitors in the system can be monitored by the gender by available e ICT solutions
	Indicator 7: Number of municipalities producing annual CSUD performance reports	0	2	5	Commitment of the local public authorities to co-operate and assign required human and other resources to work on this
Component/ Outcome 2: New innovative technical and systemic solutions and business models contributing to climate smart urban development identified, tested and replicated.	*Indicator 8:* Number of new innovative technical and systemic solutions and/or business models contributing to climate smart urban development identified, tested and replicated	NA	At least 1 new concept contributing to climate smart urban development tested in one of the subsectors	At least 5 new concepts contributing to climate smart urban development tested in different sectors and including at least one gender-sensitive concept	The challenge program and prizes can be made attractive enough for the targeted participants
	Indicator 9: Number of direct beneficiaries with gender disaggregated data from the measures implemented[53]	NA	4,000, from whom not more than 55% for the same gender	15,000, from whom not more than 55% for the same gender	Calculated on the basis of having CSUD measures implemented in at least 5 municipalities with total population of at least 150,000 people and from whom at least 10%

[52]Outcomes are short to medium term results that the project makes a contribution towards, and that are designed to help achieve the longer term objective. Achievement of outcomes will be influenced both by project outputs and additional factors that may be outside the direct control of the project.

[53]The co-financing and GHG reduction related targets of the measures implemented are addressed at the objective level

					will be targeted as direct beneficiaries of the measures implemented.
Component/ Outcome 3: Knowledge management and M&E to facilitate learning, scaling up and replication of project results.	*Indicator 10:* Status of the Project MRV system and quality of the data delivered by that	No project related MRV system in place	A MRV system for emissions reductions resulting from project activities in place and reporting verified data from all activities.	A MRV system for emissions reductions resulting from project activities in place and reporting verified data from all activities.	Envisaged co-operation with the EMIS project as it concerns any energy related data
	Indicator 11: Agreed knowledge management products and events delivered	NA	The CSUD knowledge management web-portal established At least one international CSUD knowledge management event (workshop or seminar) organized	The CSUD knowledge management web-portal sustained after the project Lessons learnt report finalized An international end of the project workshop organized	
	Indicator 12: Number of expressions of interest received for replicating the project intervention strategy, specific technical solutions or business models for new projects and/or municipalities	NA	0	At least one new municipality and 5 project proponents expressing interest to replicate one or more of the supported interventions.	The project implementation approach and awarded solutions show success

PROJECT OUTPUTS AND RELATED TARGET(S)/SUB-TARGET(S), AS APPLICABLE

Outcome 1: **Improved access to and availability of data by an open data approach for development, management and monitoring of CSUD related performance of Serbian municipalities.**	**Outcome 2: New innovative technical and systemic solutions and business models contributing to climate**	**Outcome 3: Knowledge management and M&E to facilitate learning, scaling up and replication of project results.**
Output 1.1: Review of the current monitoring and information management systems and related institutional arrangements and data collection procedures both at the central and local government levels in CSUD related sectors such as energy, transport, construction, urban planning, water and waste management and on the eventual administrative and other barriers to implement such systems in a more integrated and co-ordinated way and for making sure that women and men have equal access to and can equally benefit from such data and information.	**Output 2.1:** An updated baseline and scoping study and consultative meetings, workshops and other means and mechanisms for advocacy and community engagement (such as different ICT based solutions) for elaborating the specific framework conditions and challenges and provide a basis for the final design of the CSUD Challenge Program in those specific areas and sub-sectors, for which launching a CSUD Challenge Prize appears as an attractive and feasible option.	**Output 3.1:** Inception workshop and inception report
Output 1.2 Articles, specific open data workshops and seminars, presentations in other public events, "hackathons" and other public outreach activities to raise awareness of public sector authorities and other key stakeholders (Including CSOs and the private sector) on the Open Data concept and compile views, ideas and, as applicable, EoIs/MoUs for starting to build up a CSUD open data infrastructure in Serbia;	**Output 2.2:** Finalized design and implementation plan of the CSUD Challenge Program (taking into account gender aspects) and the first challenge prizes.	**Output 3.2:** CSUD knowledge management web-portal established with active content management and regular updating of data (which will be gender disaggregated to the extent possible)
Output 1.3: Developed and launched CSUD Open Data Challenge (ODC) with related public outreach targeting not only the municipal staff, but also the general public, CSOs (including women CSOs), research and academic institutions and private sector to support the conceptual design, development and implementation of an integrated on-line and, to the extent possible, real-time CSUD Monitoring and Information Management System (CSUD-MIMS).	**Output 2.3:** Established CSUD coaching team (for further details see chapter 2.1) to support the evaluation and further development of the ideas presented for the CSUD Challenge Program, including a network of international research institutes and professionals that may provide technical backstopping and share knowledge on the latest international developments in their particular field, while also taking into account gender related aspects.	**Output 3.3:** Annual audit and PIR reports
Output 1.4: Based on the agreed selection criteria, MoUs signed with up to 10 municipalities to participate in the development and implementation of the CSUD-MIMS, including agreed institutional and financing arrangements for facilitating this in practice.	**Output 2.4:** Launching of the CSUD Challenge Program together with related public outreach events and materials (including a dedicated CSUD Challenge Program website/portal.	**Output 3.4:** International mid-term CSUD knowledge management workshop/ seminar
Output 1.5: Further elaboration of CSUD indicators and benchmarks, on the basis of which the participating municipalities can set targets, assess their performance and	**Output 2.5:** Selection of the projects / project ideas (initially around 10, with at least one project specifically targeting gender aspects) for the first phase of the Challenge Program	**Output 3.5**: Project mid-term evaluation and management response

monitor their progress towards these targets, including gender disaggregated targets, when applicable.	and supporting their further development and, as applicable, initial testing	
Output 1.6: Complementary TA and coaching of the selected teams and municipalities leading to finalized design and implementation of the CSUD-MIMS based on an open data approach.	**Output 2.6:** Selection of the winner or 2-3 finalists for the final round of the Challenge Program (to be decided during the project implementation) and supporting its/their actual implementation in co-operation with the selected municipalities	**Output 3.6:** End of project lessons learnt report
Output 1.7: First annual CSUD performance reports (including local GHG inventories) and CSUD action plans by participating municipalities based on the first year implementation of the CSUD-MIMS.	**Output 2.7:** The final awards granted based on the one year monitored, reported and verified performance of the supported pilot initiative(s).	**Output 3.7:** International end of project workshop/ seminar and other public outreach seeking to disseminate information on the project results and replicate the successes.
Output 1.8: The most advanced and progressive municipality/ies in Serbia in implementing and further developing an integrated CSUD performance monitoring and information management system awarded with the CSUD Open Data Challenge Prize(s)	**Output 2.8:** Public outreach to encourage and facilitate the implementation of the winning solutions in other Serbian municipalities, including structuring financing for them.	**Output 3.8**: Project terminal evaluation
Output 1.9: Public outreach and capacity building to encourage replication of similar system(s) in other Serbian municipalities and further development of municipal on-line services in general	**Output 2.9:** As required, draft legal and regulatory amendments presented to public authorities to support and/or facilitate further replication of the solutions sourced by the CSUD Challenge Program	

DRAFT PROJECT IMPLEMENTATION PLAN

Project component	Year 1				Year 2				Year 3				Year 4				Year 5			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Outcome 1																				
Output 1.1																				
Output 1.2																				
Output 1.3																				
Output 1.4																				
Output 1.5																				
Output 1.6																				
Output 1.7																				
Output 1.8																				
Output 1.9																				
Outcome 2																				
Output 2.1																				
Output 2.2																				
Output 2.3																				
Output 2.4																				
Output 2.5																				
Output 2.6																				
Output 2.7																				
Output 2.8																				
Output 2.9																				
Outcome 3																				
Output 3.1																				
Output 3.2																				
Output 3.3																				
Output 3.4																				
Output 3.5																				
Output 3.6																				
Output 3.7																				
Output 3.8																				

4. TOTAL BUDGET AND WORKPLAN

Award ID:	00087660	Project ID(s):	00094603
Award Title:	Serbia - Climate Smart Urban Development Challenge (CSUD)		
Business Unit:	UNDP Serbia		
Project Title:	**Serbia - Climate Smart Urban Development Challenge (CSUD)**		
PIMS no.	**5551**		
Implementing Partner (Executing Agency)	Ministry of Agriculture and Environmental Protection		

GEF Outcome/ Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budget. Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget Note:
OUTCOME 1	**MoAEP**	**62000**	**GEF**	71200	International Consultants	7 500	7 500	0	0	0	**15 000**	1
				71300	Local Consultants	40 000	50 000	40 000	30 000	24 000	**184 000**	2
				71400	Contractual services – indiv.	15 600	15 600	15 600	15 600	15 600	**78 000**	3
				71455	Innovation awards	0	20 000	60 000	100 000	20 000	**200 000**	4
				71600	Travel	3 000	3 000	2 000	1 000	1 000	**10 000**	5
				72100	Contractual services – comp.	15 000	15 000	10 000	5 000	5 000	**50 000**	6
				72200	Equipment	0	40 000	40 000	10 000	5 000	**95 000**	7
				74200	Audiovisual & print prod. costs	1 000	1 000	1 000	1 000	1 000	**5 000**	8
				74500	Miscellaneous	1 000	1 000	1 000	1 000	1 000	**5 000**	9
				75700	Training, workshops and conf.	2 000	4 000	2 000	4 000	1 000	**13 000**	10
				Sub-total GEF		**85 100**	**157 100**	**171 600**	**167 600**	**73 600**	**655 000**	
	Total Outcome 1					**85 100**	**157 100**	**171 600**	**167 600**	**73 600**	**655 000**	
OUTCOME 2	**MoAEP**	**62000**	**GEF**	71200	International Consultants	7 500	25 000	30 000	25 000	10 000	**97 500**	1
				71300	Local Consultants – short term	10 000	20 000	20 000	20 000	10000	**80 000**	2
				71400	Contractual services – indiv.	39 400	39 400	39 400	39 400	39 400	**197 000**	3
				71455	Innovation awards	0	0	150 000	250 000	100 000	**500 000**	11
				71600	Travel	1 000	4 000	5 000	4 000	1 000	**15 000**	5
				72100	Contractual services – comp.	20 000	20 000	20 000	15 000	5 000	**80 000**	12
				72200	Equipment	0	20 000	40 000	30 000	10 000	**100 000**	13
				74200	Audiovisual & print prod. costs	2 000	2 000	2 000	2 000	2 000	**10 000**	8
				74500	Miscellaneous	1 000	1 000	1 500	1 000	1 000	**5 500**	9
				75700	Training, workshops and conf.		5 000		5 000		**10 000**	10
				Sub-total GEF		**80 900**	**136 400**	**307 900**	**391 400**	**178 400**	**1 095 000**	
	Total Outcome 2					**80 900**	**136 400**	**307 900**	**391 400**	**178 400**	**1 095 000**	

MONITORING AND EVALUATION	**MoAEP**	**62000**	**GEF**	71200	International Consultants			15 000		18 750	**33 750**	14
				71400	Contractual services – indiv.	4 600	4 600	4 600	4 600	4 600	**23 000**	3
				71600	Travel			2 000		2 500	**4 500**	5
				74100	Professional services		3 750	3 750	3 750	3 750	**15 000**	15
				74500	Miscellaneous	500	550	950	550	1 200	**3 750**	9
				75700	Training, workshops and conf.	1 000		6 000		8 000	**15 000**	16
				Sub-total GEF		**6 100**	**8 900**	**32 300**	**8 900**	**38 800**	**95 000**	
	Total Monitoring and Evaluation					**6 100**	**8 900**	**32 300**	**8 900**	**38 800**	**95 000**	
PROJECT MANAGEMENT	**MoAEP/UNDP**	**62000**	**GEF**	71400	Contractual services – indiv.	16 000	16 000	16 000	16 000	16 000	**80 000**	3
				71600	Travel	400	400	400	400	400	**2 000**	5
				74500	Miscellaneous	600	600	600	600	600	**3 000**	9
				74598	Direct project costs	4 000	4 000	4 000	4 000	4 000	**20 000**	17
				Sub-total GEF		**21 000**	**21000**	**21 000**	**21 000**	**21 000**	**105 000**	
		4000	**UNDP**	71400	Contractual services – indiv.	13 500	13 500	13 500	13 500	13 500	**67 500**	3
				64398	Direct project costs	6 500	6 500	6 500	6 500	6 500	**32 500**	17
				Sub-total UNDP		**20 000**	**20 000**	**20 000**	**20 000**	**20 000**	**100 000**	
	Total Project Management					**41 000**	**41 000**	**41 000**	**41 000**	**41 000**	**205 000**	
TOTAL GEF	**MoAEP/UNDP**	**62000**	**GEF**			**193 100**	**323 400**	**532 800**	**588 900**	**311 800**	**1 950 000**	
TOTAL UNDP	**MoAEP/UNDP**	**4000**	**UNDP**			**20 000**	**20 000**	**20 000**	**20 000**	**20 000**	**100 000**	
GRAND TOTAL						**213 100**	**343 400**	**552 800**	**608 900**	**331 800**	**2 050 000**	

Budget Notes

Number	Note
1	Int. project adviser to support the annual planning and adaptive management + expert fees of the CSUD coaching team (sectoral experts)
2	Supporting local part/short time experts
3	Salaries of the core project team
4	Open data challenge awards (Innovation awards, as per the UNDP PoPP)
5	International and local expert travel
6	International and/or national subcontracts for the baseline study/ies +design and implementation support of the CSUD Open Data Challenge
7	ICT hard- and software for the established CSUD data management and information systems
8	Materials for project's public outreach and marketing activities
9	Miscellaneous costs
10	Training, innovation and public engagement seminars, workshops and other events
11	CSUD challenge awards (Innovation Awards, as per the UNDP PoPP)
12	Int. and national subcontracts for the baseline and scoping studies + design and implementation support of the CSUD Challenge Programs
13	Hard and software support for MRV
14	International experts for mid-term and final evaluations
15	Financial audit costs
16	Inception workshop + mid-term and final project knowledge management seminar
17	Direct UNDP project support costs

Summary of Funds[54]

Source of Funding	Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Amount Year 5	Total
GEF	**193 100**	**323 400**	**532 800**	**588 900**	**311 800**	**1 950 000**
UNDP	20,000	20,000	20,000	20,000	20,000	**100,000**
Other co-financing cash	1,000,000	1,200,000	2,200,000	3,500,000	2,060,000	**9,960,000**
Other co-financing in-kind	100,000	100,000	100,000	100,000	100,000	**500,000**
TOTAL	**1,313,100**	**1,643,400**	**2,852,800**	**4,208,900**	**2,491,800**	**12,510,000**

[54] Summary table should include all financing of all kinds: GEF financing, co-financing, cash, in-kind, etc.

SUMMARY OF PROJECT CO-FINANCING (IN USD)

		Ministry of Agriculture and Environmental Protection	Standing Conference of Towns and Municipalities	Serbian Innovation Fund	Embassy of Sweden	Delegation of the European Union to the Republic of Serbia	UniCredit Bank	UNDP	**TOTAL**
Outcome 1 TA	Cash				100,000	250,000			**350,000**
	In-kind	50,000	50,000						**100,000**
Outcome 1 Inv.	Cash	300,000		160,000	150,000	40,000			**650,000**
	In-kind								**0**
Outcome 2 TA	Cash			240,000	110,000	30,000			**380,000**
	In-kind	150,000	30,000						**180,000**
Outcome 2 Inv.	Cash	4,700,000		550,000	700,000		2,500,000		**8,450,000**
	In-kind								
Monitoring & Evaluation	Cash								**0**
	In-kind	30,000	20,000						**50,000**
Project management	Cash			50,000	60,000	20,000		100,000	**230,000**
	In-kind	170,000	0						**170,000**
TOTAL	Cash	**5,000,000**	**0**	**1,000,000**	**1,120,000**	**340,000**[55]	**2,500,000**	**100,000**	**10,060,000**
	In-kind	**400,000**	**100,000**						**500,000**
Outcome 1		In-kind: Staff and facilities of the ministry Cash: Cost-sharing of investments	SCTM staff participation, facilities and public outreach	Support for new innovative ideas and start-ups for open data management and utilisation	Baseline data collection and monitoring	Collection and analysis of CSUD related data and indicators			
Outcome 2		In-kind: Staff and facilities of the ministry Cash: Cash contributions for actual investments	SCTM staff participation, facilities and public outreach	Support for private sector with new innovative products and ideas	Support for development and financing of CSUD related investments	Sectoral baseline data for project preparation	Co-financing of CSUD related investments		
Project Management		Staff participation and facilities of the ministry						Logistic support and sharing the core project team costs	

[55] Corresponding to EUR 320,000 shown in the letter based in the EUR/USD exchange rate of 1.0625 as of 28 Nov, 2016

4.1. Expected Global, National and Local Benefits

180. The calculated global GHG reduction benefits of the project will consist of the combination of:

- Direct GHG emission reduction benefits from the pilot/demonstration projects implemented in the framework of the project and supported by project funding or for which funding has been leveraged by project's TA activities; and
- Indirect GHG reduction benefits resulting from broader market transformation arising from project activities during and after the end of the project.

181. No post-project GHG emission reduction benefits arising from continuing operation of financing mechanisms established or supported by the project have been included into the GHG reduction assessment of the project, since the GEF cash contribution to capital investments represents a one-time capital grant without expected pay-back.

182. By building on the project impact analysis made for the recently approved UNDP-GEF EMIS project, the public sector GHG emissions from heat and electricity only (not including the emissions from public transport or waste management) were estimated at 5.4 million tons of CO_{2eq} in 2012, of which 2.1 Mtons from space heating and 3.3 Mtons from electricity consumption for other than space heating purposes. For estimating the direct GHG emission reduction target of the project, the average total investment costs of USD 100 per ton of CO_{2eq} reduced was used as a basis for these estimates by building on a WB study[56] done on building EE improvements a few years ago. In the absence of more detailed information about the specific solutions to be supported under the CSUD Challenge Program, a similar figure could be used for the CSUD project, although especially for many ICT based solutions the cost-efficiency of the investment can be significantly better. Nevertheless, by relying on this relatively conservative estimate of USD 100 per ton CO2eq reduced and the target of about USD 10 million by the end of the project for actual investments (including both GEF and leveraged co-financing), the corresponding direct GHG reduction benefits are expected to reach at least 100 ktons of $CO2_{eq}$.

183. For indirect GHG emission benefits, it was estimated for the EMIS project that by gradual adoption and effective use EMS and EMIS systems in the Serbian municipalities by encouraging both behavioural and operational changes as well as actual EE investments, the public sector energy consumption nation-wide could be reduced by an incremental 1% per year after the expected end of the project in 2020 (limited to space heating and electricity only), thereby resulting in cumulative GHG reduction of about 3 million tons of CO_{2eq} by 2030. The value added of the CSUD project by successful replication of the new innovations promoted by the Challenge Program and its continuation by the Government after the UNDP-GEF project end could add another 0.5 - 1% in GHG savings i.e. a cumulative amount of 1.5 - 3 million tons of CO_{2eq} by 2030 as an incremental indirect impact of the CSUD project. For further details and related assumptions, a reference is made to Annex 8.5 of the project document

184. The associated national and local benefits include reduced local pollution from the burning of fossil fuels, more efficient public services and related cost savings as well possible other social and environmental benefits.

185. A gender perspective needs to be taken into account when developing resource mobilization strategies, applying climate finance instruments, and ensuring equal participation in access to, use of and control over financial resources, particularly at the local level. There is a need to ensure adequate access to financial resources for female entrepreneurs, especially those owning small businesses that trade in mitigation technology in line with the Women's Green Business Initiative[57]designed to ensure that efforts

[56]National Building Energy Efficiency Study for Serbia (World Bank, October 2012)

[57]http://www.undp.org/content/undp/en/home/librarypage/environment-energy/climate_change/gender/womens-green-business-initiative.html

to promote greener, more resilient, and sustainable societies are successful from an economic, environmental and social perspective, including through a greater focus on gender equality and women's empowerment. The gender related aspects are also discussed in chapter 5 "Project Management Arrangements".

5. MANAGEMENT ARRANGEMENTS

186. UNDP is the GEF Agency for this project. The proposed project is consistent with the UNDP's mandate on promoting environmental protection, while recognizing the need to sustainably manage resources through capacity building and encouraging broader multi-sectoral participation of stakeholders. Given UNDP's recognized role in capacity development and based on the fact that UNDP is the implementing agency for a large portfolio of GEF–funded climate change projects, the Government of Serbia has requested UNDP's assistance in the design and implementation of this project. The project is fully in compliance with the comparative advantages matrix approved by the GEF Council

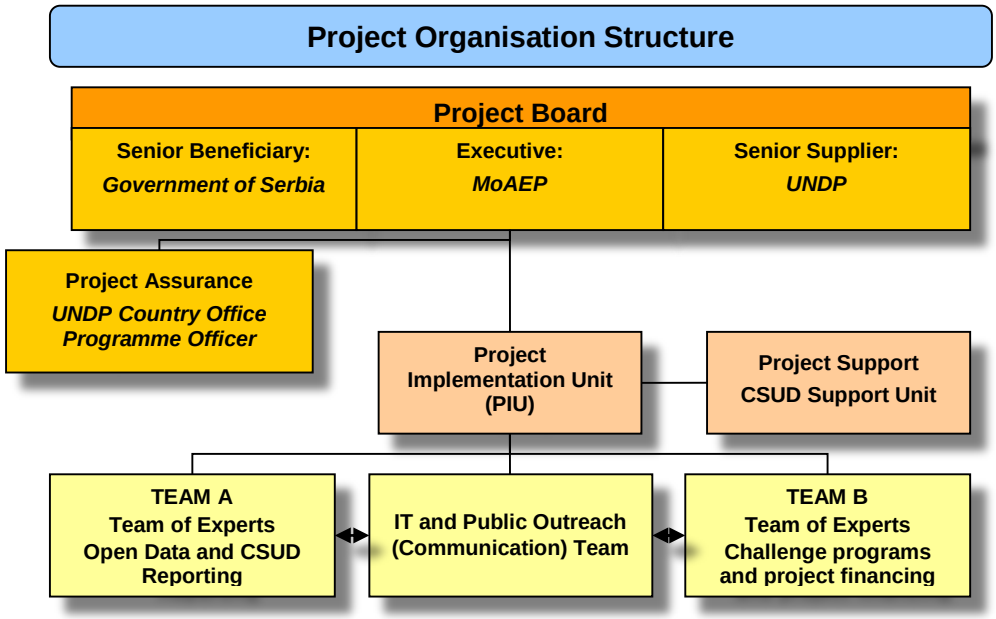
Roles and responsibilities of the project's governance mechanism

187. The project will be implemented following UNDP's national implementation modality (NIM with UNDP support), according to the Standard Basic Assistance Agreement between UNDP and the Government of Serbia, and the Country Programme. All procurement and financial transactions will be governed by applicable UNDP regulations under NIM.

188. The Implementing Partner for this project is the Ministry of Agriculture and Environmental Protection (MoAEP). The Implementing Partner is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of the project resources.

189. The Ministry of Agriculture and Environmental Protection will appoint the National Project Director (NPD) among officials from the Ministry of Agriculture and Environmental Protection at a level that provides enough authority and insight to represent the counterpart's ownership and authority over the project, to assume responsibility for achieving project objectives and ensure accountability to the head of the Implementing Partner and UNDP for the use of project resources and achieving outputs.

190. The project organisation structure is as follows:



191. The Project Board (PB, also called Project Steering Committee) is responsible for making by consensus, management decisions when guidance is required by the Project Manager, including recommendation for UNDP/Implementing Partner approval of project plans and revisions. In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case a consensus cannot be reached within the Board, final decision shall rest with the UNDP Programme Officer and Project Manager. The terms of reference for the Project Board are contained in Annex 8.3.

192. Beside the MoAEP represented by the National Project Director, the Board is expected to include representatives from the Standing Conference of Towns and Municipalities (SCTM) and UNDP. The final composition of the Project Board will be decided at the outset of project operations and presented in the Inception Report. New members into the Board or participants into the Board meetings during the project implementation can be invited at the decision of the Board, by ensuring, however, that the Board will remain sufficiently lean to facilitate its effective operation.

193. The PB will provide high-level policy guidance and orientation to the implementation of the project (strengthen national decision making towards sustainable climate resilient development). The PB will be composed of the project's principal stakeholders and decision-makers, ensuring a balanced and effective composition. All the necessary preparations for its effective functioning (preparation of Workplans, Budgets, Progress Reports, etc.) will be handled by the UNDP Project Manager.

194. The PB will be responsible for making management decisions for the project, in particular when guidance is required by the Project Manager. PB decisions should be made in accordance to standards that shall ensure best value in terms of money, fairness, integrity transparency and effective international competition. Project reviews by this group are made at designated decision points during the running of a project, or as necessary when raised by the Project Manager. It will play a critical role in project monitoring and evaluations by assuring the quality of these processes and associated products, and by using evaluations for improving performance, accountability and learning. The PB will ensure that required resources are committed. It will also arbitrate on any conflicts within the project and negotiate solutions to any problems with external bodies. In addition and based on the approved Annual Work Plan, the PB can also consider and approve the quarterly plans and also approve any essential deviations from the original plans.

195. The Project Board will take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the Project Board will hold an end-of-project review to capture lessons learned and discuss opportunities for scaling up and to highlight project results and lessons learned with relevant audiences. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response.

196. The Project Board will meet regularly (at least twice a year) to review project progress, discuss and agree on project work plans. One of the key tasks of the Board will be to ensure coordination and synchronization of central and local-level activities supported by the project. In this respect, the Board will serve as a platform for key project stakeholders to regularly get together and design on a joint strategy of work to reach the envisaged project results. Based on the decision of the Project Board, smaller working groups can also be established to implement or to oversee specific project activities. More detailed terms of reference for the Project Board are contained in Annex.

197. The Project Manager will run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Manager function will end when the final project terminal evaluation report and corresponding management response, and other documentation

required by the GEF and UNDP, has been completed and submitted to UNDP (including operational closure of the project.

198. The project assurance roll will be provided by the UNDP Country Office by the UNDP Programme Officer and UNDP Programme Associate. Additional quality assurance will be provided by the UNDP Regional Technical Advisor as needed.

Governance role for project target groups

199. The Ministry of Agriculture and Environmental Protection (MoAEP) will establish CSUD Project Support Unit comprised of representatives of several key MoAEP departments: Climate Change Department, Project Management Unit, Legal Department and Department responsible for National Green Fund in order to support the project in achieving its listed outputs and outcomes. The primary roles of this Support Unit are to secure, manage and facilitate the implementation of the committed MoAEP cash and in-kind support to the project, to facilitate the organisation and implementation of the public call of proposals for the CSUD Challenge Prizes, make sure that they are implemented in accordance with applicable Government rules and procedures and support the project implementation otherwise. The CSUD Support Unit is also expected to contribute to the sustainability of the project after the UNDP/GEF project has ended.

200. Additionally, the project may establish complementary advisory, co-ordination and working group (or groups) including a larger representation of the key public sector entities, CSOs and private sector representatives working on the Open Data and CSUD related topics and projects. Possible candidates for such a group and their eventual roles in supporting the implementation of the project are elaborated further in Annex 8.4 "Stakeholder Involvement Plan".

UNDP Direct Project Services as requested by Government (if any)

201. UNDP country office shall provide support services for the Project as described below:

Support services	***Schedule for the provision of the support services***
1. Identification and/or recruitment of project personnel: ** Project Manager* **Project Coordinator* ** Project Assistant*	*In the first three months of the project implementation*
2. Services related to Procurement (including but not limited to): *- Procurement of goods* *- Procurement of Services:* • Consultant recruitment • Advertising • Short-listing & Selection • Contract Issuance	*Throughout project implementation when applicable*
3. Services related to finance (including but not limited): • Payments • Travel management	*On-going throughout project implementation*

Support services provision by UNDP may be a subject to revision requested as per formal Letter to be submitted by the Ministry of Agriculture and Environmental Protection to UNDP. Direct project costs charged against the GEF-financed project budget will not exceed the amount approved by GEF Secretariat for these services, which is $20,000.

Agreement on intellectual property rights and use of logo on the project's deliverables and disclosure of information

202. In order to accord proper acknowledgement to the GEF for providing grant funding, the GEF logo will appear together with the UNDP logo on all promotional materials, other written materials like publications developed by the project, and project hardware. Any citation on publications regarding projects funded by the GEF will also accord proper acknowledgement to the GEF. Information will be disclosed in accordance with relevant policies notably the UNDP Disclosure Policy and the GEF policy on public involvement.

Project management

203. A Project Implementation Unit (PIU) will be established by UNDP, including a Project Manager (PM), a Senior CSUD Expert (SCE) and a Project Assistant (PA). The Project Manager will be responsible for overall project coordination and implementation, consolidation of work plans and project documentation, preparation of quarterly progress reports, reporting to the project supervisory bodies, coordinating work of the PIU and supervising the work of the project experts and project staff. The PIU will also closely coordinate project activities with relevant Government institutions and hold regular consultations with other project stakeholders and partners, including UNDP's relevant projects.

204. The Senior CSUD Expert will be in charge for the technical project management on behalf of the Project Manager and the PB within the constraints laid down by the Project Manager and the PB. His/her prime responsibility is to support the project manager in ensuring that the project produces the results specified in the project document are achieved, to the required standard of quality and within the specified constraints of time and cost. Included in this work is the development (final approval subject to the Project Board) and operational management of the Open Data and CSUD Challenge Programs with support of the MoAEP CSUD support unit and other experts recruited for this purpose. He/she will also be the main contact person to liaise with the main project partners and beneficiaries at the operational level, to follow the latest international and national development in the CSUD and ODS related fields, supervise and contribute to the design of the project's public outreach, training and other capacity building activities as well as project's Open Data and CSUD Knowledge Management Platform.

205. The PC will also closely coordinate project activities with relevant government institutions and hold regular consultations with other project stakeholders and partners. Under the direct supervision of the project manager, the Project Assistant will be responsible for administrative and financial issues, and will get support from the existing UNDP administration.

206. Besides the core PIU team, the project will also engage on as needed basis following consultancies to support implementation of specific project activities, including, but not limited to:

- ITexpert(s)
- Communication and public outreach expert(s)
- Legal expert(s)
- Economist/financing expert(s)
- Project evaluation consultant(s)

207. Furthermore, the project will contract an experienced international project adviser (part time) to support the project inception phase and project's annual planning and adaptive management throughout the project implementation. The need for complementary international expertise will be determined on a case by case basis during the project implementation by considering the idea of the coaching team with a reference to Output 2.3 of the project. When working with international experts, particular emphasis is to be put on building in parallel the capacity of the local experts through on-the-job training and otherwise.

208. The Government of Serbia shall provide a project office for the Project Implementation Unit. The Terms of Reference of the key project personnel are presented in Annex 8.3 of this Project Document.

209. At the outset of project operations, a project inception report will be prepared in co-operation with the key stakeholders, local and international expert(s) engaged in leading or supporting the implementation of the project. The inception report will include detailed work plans for each subcomponent (output) of the project at the specific activity level and elaboration of the required resources and stakeholders to be involved for reaching the stated targets. These output specific work plans will provide the main basis for day-to-day management, implementation and monitoring of the progress of the project, complemented by the annual monitoring to be done at the Outcome level by the PIRs. In prior to starting the actual implementation of the work plan, the work plan will be reviewed and must be approved, together with the associated revised budget, by MoAEP and UNDP Serbia.

210. In addition to the members of the Project Board, the project will engage a variety of stakeholders both for the design and implementation of the Challenge Program. The first project component with the promotion of open data is seeking to improve public access, including CSOs, to up to date information on the progress of country in respect to different CSUD indicators, which already on its own should enable more active and substantial participation of the civil society in the policy discussion and in developing the country further. As it concerns the second project component, the initial consultative meetings will include also CSO representatives and the CSOs will be eligible to participate in the Challenge Program and compete for the Challenge Prize(s). Some CSOs in Serbia working as innovation labs or "think-tanks" already exist and were consulted during the PIF preparation.

211. As it concerns the local self-governments, the project looks forward to work more closely with from 5 to 10 municipal administrations showing biggest interest, commitment and potential to benefit from the project activities. The initial selection will be done as a part of the early ODS and Challenge Program implementation. Nevertheless, should any city submit later, eventually in partnership with a CSO or a private sector entity a promising proposal to the Challenge Program, their inclusion at a later stage can also be considered. In the Project Board, the Serbian municipalities are represented by the SCTM.

212. The activities of other donors and the foreseen synergies and opportunities for co-operation have been discussed in further detail in chapter 1.4. During project implementation, proper care is to be taken to have adequate communication and co-ordination mechanisms in place to ensure that areas of common interest can be addressed in a most cost-efficient way. By promoting information exchange between the participating institutions both through the Project Board and otherwise, the project seeks to identify, to create links to, and to use the results of all the other prior or ongoing activities relevant to the project. From the financial point of view, the project activities will be co-ordinated closely with the activities supported by other sources of financing such as the EU/IPA and the different bilateral organizations (SIDA, SDC, GiZ, KfW etc.) as well as multilateral International Financing Institutions (IFIs) active in Serbia such as EBRD and the World Bank. Furthermore, the project seeks to actively engage the private sector to contribute to the successful outcome of the Challenge Programs, both as a source of new innovative solutions as well as a potential source of financing for the related follow-up activities. The primary responsibility for approaching, effective liaison and partnership building with these entities during project implementation is jointly with the UNDP project manager and project coordinator.

213. Finally, the smart city indicators and characteristics also include social dimensions. While the activities of the proposed project will primarily focus on measures with tangible climate change mitigation benefits, their social aspects and possible win-win opportunities are not to be neglected. A regional CSO initiative "Social Innovation Lab (SIL)" established in 2001 and currently active in seven Western Balkan countries targets to "re-examine current development practices and approaches to socio-economic challenges, as well as create new practices through innovative, cross-cutting methodologies, tools and policies". SIL provides an illustrative example of the type of new and forward looking CSOs and think-

tanks, with whom the opportunities for co-operation and co-ordination in the frame of the CSUD Challenge Program can be explored further.

214. For successfully reaching the objective and outcomes of the project, it is essential that the progress of different project components will be closely monitored both by the key local stakeholders and management as well as by project's international technical adviser(s), starting with the finalization of detailed, component-specific work plans and implementation arrangements and continuing through the project's implementation phase. The purpose of this is to facilitate early identification of possible risks to successful completion of the project together with adaptive management and early corrective action, when needed. For further details about the project's overall monitoring and evaluation framework, see chapter 6.

Gender aspects

215. Impacts of climate change affect women and men differently. Action to mitigate climate change has the potential to also bring about local gender-positive impacts. This may be achieved by the general nature of a mitigation project or programme, such as clean energy for household lighting or cooking.[58]

216. Gender related aspects have and will be taken into account by including gender specific indicators into the project results framework, collecting gender disaggregated data on the project impact during its implementation and specifically encouraging female innovators, entrepreneurs and experts to participate in the project implementation. Some challenges will also particularly focus on gender related aspects of CSUD and project activities will be implemented also otherwise by ensuring maximum effect regarding gender balance and sensitivity.

217. Taking into account the role of women in contributing to decreasing energy consumption in household energy management, frequency and multy-purpose transport utilization (commuting from home to work, travel related to groceries purchase, taking children to/from schools etc.), taking care of agricultural households (maintenance/irrigation of green-yards) etc., their active involvement in the project implementation will be of critical importance. Hence, the project will have a strong gender-related focus across all of its components. Should at any point during the implementation, the monitored data indicate that either one of the genders is significantly under-presented among the project beneficiaries, the reasons for that will be studied and depending on the findings, specific measures can be introduced by project's adaptive management to address and correct the situation.

Prerequisites for implementation

218. The Government of Serbia will allocate the necessary funds to support the project. In addition, it will ensure that the project execution and implementation arrangements will be in place at the outset of project operations, including the establishment of the Project Board to oversee the overall implementation of the project.

219. Should the national experts that will be hired by the project currently work under direct employment of the Government of Serbia, they will have to obtain a leave of absence without payment for the duration of their work for the project. A document to this effect, signed by an authorised person, has to be attached to the request for payment.

220. The Project Document will be signed by the Government of Serbia and UNDP. Assistance for the project will be provided only if the prerequisites stipulated above have been fulfilled or are likely to be fulfilled. When anticipated fulfilment of one or more prerequisites fails to materialise, UNDP may, at its discretion, either suspend or terminate its assistance.

[58] http://unfccc.int/gender_and_climate_change/items/7516.php

6. MONITORING FRAMEWORK AND EVALUATION

221. The project results as outlined in the project results framework will be monitored annually and evaluated periodically during project implementation to ensure the project effectively achieves these results. Supported by component/outcome three: Knowledge Management and M&E, the project monitoring and evaluation plan will also facilitate learning and ensure knowledge is shared and widely disseminated to support the scaling up and replication of project results

222. Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the UNDPPOPP and UNDP Evaluation Policy. While these UNDP requirements are not outlined in this project document, the UNDP Country Office will work with the relevant project stakeholders to ensure UNDP M&E requirements are met in a timely fashion and to high quality standards. Additional mandatory GEF-specific M&E requirements (as outlined below) will be undertaken in accordance with the GEF M&E policy and other relevant GEF policies[59].

223. In addition to these mandatory UNDP and GEF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Report. This will include the exact role of project target groups and other stakeholders in project M&E activities including the GEF Operational Focal Point and national/regional institutes assigned to undertake project monitoring. The GEF Operational Focal Point will strive to ensure consistency in the approach taken to the GEF-specific M&E requirements (notably the GEF Tracking Tools) across all GEF-financed projects in the country. This could be achieved for example by using one national institute to complete the GEF Tracking Tools for all GEF-financed projects in the country, including projects supported by other GEF Agencies.[60]

M&E Oversight and monitoring responsibilities:

224. Project Manager: The Project Manager is responsible for day-to-day project management and regular monitoring of project results and risks, including social and environmental risks. The Project Manager will ensure that all project staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Manager will inform the Project Board, the UNDP Country Office and the UNDP-GEF RTA of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted.

225. The Project Manager will develop annual work plans based on the multi-year workplan included in Annex A, including annual output targets to support the efficient implementation of the project. The Project Manager will ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality. This includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the GEF PIR, and that the monitoring of risks and the various plans/strategies developed to support project implementation (e.g. gender strategy, KM strategy etc..) occur on a regular basis.

226. Project Board: The Project Board will take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the Project Board will hold an end-of-project review to capture lessons learned and discuss opportunities for scaling up and to highlight project results and lessons learned with relevant audiences. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response.

227. Project Implementing Partner: The Implementing Partner is responsible for providing any and all required information and data necessary for timely, comprehensive and evidence-based project

[59] See https://www.thegef.org/gef/policies_guidelines

[60] See https://www.thegef.org/gef/gef_agencies

reporting, including results and financial data, as necessary and appropriate. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes, and is aligned with national systems so that the data used by and generated by the project supports national systems.

228. UNDP Country Office: The UNDP Country Office will support the Project Manager as needed, including through annual supervision missions. The annual supervision missions will take place according to the schedule outlined in the annual work plan. Supervision mission reports will be circulated to the project team and Project Board within one month of the mission. The UNDP Country Office will initiate and organize key GEF M&E activities including the annual GEF PIR, the independent mid-term review and the independent terminal evaluation. The UNDP Country Office will also ensure that the standard UNDP and GEF M&E requirements are fulfilled to the highest quality.

229. The UNDP Country Office is responsible for complying with all UNDP project-level M&E requirements as outlined in the UNDP POPP. This includes ensuring the UNDP Quality Assurance Assessment during implementation is undertaken annually; that annual targets at the output level are developed, and monitored and reported using UNDP corporate systems; the regular updating of the ATLAS risk log; and, the updating of the UNDP gender marker on an annual basis based on gender mainstreaming progress reported in the GEF PIR and the UNDP ROAR. Any quality concerns flagged during these M&E activities (e.g. annual GEF PIR quality assessment ratings) must be addressed by the UNDP Country Office and the Project Manager.

230. The UNDP Country Office will retain all M&E records for this project for up to seven years after project financial closure in order to support ex-post evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GEF Independent Evaluation Office (IEO).

231. UNDP-GEF Unit: Additional M&E and implementation quality assurance and troubleshooting support will be provided by the UNDP-GEF Regional Technical Advisor and the UNDP-GEF Directorate as needed.

232. **Audit**: The project will be audited according to UNDP Financial Regulations and Rules and applicable audit policies on NIM implemented projects.[61]

Additional GEF monitoring and reporting requirements:

233. Inception Workshop and Report: A project inception workshop will be held within two months after the project document has been signed by all relevant parties to, amongst others:

a) Re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project strategy and implementation;

b) Discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms;

c) Review the results framework and finalize the indicators, means of verification and monitoring plan;

d) Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E; discuss the role of the GEF OFP in M&E;

e) Update and review responsibilities for monitoring the various project plans and strategies, including the risk log; Environmental and Social Management Plan and other safeguard requirements; the gender strategy; the knowledge management strategy, and other relevant strategies;

[61] See guidance here: https://info.undp.org/global/popp/frm/pages/financial-management-and-execution-modalities.aspx

f) Review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; and

g) Plan and schedule Project Board meetings and finalize the first year annual work plan.

234. The Project Manager will prepare the inception report no later than one month after the inception workshop. The inception report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board.

235. GEF Project Implementation Report (PIR): The Project Manager, the UNDP Country Office, and the UNDP-GEF Regional Technical Advisor will provide objective input to the annual GEF PIR covering the reporting period July (previous year) to June (current year) for each year of project implementation. The Project Manager will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission deadline so that progress can be reported in the PIR. Any environmental and social risks and related management plans will be monitored regularly, and progress will be reported in the PIR.

236. The PIR submitted to the GEF will be shared with the Project Board. The UNDP Country Office will coordinate the input of the GEF Operational Focal Point and other stakeholders to the PIR as appropriate. The quality rating of the previous year's PIR will be used to inform the preparation of the subsequent PIR.

237. Lessons learned and knowledge generation: Results from the project will be disseminated within and beyond the project intervention area through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to the project. The project will identify, analyse and share lessons learned that might be beneficial to the design and implementation of similar projects and disseminate these lessons widely. There will be continuous information exchange between this project and other projects of similar focus in the same country, region and globally.

238. GEF Focal Area Tracking Tools: The following GEF Tracking Tool(s) will be used to monitor global environmental benefit results: Tracking Tool for GEF 6 Climate Change Mitigation Projects. The baseline/CEO Endorsement GEF Focal Area Tracking Tool(s) – submitted as Annex D to this project document – will be updated by the Project Manager/Team (not the evaluation consultants hired to undertake the MTR or the TE) and shared with the mid-term review consultants and terminal evaluation consultants before the required review/evaluation missions take place. The updated GEF Tracking Tool(s) will be submitted to the GEF along with the completed Mid-term Review report and Terminal Evaluation report.

239. Independent Mid-term Review (MTR): An independent mid-term review process will begin after the second PIR has been submitted to the GEF, and the MTR report will be submitted to the GEF in the same year as the 3rd PIR. The MTR findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the UNDP Evaluation Resource Center (ERC). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final MTR report will be available in English and will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and approved by the Project Board.

240. Terminal Evaluation (TE): An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terminal evaluation process will begin three months before

operational closure of the project allowing the evaluation mission to proceed while the project team is still in place, yet ensuring the project is close enough to completion for the evaluation team to reach conclusions on key aspects such as project sustainability. The Project Manager will remain on contract until the TE report and management response have been finalized. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the UNDP Evaluation Resource Center. As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. The GEF Operational Focal Point and other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate. The final TE report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board. The TE report will be publicly available in English on the UNDP ERC.

241. The UNDP Country Office will include the planned project terminal evaluation in the UNDP Country Office evaluation plan, and will upload the final terminal evaluation report in English and the corresponding management response to the UNDP Evaluation Resource Centre (ERC). Once uploaded to the ERC, the UNDP IEO will undertake a quality assessment and validate the findings and ratings in the TE report, and rate the quality of the TE report. The UNDP IEO assessment report will be sent to the GEF IEO along with the project terminal evaluation report.

242. Final Report: The project's terminal PIR along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package, complemented by a more detailed project results and lessons learnt report on the challenge programs implemented. The final project report package shall be discussed with the Project Board and other key stakeholders during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

Mandatory GEF M&E Requirements and M&E Budget:

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[62] (US$)		Time frame
		GEF grant	Co-financing[63]	
Inception Workshop	UNDP Country Office	10,000	NA	Within two months of project document signature
Inception Report	Project Manager	None	NA	Within two weeks of inception workshop
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	UNDP Country Office	None	NA	Quarterly, annually
Monitoring of indicators in project results framework	Project Manager	Project team	NA	Annually
GEF Project Implementation Report (PIR)	Project Manager and UNDP Country Office and UNDP-GEF team	None	NA	Annually
NIM Audit as per UNDP audit policies	UNDP Country Office	15,000 over 5 years	NA	Annually or other frequency as per UNDP Audit policies

[62]Excluding project team staff time and UNDP staff time and travel expenses.

[63] Not applicable, because the project co-financing contributions for M&E will not be channelled through UNDP

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[62] (US$)		Time frame
		GEF grant	Co-financing[63]	
Lessons learned and knowledge generation	Project Manager	10,000	NA	Annually
Monitoring of environmental and social risks, and corresponding management plans as relevant	Project Manager UNDP CO	None	NA	On-going
Addressing environmental and social grievances	Project Manager UNDP Country Office BPPS as needed	None for time of project manager, and UNDP CO	NA	Costs associated with missions, workshops, BPPS expertise etc. can be charged to the project budget.
Project Board meetings	Project Board UNDP Country Office Project Manager	None	NA	At minimum annually
Supervision missions	UNDP Country Office	None[64]	NA	Annually
Oversight missions	UNDP-GEF team	None[53]	NA	Troubleshooting as needed
Knowledge management	Project Manager	25,000	NA	On-going
GEF Secretariat learning missions/site visits	UNDP Country Office and Project Manager and UNDP-GEF team	None	NA	To be determined.
Mid-term GEF Tracking Tool updates	Project Manager	Project team	NA	Before mid-term review mission takes place.
Independent Mid-term Review (MTR) and management response	UNDP Country Office and Project team and UNDP-GEF team	15,000	NA	Between 2nd and 3rd PIR.
Terminal GEF Tracking Tool updates	Project Manager	Project team	NA	Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in UNDP evaluation plan, and management response	UNDP Country Office and Project team and UNDP-GEF team	20,000	NA	At least three months before operational closure
Translation of MTR and TE reports into English	UNDP Country Office	NA	NA	As required. GEF will only accept reports in English.
TOTAL indicative COST Excluding project team staff time, and UNDP staff and travel expenses		95,000		

[64] The costs of UNDP Country Office and UNDP-GEF Unit's participation and time are charged to the GEF Agency Fee.

7. LEGAL CONTEXT

243. This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA and all CPAP provisions apply to this document.

244. Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

245. The implementing partner shall:

- put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

246. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

247. The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

248. Audit Clause: The Audit will be conducted in accordance with UNDP Financial Regulations and Rules and applicable audit policies on UNDP projects.

8. ANNEXES

Annex 8.1. Offline Risk Log

#	Description	Date identified	Type	Probability & Impact	Countermeasures / Mgt response	Owner	Submitted, updated by	Last Update	Status
1.	Lack of political will to effectively support open data approach, CSUD challenge programs and further implementation of the winning proposals.		Political	P = 3 I = 5	Identification of win-win opportunities not addressing climate change mitigation only, but challenges, on which there is a common agreement within the participating municipalities to be among the most pending ones. The final selection of the participating municipalities to be done only during the final design and/or implementation of the Challenge Program(s) on the basis of the demonstrated interest and commitment of the candidate municipalities to effectively participate in and contribute to project implementation.	Project Board			
2.	Lack of incentives and co-operation between public entities to effectively co-ordinate data management and to exchange and open data for public use.		Organi-sational	P = 3 I = 3	Awareness raising and demonstrated examples on the common benefits and related cost savings of an open data approach and co-ordinated data management. As needed, supporting the public administration to improve the regulatory framework governing the public data management.	Project Board + Project Team			
3.	Non-compatible data management software tools in different public entities preventing or slowing down data exchange and opening in machine readable formats.		Technolo gy	P = 3 I = 3	Identifying and introducing already developed and tested ICT solutions in other countries (such as Estonia) to deal with the problem of originally incompatible data management systems and software used by different public entities.	Project Team			
4.	Lack of interest of the private sector and Serbian municipalities to take the challenge i.e. a risk that no proposals of decent quality		Opera-tional	P = 3 I = 5	Careful preparation and design of the challenges, including a comprehensive scoping study, consultations and capacity building of the key stakeholders in prior to launching the challenge. Design of the challenges in such a way that the reward for winning solutions (in terms of	Project team			

#	Description	Date identified	Type	Probability & Impact	Countermeasures / Mgt response	Owner	Submitted, updated by	Last Update	Status
	and amount are received for the challenges announced.				money, recognition, visibility or replication potential) can be judged as high enough by the potential participants to justify the risk of not being awarded. Securing adequate follow-up also for those non-awarded, but still promising solutions that may benefit from the complementary information sharing and networking activities of the project				
5.	Municipalities don't have the financial resources to invest in CSUD i.e. a risk that the project develops a wish list of investments with no follow-up in terms of the actual investments.		Financial	P = 3 I = 4	This risk is mitigated by a number financing schemes currently available in Serbia with a potential to finance CSUD investments, including projects funded by bi- and multilateral donors and the already existing environmental funds managed by the local self-governments. There are also several municipalities, which have not reached their credit limit yet, meaning that they can still borrow money for investment that make economically and financially sense. Finally, there are likely to be measures which can be implemented at very low costs not really burdening the municipal budgets.	Project Board			
6.	Due to technical failure of the equipment and/or software used, the trust of the key stakeholders and investors on the proposed solution(s) is lost.		Techno-logy	P = 3 I = 4	Given the innovative nature of the proposed solutions, this risk is present, but is sought to be mitigated by adequate pre-testing of the proposed solutions. As a part of that, adequate emphasis also needs to be put on the network safety and data protection of any ICT solutions tested and taken into use;	Project team			
7.	The proposed solution(s) and CSUD investments may generate waste that is harmful to the environment or have other environmentally detrimental impacts.		Environ-mental	P=3 I=3	The project will mitigate this risk by having as an obligatory component for all challenges that the proposed solutions need to include an environmental impact assessment (not a full-fledged, but of a scale corresponding to the type and stage of development of the proposed solution) addressing also the waste issue.	Project team			
8.	Overlapping project activities with other donor funded		Organi-sational	P = 2 I = 3	Adequate stakeholder consultations with other donors both during the project preparatory and its	Project Board +			

#	Description	Date identified	Type	Probability & Impact	Countermeasures / Mgt response	Owner	Submitted, updated by	Last Update	Status
	projects leading to duplication, inefficient use of resources and "donor fatigue" of the targeted beneficiaries.				implementation, so as to define and proceed with fully complementary rather than overlapping activities	project team			
9.	Lack of awareness and capacity at the municipal and central government level to effectively adopt and implement the CSUD ideas.		Opera-tional	P = 3 I = 5	Strong focus of the project on awareness raising, coaching and capacity building and on identifying win-win opportunities not addressing only climate change mitigation.	Project Board + project team			
10.	Inadequate and/or non-capacitated human resources within the core project team to successfully implement the project by adaptive management and support the mainstreaming of its results.		Opera-tional	P = 3 I = 5	Recruitment of the key project staff based on competitive selection procedures emphasizing the qualifications and requirements set up in the ToR. Effective planning and day-to-day monitoring of the progress towards the set targets to complement the regular annual monitoring, including the use of international expert support to backstop and build up the local capacity for adaptive management and mainstreaming the project results when and as needed. Furthermore, this risk is foreseen to be mitigated by teaming up with an international expert entity having experience of designing and running challenge programs in other countries as well as by benefiting from the resources of the coaching team to be established under component 2 of the project.	Project Board + RTA			

Annex 8.2. Letters of co-financing and support

The following co-financing letters are included as separate attachments:

1. Co-financing letter of the Ministry of Agriculture and Environmental Protection dated 28 June 2016
2. Letter of co-financing from UniCredit Bank dated 2 November 2016
3. Letter of co-financing from Embassy of Sweden dated 18 November 2016
4. Letter of co-financing from the Government of Switzerland – Swiss Cooperation Office dated 14 June 2016
5. Letter of co-financing from RT-RK LCC dated 25 April 2016
6. Letter of co-financing from UNDP dated 23 June 2016
7. Letter of co-financing from Standing Conference of Towns and Municipalities dated 23 May 2016
8. Letter of co-financing from Innovation Fund of the Republic of Serbia dated 28 November 2016
9. Letter of co-financing from the Delegation of European Union to the Republic of Serbia dated 14 November 2016

Annex 8.3. Terms of Reference

Project Board

Duties and responsibilities:

The Project Board (PB) is the main body to supervise the project implementation in accordance with UNDP rules and regulations and referring to the specific objectives and the outcomes of the project with their agreed performance indicators.

The main functions of the Board are:

- General monitoring of project progress in meeting its objectives and outcomes and ensuring that they continue to be in line with national development objectives;
- To provide strategic leadership and serve as a coordination mechanism for various partners involved;
- Facilitating co-operation between the different Government entities, whose inputs are required for successful implementation of the project, ensuring access to required information and resolving eventual conflict situations faced during project implementation when trying to meet its outcomes and stated targets;
- Supporting the elaboration, processing and adoption of the required institutional, legal and regulatory changes to support the project objectives and overcoming of related barriers;
- Facilitating and supporting other measures to mitigate the identified risks to project success;
- Approving annual work plans and progress reports, the first plan being prepared at the outset of project implementation;
- Approving project management arrangements; and
- Approving any amendments to be made in the project strategy that may arise due to changing circumstances, after careful analysis and discussion of the ways to solve problems.

Project board structure and reimbursement of costs:

Project Board will be chaired by the National Project Director (NPD). Beside the Ministry of Agriculture and Environmental Protection represented by the NPD, the Board is expected to include representatives from the Standing Conference of Towns and Municipalities and UNDP. The final list of the PB members will be completed at the outset of project operations and presented in the Inception Report. New members into the PB or participants into the Board meetings during the project implementation can be invited at the decision of the Board, by ensuring, however, that the Board will remain sufficiently lean to facilitate its effective operation.

The costs of the Board's work shall be considered as the Government's or other project partners' voluntary in-kind contribution to the project and shall not be paid separately by the project. They are also not eligible to receive any monetary compensation from their work as experts or advisers to the project.

Meetings:

It is suggested that the Board will have regular meetings, twice a year, or more often if required. A tentative schedule of the Board meetings will be agreed as a part of the annual work plans, and all representatives of the Board should be notified again in writing 14 days prior to the agreed date of the meeting. The meeting will be organized provided that the executing agency, UNDP and at least 2/3 of the other members of the

Board can confirm their attendance. The project manager shall distribute all materials associated with the meeting agenda at least 5 working days in prior to the meeting.

National Project Director

As a representative of the project's main Government Implementing Partner, the main duties and responsibilities of the National Project Director (NPD) include:

- Supervise and guide the project implementation directly as well as through the Project Board meetings chaired by the NPD by reviewing and commenting project progress reports and project implementation reviews (PIRs)and by meeting at regular intervals with the project manager and senior CSUD expert;
- Coordinate the project activities with those of the Government and provide guidance on policy issues;
- Certifying the annual and, as applicable, quarterly work plans, financial reports and ensuring their accuracy and consistency with the project document and its agreed amendments;
- Taking the lead in developing linkages with the relevant authorities at national, provincial and governmental level and supporting the project in resolving any institutional or policy related conflicts that may emerge during its implementation.

Project Implementation Unit

Main tasks and responsibilities:

The Project Implementation Unit (PIU) is envisaged to be hosted by the Ministry of Agriculture and Environmental Protection. The PIU will be in charge for managing the overall project implementation, developing and managing the challenge programs and supporting the project implementation otherwise. Within this overall framework, the specific tasks of the PIU shall include, among others:

- General coordination, management and supervision of project implementation in compliance with the provisions of the project document and the UNDP and national rules and procedures;
- Establishing and managing an Open Data and CSUD knowledge management platform to study and monitor the latest international initiatives, developments, results and lessons learnt in the project related fields and share this information in an applicable format with the key project stakeholders;
- Engaging the key public entities in Serbia for constructive discussion on moving towards an Open Data society and facilitating such a process otherwise with support of the CSUD project activities and other initiatives currently undeway or planned in Serbia;
- Identifying and actively initiating and establishing partnerships with other national and international initiatives and organisations working in the project related fields to enable capacity building and coaching of the key local stakeholders;
- Developing and managing the implementation of the Open Data and Climate Smart Urban Development Challenge programs;
- Capacity building and provision of other required direct support to Serbian municipalities to facilitate adoption and effective implementation of the Open Data and CSUD concepts at the municipal level, including further development of related indicators, software tools and provision of guidance for consistent data collection and reporting formats;

- Capacity building of the Serbian municipalities to use the data for the development and implementation of concrete CSUD related measures and activities and for structuring financing for them;
- Public outreach, awareness raising and education on Open Data and CSUD related topics and for facilitating the establishment of public-private partnerships to encourage their further adoption and implementation in Serbian municipalities; and
- Initiation and drafting of required complementary legal and regulatory acts to enable effective adoption and implementation of Open Data and CSUD in Serbian municipalities.

Expected results and related milestones

For the duration of the UNDP/GEF project, the expected results and related milestones of the PIU will be consistent with those of the Project Results Framework. Further targets, as applicable, for the post-project period will be defined in consultation with the Ministry/ies in charge for promoting climate smart urban development in Serbia during project implementation.

Management and staffing:

For the duration of the UNDP-GEF project, the core team of the PIU will consist of:

- Project manager in charge for the overall project implementation in compliance with the project document and the UNDP and the national rules and procedures. He/she won't work full time for the project, but will share his/her time with other UNDP climate change projects in his/her portfolio, on which the Ministry of Agriculture and Environmental Protection serves as the Implementating Agency;
- A full time Senior CSUD Expert to be in charge for technical project management and other tasks specified in greater detail in the Terms of Reference that follow; and
- Project assistant providing administrative and logistic support to project implementation.

Other experts and support personnel to recruited for the required time period and which may also share their time with other UNDP projects under implementation are envisaged to include, but not limited to:

- IT expert(s)
- Communication and public outreach expert(s)
- Legal expert(s)
- Economist/financing expert(s)

After the required initial effort to launch the Open Data and CSUD initiatives, the Government is expected to facilitate their continuation also after the end of the UNDP/GEF project. These further support and staffing needs and possible continuation of the PIU operations will be assessed during project implementation and is to be addressed in the project's exit strategy. More detailed job descriptions and expected qualifications of the staff of the PIU are presented below.

Project Manager

Duties and responsibilities:

Overall project coordination and implementation, consolidation of work plans and project documentation, preparation of quarterly progress reports, reporting to the project supervisory bodies, coordinating work of the PIU and supervising the work of the project experts and project staff and operational project management

in accordance with the Project Document and the UNDP guidelines and procedures for National Implementation Modality (NIM) with UNDP support, including:

- Supervision of the overall project implementaton on both organizational and substantive matters– ensuring that budgeting, planning and general monitoring of the project are done in accordance with the Project Document and the rules and procedures established in the UNDP Programming Manual;
- In co-operation with the Senior CSUD Expert , preparation of annual work plans and budgets with close monitoring of the overall project progress and conducting required adaptive management to reflect the changing circumstances and eventually emerging new opportunities;
- Managing the procurement and the project budget under the supervision of UNDP to assure timely involvement of local and international experts, organisation of training and public outreach, purchase of required equipment etc. in accordance with UNDP rules and procedures;
- Submission of annual Project Implementation Reviews and other required progress reports (such as QPRs) to the Project Board and the UNDP in accordance with the section "Monitoring and Evaluation" of the Project Document (with a close linkage to required adaptive management actions);
- Supervising and coordinating the contracts of the experts working for the project;
- As applicable, communicating with project's international partners and other donors and financing entities active in Serbia for leveraging additional financing for meeting the project objective and cofinancing targets;
- Actively exploring opportunities for new partnerships and opportunities for co-ordination and co-operation with other CSUD related ongoing and planned activities in Serbia and abroad; and
- Ensuring otherwise successful completion of the project in accordance with the stated outcomes and performance indicators summarized in the project's results framework and within the planned schedule and budget.

Expected Qualifications:

- Advanced university degree and at least 10 years of professional experience in the specific areas the project is dealing with;
- Advanced knowledge and record of experience in dealing with the climate change mitigation and adaptation portfolio of projects;
- Advanced knowledge of the international and EU climate change related policies and practice, UNFCCC requirements, Serbia's climate change policy, legal framework and practice;
- Experience in managing projects of similar complexity and nature, including demonstrated capacity to manage people and actively explore new, innovative implementation and financing mechanisms to achieve the project objective;
- Experience in working in Serbian public sector;
- Demonstrated experience and success in the engagement of and working with the private sector and NGOs, creating partnerships and leveraging financing for activities of common interest;
- Good analytical and problem-solving skills and the related ability for adaptive management with prompt action on the conclusion and recommendations coming out from the project's regular monitoring and self-assessment activities as well as from periodic external evaluations;

- Ability and demonstrated success to work in a team, to effectively organise it, and to motivate its members and other project counterparts to effectively work towards the project's objective and expected outcomes;
- Good communication skills and competence in handling project's external relations at all levels; and
- Fluent/good knowledge of Serbian and English languages.
- Familiarity and prior experience with the UNDP and GEF requirements and procedures is a strong asset.

Project Assistant

Duties and responsibilities

Supporting the project manager, the senior CSUD expert and other members of the core project team in the implementation of the project, including:

- Responsibility for logistics and administrative support of project implementation, including administrative management of the project budget, required procurement support, etc.
- Controlling project expenditures and maintaining up to date business and financial documentation, in accordance with UNDP and other project reporting requirements;
- Organizing meetings, business correspondence and other communications with the project partners;
- Provide logistical support to the project team and consultants working for the project in organising duty travel, meetings, workshops etc;
- Ensuring effective dissemination of, and access to, information on project activities and results and supporting the project outreach and PR activities in general, including keeping the project web-site up to date in co-operation with the project's IT and communication experts;
- Managing the projects files and supporting the project team in preparing the required financial and other reports required for monitoring and supervision of the project progress; and
- Supporting the project team in managing contracts, in organizing correspondence and in ensuring effective implementation of the project otherwise.

Expected Qualifications:

- University degree in economy, engineering or in other specific areas the project is dealing with and/or required for the position under consideration and at least 5 years of related professional experience;
- Familiarity with international and EU climate change related policies and practice, UNFCCC requirements, Serbia's climate change policy, legal framework and practice;
- Fluent/good knowledge of the Serbian and English languages;
- Demonstrated experience and success of work in a similar position;
- Good administration and interpersonal skills;
- Ability to work effectively under pressure.
- Good computer skills

- Familiarity and prior experience with UNDP and GEF requirements and procedures, as well as climate change portfolio of projects are considered as an asset

Senior CSUD Expert

The Senior CSUD expert will take the lead on the technical project management on behalf of the Project Manager and the PB within the constraints laid down by the Project Manager and the PB. His/her prime responsibility is to support the project manager in ensuring that the project produces the results specified in the project document are achieved to the required standard of quality and within the specified constraints of time and cost. Included in this work is the development (final approval subject to the Project Board) and operational management of the Open Data and CSUD Challenge Programs with support of the MoAEP CSUD support unit and other experts recruited for this purpose. He/she will also be the main contact person to liaise with the main project partners and beneficiaries at the operational level. Besides, he/she shall follow the latest international and national development in the CSUD and ODS related fields, supervise and contribute to the design of the project's public outreach, training and other capacity building activities as well as project's Open Data and CSUD Knowledge Management Platform and initiate new partnerships to serve the project targets.

Given the above, a specific emphasis in the evaluation of the candidates applying for this position will be placed on the proven capacity and results of the applicants to: i)conceptualize and manage complex projects and processes; ii) find innovative solutions to common problems and challenges faced during project implementation and effectively apply adaptive management to address those challenges; iii) engage key stakeholders into constructive discussion about the required steps to overcome the identified barriers and reach the project results, while also initiating new partnerships when and as needed; iv) provide substantial guidance and supervision for the studies to be done and activities implemented to reflect state of art international knowledge, good practices and lessons learnt in the Open Data and CSUD related fields and efficiently engage leading national and international experts and institutions to support this work; and v) present the project findings and recommendations in a convincing manner to key policy-makers and opinion leaders by taking into account the main macroeconomic and policy drivers in Serbia.

Related duties and responsibilities:

- Operational planning and day-to-day management of the project implementation in accordance with the project results framework and annual work plans;
- Follow the latest international and national development in the Open Data and CSUD related fields and initiate and establish new partnerships to support project implementation, including building up of the Open Data and CSUD Coaching Team (Output 2.3)
- Development (final approval subject to the Project Board) and operational management of the Open Data and CSUD Challenge Programs with support of the other national and international experts recruited for this purpose;
- Elaborating and facilitating required institutional and other agreements for and co-ordinating the development of the organisational and systemic solutions for an Open Data environment in selected CSUD subsectors with an objective to: i) benefit from and avoid overlapping activities with similar data gathering activies of other entities; ii) facilitate full acccess to, exchange and consistency of the data gathered and its storing and processing in a format that can serve the public sector monitoring and reporting needs; while also iii) providing free access to data for different commercial applications and serving the interest of the general public;

- Facilitating and co-ordinating the support offered to the Serbian municipalities for adopting and implementing the proposed Open Data and CSUD initiatives and measures, including supervision and contributions to the design of the project's public outreach, training and other capacity building activities as well as project's Open Data and CSUD Knowledge Management Platform;
- Establishing and contributing to the operation of an "Open Data and CSUD hotline" as one of the services of the Project Implementation Unit;
- Visiting at regular intervals and on as needed basis the municipalities participating in project implementation to monitor the project progress and discuss and clarify the related issues on the ground;
- Consult the key stakeholders of the local municipal administration as well as local CSOs and private sector on the opportunities, barriers and specific support needs to effectively proceed with the project activities, thereby contributing to the required implementation support, monitoring and adaptive management of the project as a whole;
- Preparing templates and providing other guidance for and reviewing the GHG inventories, CSUD performance reports and action plans prepared by the municipalities partcipating in project implementation ensuring, among others, their consistency in terms of the reporting formats and accuracy of the data provided; and
- Contributing to the preparation of annual work plans, Terms of Reference and project progress reports with related adaptive management planning.

Expected Qualifications:

- Advanced university degree in climate change related technical areas
- Solid knowledge of the state-of-the-art approaches and best practices in catalyzing climate smart urban development in Serbia;
- At least 8 years of professional experience in climate change mitigation, energy efficiency and/or energy management related fields, including economic and financial aspects;
- Experience in managing activities of similar complexity and nature, including demonstrated capacity to actively explore new, innovative implementation and financing mechanisms to achieve the project results;
- Strong analytical and problem solving skills
- Demonstrated experience and success in the engagement of and working with the private sector and Civil Society Organisations (CSOs);
- Ability and demonstrated success to work in a team, to effectively organize it works and to motivate its members and other project counterparts to effectively work towards the project's objective and expected outcomes;
- Proven Knowledge of international and EU climate change related policies as well as Serbia's climate change policy, legal framework and practices;
- Good communication skills and competence in handling project's external relations at all levels; and
- Fluent in Serbian and English languages.

IT and Communication Experts

Duties and responsibilities:

- Providing technical backstopping and advice for any ICT related project activities;
- Organize training for and train personally the project participants and partners at the central government and municipal level on the use of state of the art IT technologies and applications to advance the project goals, including compilation and preparation of on-line awareness raising and training materials on any ICT related issues;
- In co-operation with the ICT experts of the project partners, conducting further research on the existing technical barriers and elaboration of required measures, technical options and steps to be taken to improve the coverage of and access to public databases on CSUD related matters through a single interface;
- Supporting the project management in drafting Terms of Reference and technical specifications for any IT related procurement (including hard and software and related consultant services) and, as applicable, in related contract negotiations;
- Supporting the on-line public outreach and knowledge management activities of the project, including development of related websites;
- Advicing the project team and, as needed, other project participants on system safety and adequate back-up arrangements of the IT systems taken into use and supporting their installation and regular maintenance for the duration of the project;
- Providing other technical backstopping for and supporting the project team in any other IT related matters, as requested by the project manager or other members of the core project team .

Expected Qualifications for IT expert:

- Advanced university degree in IT technology and/or programming and at least 8 years of professional experience in project related areas;
- Good interpersonal and training skills;
- Good analytical and problem-solving skills;
- Good communication skills and competence in handling project's external relations at all levels; and
- Fluent in Serbian and English languages

Expected Qualifications for Communication expert:

- An advance degree in communications, social studies, environmental studies or other closely related field;
- At least 7 years of working experience in communications;
- Proven experience in developing communication strategies; experience at international level shall be considered as asset;
- Experience in relevant graphic design and publishing programmes, developing, editing and layout of publications;

- Good command of commonly used design and publishing software (Adobe Illustrator, Photoshop, InDesign, or equivalent);
- Good command of online publishing software and tools;
- Good understanding of climate change and sustainable development issues;
- Demonstrated skills in editing news articles, press releases, success stories, newsletters, blogs;
- Experience and good network with media is a strong asset;
- Familiarity of visibility guidelines of UNDP and GEF.

Legal Expert(s) (part time, as needed)

Duties and responsibilities:

- Identify possible legal and regulatory barriers to the targeted outcomes and outputs of the project;
- Based on the identified legal and regulatory support needs, identify appropriate legal and regulatory frameworks and documents for suggested changes and drafting those amendments for further consideration of the Government (including any amendments or required new regulatory documents for implementing the project financial support scheme for investment) by taking into account international experiences lessons learnt;
- provision of assistance and legal advice on organising the Open Data and CSUD challenges and related documents for public call of proposals as well for other procurement related activities of the project;
- Support the other project experts in clarifying the specific legal requirements, possible obstacles and requirements in implementing the planned pilot projects to be supported by the GEF funds.

Expected Qualifications:

- Advanced university degree in Law and at least 7 years of professional experience or in the specific areas the assignment is dealing with, including good knowledge of the legal and regulatory framework influencing the specific outcomes and outputs of the project;
- Experience in drafting legal and regulatory documents in the project related fields;
- Extensive experience in public tendering regulations and procedures in Serbia;
- Good analytical and problem-solving skills;
- Familiarity with international and EU climate change related policies and practice, UNFCCC requirements, Serbia's climate change policy, legal framework and practice, would be considered as asset;
- Good communication skills and competence in handling project's external relations at all levels; and
- Fluent/good knowledge of Serbian and English languages.

Financing Expert(s)/economists (part time, as needed)

Duties and responsibilities:

- Identification and implementation of the project financial support scheme for investment by taking into account international experiences and lessons learnt;
- provision of assistance and expert advice on organising the Open Data and CSUD challenges and related documents for public call of proposals as well for other procurement related activities of the project;
- Support the other project experts in clarifying the specific financial requirements, possible obstacles and requirements in implementing the planned pilot projects to be supported by the GEF funds
- Support to the Ministry of Agriculture and Environmental Protection related to establishment and operationalization of National Green Fund
- Conducting cost-benefit analyses and economic assessments related to project activities and results under the Open Data and CSUD challenge, including the assessment of CSUD investments

Expected Qualifications:

- Advanced university degree in Economy and at least 7 years of professional experience or in the specific areas the assignment is dealing with, including good knowledge of the legal and regulatory framework influencing the specific outcomes and outputs of the project;
- Extensive experience in public tendering regulations and procedures in Serbia;
- Good analytical and problem-solving skills;
- Familiarity with international and EU climate change related policies and practice, UNFCCC requirements, Serbia's climate change policy, legal framework and practice, would be considered as asset;
- Good communication skills and competence in handling project's external relations at all levels; and
- Fluent/good knowledge of Serbian and English languages.

International project adviser (part-time)

Duties and Responsibilities:

Support UNDP and the project management in monitoring the progress of the project and its different sub-components and, as needed, build the capacity of the local experts working for the project to successfully implement the project activities, ensuring that they comply with the agreed benchmarks and success indicators of the project as well as international best practices and lessons learnt. The expected level of involvement will be 20-40 days (including 2-4 missions) per year, which may gradually decrease towards the end of project depending on how the project proceeds.

The specific responsibilities include, among others, to:

- support the local project management team in organising the implementation of the project's different sub-components at the inception phase, including support to the project management in the preparation of the project inception report and the annual output specific work plans, drafting of Terms of Reference for the national and, as needed, additional international experts and subcontractors, required tender documents etc;
- support adaptive management by annually (or semi-annually) reviewing the progress of the project and its different subcomponents and making suggestions for eventual changes and/or complementary activities;

- propose methodologies and specific software models for market monitoring and for assessing the GHG reduction impact of the project and its outputs;
- by building on international experiences and lessons learnt from promoting the Open Data and CSUD concepts, contribute to the design and adaptive management of the Open Data and CSUD challenge programs as well as provide policy and other recommendations to advance the project goals;
- support the project manager and the senior CSUD expert in supervising the work of the contracted individual experts and companies, including review of the feasibility studies and the technical design, financing and implementation arrangements of the planned pilot projects;
- support the project manager and the senior CSUD expert in arranging co-operation with the already identified key stakeholders and, as applicable, support the identification and establishment of new national and/or international partnerships and to support the project goals and objectives; and
- support the local project team in monitoring and evaluating the performance and the outcome of the pilot projects under implementation.

Expected Qualifications:

- a university degree in the project related field;
- demonstrated experience and success in supporting similar projects (or its sub-components)
- good knowledge of international experiences, state of the art approaches and best practices in the specific areas the project and its subcomponents are dealing with;
- good analytical skills and effective communication and training skills and competence in handling external relations at all levels;
- ability to work in a team and to motivate other team members and counterparts; and
- fluency in English.
- familiarity with UNDP and GEF requirements is considered as an asset.

Other experts will include, but will not be limited to following areas of expertise: energy, climate change, waste management, water management, transport and construction, spatial planning, environmental engineering etc.

Annex 8.4 Stakeholder Involvement Plan

Stakeholder	Envisaged role and potential areas for co-operation during project implementation
Central government administration and related organisations and companies	
Ministry of Agriculture and Environmental Protection (MoAEP)	The main project partner and Government counterpart responsible for environmental protection and climate change related issues in general as well as for any sectoral policies and measures affecting the agriculture and forestry sectors. Proposed Government entity to host the Green Fund, if established.
Serbian Environmental Protection Agency	A legal entity within the MoAEP in charge, among others, for: i) development, coordination and management of a national information system for environmental protection; ii) monitoring of air and water quality; iii) national GHG inventory preparation, update and maintenance, and iv) compilation of data and preparation of reports on the state of the environment and implementation of environmental policy.
Ministry of Public Administration and Local Self-Government	Responsible for matters dealing, among others, with public administration, its reform process and related capacity building. Also hosting the Directorate for eGovernment to co-ordinate cross-government implementation of electronic services. Main Government counterpart in the joint UNDP and WB Open Data Readiness Assessment (ODRA).The Ministry is also responsible for the system of local self-government, providing guidance and support to the units of local self-government.
Ministry of Mining and Energy	The main project partner and Government counterpart in the UNDP/GEF EMIS project to manage and co-ordinate the EMS and EMIS related activities at the state level. The key agency for CC mitigation related policies in the energy sector. Also managing annual budget allocations for cost-sharing municipal EE investment projects.
Ministry of Finance	A key stakeholder when it comes to the establishment of any new financial support mechanisms. Also approving budget plans for and expenditures of other governmental entities, including resources that are to be used for co-financing of any Government co-financed projects.
Ministry of Education, Science and Technological Development	Responsible for matters dealing with education, research, innovation and intellectual property rights. Also hosting/supervising the work of the Serbian Innovation Fund.
Serbian Innovation Fund	Possible project partner on coaching and supporting financially the development and commercialization of new and innovative CSUD related products and services initiated by Serbian micro, small and medium sized private companies. Matching companies developing innovative solutions with potential beneficiaries.
Ministry of Construction, Transport and Infrastructure	Responsible for matters dealing with construction, infrastructure and transport. Oversees implementation of legislation related to energy permits for buildings; Developing and managing a database on buildings with energy certificates.
Ministry of Trade, Tourism and Telecommunications	Responsible for matters dealing, among others, with market surveillance, consumer protection, digitalisation (including a project on digital schools), electronic communications and more efficient use of new ICT technologies.
Statistical Office of the Republic of Serbia (SORS),	The main entity in Serbia responsible for compiling and publishing official statistics on different sectors and activities
Institute for Standardization	A key stakeholder to co-operate with on any matters concerning standards
State Hydrometeorological Services	Collecting and managing various climate related data
Public Procurement Office	An independent government agency to help the establishment of sound procurement procedures and practices to ensure that public funds are spent in an efficient and transparent way. A key counterpart to discuss matters concerning

	climate smart public procurement policies and procedures in accordance with the new Law on Public Procurements that include elements of green public procurement.
Serbian European Integration Office (SEIO)	A government entity established in 2004 to support the Government with the EU association and accession related issues.
Local (municipal) administration and related organisations	
Local municipal administrations	Key project counterparts at the municipal level, including local energy management offices, environmental departments and entities dealing with other municipal services
Standing Conference of Towns and Municipalities	A representative of the Serbian municipalities and a key project partner to support the introduction and implementation of project related activities at the municipal level with the related outreach, networking, co-ordination and training activities through its working committees and otherwise. Also participating in the legal and regulatory work by reviewing and commenting draft regulations.
Regional Development Agencies	Possible project partners at the regional level
Regional Energy Efficiency Centers	Availability of technical experts to support the project implementation in any EE related matters. Such centers, among others, in Belgrade, Nis, Novi Sad, Kragujevac and Kraljevo.
Energy and Environment related NGOs and professional associations	
Chamber of Commerce	Envisaged key project partner for engaging the private sector. Specialized unit for environment and climate change secures active involvement of Serbia's private sector in creation and implementation of climate related policies and projects.
Chamber of Commerce of Green Serbia	A voluntary, independent business expert organisation founded in April 2013 to pursue goals on all green economy subjects in the spheres of energy production, environmental protection, green building and sustainable agriculture.
Serbian Industrial Energy Efficiency Network	Established under the Norwegian-Serbian Energy Efficiency Cooperation in partnership with Belgrade University and the Institute for Energy Technology, IFE, to facilitate information exchange and promotion of energy efficiency in the industry.
Association for Computing, Information Technology, Telecommunications and New Media of Serbia (ASIT)	One of the organizers of the Smart eGovernment Seminar and Exhibition in 2015 (http://smartegov.rs/en/index.html). Possible project partner for organising seminars and exhibitions on Open Data and CSUD related topics.
Social Innovation Lab (SIL)	A regional CSO initiative established in 2001 and currently active in seven Western Balkan countries targets to "re-examine current development practices and approaches to socio-economic challenges, as well as create new practices through innovative, cross-cutting methodologies, tools and policies". An example of the CSOs and think-tanks, with whom opportunities for co-operation and co-ordination are to be explored further.
Other NGOs	Possible areas for co-operation to be clarified further with NGOs and related initiatives such as: • European Movement in Serbia • National Convent on the EU • Center for International Relations and Sustainable Development • Central European Development Forum • Heinrich Böll Stiftung – Representation Belgrade • European Center for Regional Cooperation • Centre for Ecology and Sustainable Development • Environment Improvement Centre • Belgrade Open School

Universities and other scientific, research and educational entities	
Local universities and other research and educational entities	Scientific research, further elaboration and implementation support of the Open Data and CSUD concepts
Public/private energy companies	
EPS (Elektroprivreda Srbije), EMS (Elektromreža Srbije) and local power distribution companies	Envisaged project partners for collecting and sharing data on electricity generation, transmission and use and implementing CSUD measures and initiatives in their particular field
NaftnaIndustrija Srbije(NIS) and Srbijagas	Envisaged project partners (as applicable) on activities and data related to oil and gas consumption and related energy saving and emission reduction opportunities
Local public utility companies on heat and water supply, waste management and other public utility services	Envisaged project partners for collecting and sharing data on different public services and for implementing CSUD measures and initiatives in their particular field
Other public or private companies	
Local designers, ICT developers, equipment suppliers for various CSUD related sectors, service companies etc.	Foreseen contributors to the development and implementation of new and innovative solutions for CSUD related challenges
International organisations and financing entities	
EBRD	By the financing mechanism initiated and financed by EBRD such as the Western Balkans Sustainable Energy Financing Facility (WeBSEEF) possible source of financing for municipal EE investments
EU / IPA	Envisaged co-operating opportunities in the legal and regulatory framework development. Also supporting the Serbian Innovation Fund and preparation of Serbia's first climate change strategy and action plan (a project starting in 2016). Synergies are possible between CSUD and other EU financed environmental infrastructure projects in water and waste management, energy related projects.
Finnish Embassy in Belgrade	Co-operation with Serbian Innovation Fund to support Serbian start-ups with new and innovative business ideas. Has also supported biomass and forestry related activities and capacity building in the frame of the related UNDP projects.
GIZ	Possibility to build on some past GIZ supported activities such as the development of a database for energy certification of buildings within the Ministry of Construction, Transport and Infrastructure. Also active in supporting bioenergy related activities and municipal EE investments and capacity building with the current focus on schools.
JICA – Japan International Cooperation Agency	An ongoing project for "Assistance of Enhancement of Energy Management System in Energy Consumption Sectors in the Republic of Serbia". Eventual co-operation opportunities for open data, training and capacity building.
KfW	By the financing mechanism initiated and financed by KfW such as the Municipal Environmental Grant Loan Investment Programme (MEGLIP), possible source of financing for municipal EE investments.
Norwegian Embassy in Belgrade	Opportunity to build on some of the past energy management and capacity building activities supported by the Government of Norway. Further co-operation opportunities to be clarified during project implementation.
SIDA	Possible coordination and co-operation opportunities in the domain of municipal environmental infrastructure and compliance with the EU climate and environment related acquis;
Swiss Co-operation Office in Serbia (SDC)	Co-ordination of Swiss Government Support in Serbia with activities relevant also to the UNDP/GEF CSUD project, including European Energy Award proposed to

	be used as an instrument for monitoring energy policies and project progress in the frame of the Swiss supported "Renewable Energy and Energy Efficiency project". Support also for municipal EE investments and capacity building with the current focus on schools.
UNDP	Co-ordination with other UNDP implemented, GEF financed climate change projects such as the ongoing "Reducing Barriers to Accelerate the Development of Biomass Markets in Serbia" and "Removing Barriers to Promote and Support Energy Management Systems in Municipalities throughout Serbia " with a link to both Open Data and CSUD project components. Also several other projects of interest such as the joint UNDP and WB supported Open Data Initiative.
UNECE and UN HABITAT	Potential partners for collaboration in the frame of the multi-stakeholder "United Smart Cities" (http://www.unece.org/housing/smartcities.html) project led by UNECE and the various UN-HABITAT urban development initiatives: (http://unhabitat.org/urban-initiatives/)

Annex 8.5 Greenhouse Gas Emission Reduction Analysis

Background

The GHG emissions reduction analysis of the project has been prepared by taking into account the updated methodology for "Calculating Greenhouse Gas Benefits of the Global Environment Facility Energy Efficiency Projects, Version 1.0" published by the Scientific and Technical Advisory Panel of the Global Environment Facility (GEF-STAP) in March, 2013[65]. The study was commissioned by the GEF Secretariat in 2012 to review the previous guidance from 2008[66] and to develop a revised methodology/algorithm for calculating GHG benefits of GEF EE projects with an intent "to improve the rigor and consistency of the GHG analysis, and to simplify the application of the methodology for GEF agencies, by providing a more complete, and easy-to-use spreadsheet tool that embeds more standardized guidance in the form of algorithms and conservative default factors." As of January 2015, the methodology included four modules to choose from for different type of interventions, namely: 1) standards and labelling, 2) building codes, 3) demonstrations and diffusion and 4) financial instruments. The spreadsheet also enables project proponents to combine multiple activity components (up to 10 within each module), with reporting of results for individual components as well as cumulatively for the entire project.

The detailed technical solutions to be promoted in the frame of this project are not yet known, which makes it difficult to apply the spreadsheets developed for the updated GEF GHG calculation methodology directly. The GHG reduction benefits from the type of activities promoted under this project can typically be attributed to a great variety of small and big EE, RE and other "climate smart" investments in public buildings and public utility services, complemented by many low- and no costs behavioural and operational changes, which the project may have been encouraging and/or for which it has leveraged funding. Trying to predict the type and respective share of these interventions is associated with major uncertainties, which task is further complicated by the scarce baseline data typically available from activities contributing to the public sector GHG emissions in Serbia.

More detailed data has been collected and is available from a few municipalities, but even this data demonstrates such a great variability, for instance, in the average specific energy consumption of buildings constructed basically for similar purpose (see table 8.2 for further details) that with such a small sample, it does not really justify the use of this data as a basis for common average default values for public buildings and other public sector energy use.

Given the above, the suggested approaches of the updated GEF methodology have been used whenever possible, but in a somewhat adapted form by using the combination of top-down statistical analysis with bottom-up verification and vice versa. In the case of substantial deviations from the suggested GEF methodology or default values, an explanation is provided in the narrative.

Eventually the most comprehensive and relatively recent analysis of the energy saving potential of the public sector buildings was financed by the World Bank in 2012 with the results published in the report "National Building Energy Efficiency Study for Serbia" (World Bank, October 2012). As a basis for the estimates made, the study collected available statistical information on the entire building stock in Serbia, complemented by information obtained from a sample of walk-through energy audits. Some key results of this work are summarized in table 8.1 below.

[65] http://www.stapgef.org/revised-methodology-for-calculating-greenhouse-gas-benefits-of-gef-energy-efficiency-projects-version-1-0/

[66] GEF/C.33/Inf.18, Manual for calculating GHG benefits of GEF projects: EE and RE projects, April 2008

Table 8.1 Estimated energy saving and related investments costs of selected public sector buildings per m^2, kWh saved and tons of CO_{2eq} reduced[67]

Building type	Share	Baseline consumption	Savings potential		Required Investments per kWh saved and CO_2 reduced			
						Annual	With 15 yrs default lifetime	
	%	kWh/m^2	%	kWh/m^2	EUR/m^2	EUR/kWh	EUR/kWh	EUR/tCO_{2eq} reduced
Educational facilities	41.3%	213	44%	93.72	38.3	0.41	0.027	71.8
Health and social care	14.7%	308	47%	144.76	49.2	0.34	0.023	59.7
Public offices	44.0%	154	47%	72.38	46.8	0.65	0.043	113.6
Weighted average	NA	**201**	**46%**	**92**	**44**	**0.50**	**0.034**	**88**

When verifying these results with other available building and municipality specific data, however, it can be noted that there are significant differences even within the same building category depending on the age, location, condition and/or accuracy of the data obtained. This is illustrated in table 8.2 below showing the monitored data from three selected municipalities obtained during the UNDP/GEF project preparatory phase.

Table 8.2 Specific energy consumption of public buildings in three municipalities calculated on the basis of aggregated building specific data and compared with the WB study and the top-down analysis made during the UNDP/GEF project preparation.

Comparison by sources	Energy consumption for heating (kWh/m2)					Electricity consumption for other uses (kWh/m2)				
	WB study	Nis	Vrbas	Varvarin	Top down	WB study	Nis	Vrbas	Varvarin	Top-down
Administrative buildings	154	147	220	219	144	90	67	204	43	60
Educational entities	213	127	200	145		20	30	20-80	12	
Health and social care	308	112	244	135		91	77	90-190	79	
Others	NA	88	NA	NA	NA	NA	75	NA	NA	NA
Weighted average	**201**	**116**	**150**	**154**	**144**	**61**	**49**	**59**	**31**	**60**

Methodology used in the analysis

Similar to the initial 2008 and the updated 2013 GEF methodology, the GHG emissions reductions are divided into direct and indirect GHG reduction benefits. No direct post-project impact has been considered in the analysis since the GEF resources will be used as one-time capital grant without expected pay-back: i.e. no new loan or loan guarantee mechanism will be created with the GEF funds.

As defined in the updated GEF methodology, the **direct GHG emission reductions** "are those achieved by project investments such as technology demonstrations and discrete investments financed or leveraged during the project's supervised implementation period". In addition, policy implementation activities

[67]The estimates on specific annual baseline energy consumption, energy saving potential and related investment needs for achieving those saving are based on the National Building Energy Efficiency Study for Serbia, financed by World Bank in 2012, while the corresponding GHG reduction impact has been calculated on the basis of the emission factors reassessed during the project preparatory phase.

supported by the project such as building codes, standards and labelling components leading to building EE improvements and equipment purchases prior to the project closure are now explicitly capable of generating direct emissions benefits. Similarly, this should apply for purchases done during the project implementation period by revised public procurement guidelines applying new minimum energy performance standards, should the development of these guidelines have been directly supported by the GEF project.

By taking into account the above, the GHG reduction assessment of this project has been considering as **direct GHG emission reduction**: i) the estimated CO_2 reduction from investment projects supported directly with GEF grant funding; and ii) the estimated CO_2 reduction from investments without direct GEF cost-sharing for actual investment, but for which the financing has been leveraged by project's technical assistance activities during the UNDP/GEF project implementation period.

Indirect GHG emission reductions are those that result, for instance, "from market facilitation and development through project-supported policy and institutional frameworks, capacity building, information gathering, and replication effects of demonstration activities". This can be calculated based on a bottom-up or top-down approach. For projects involving demonstration and diffusion activities, or the use of investment instruments, the indirect GHG emission reduction following the **bottom-up approach** can be calculated on the basis of the expected replications during the post-project influence period (typically 10 years). The **top-down estimate** is based on a single market potential analysis by multiplying the total market potential by the GEF project causality factor (CF).

Table 8.3 GEF project causality factor for estimating the indirect project impact

Level 5 = 100 %	The GEF contribution is **critical** and nothing would have happened in the baseline.
Level 4 = 80 %	The GEF contribution is **dominant**, but some of this reduction can be attributed to the baseline.
Level 3 = 60 %	The GEF contribution is **substantial, but modest** indirect emission reductions can be attributed to the baseline.
Level 2 = 40 %	The GEF contribution is **modest**, and substantial indirect emission reductions can be attributed to the baseline.
Level 1 = 20 %	The GEF contribution is **weak**, and most indirect emission reductions can be attributed to the baseline.

By building on the GHG reduction analysis made for the recently approved UNDP/GEF EMIS project (PIMS 4588; GEF ID: 5518), the public sector GHG emissions from heat and electricity only (not including the emissions from public transport or waste management) were estimated at 5.4 million tons of CO2eq in 2012, of which 2.1 Mtons from space heating and 3.3 Mtons from electricity consumption for other than space heating purposes. For estimating the direct GHG emission reduction target of the project, the average total investment costs of USD 100 per ton of CO2eq reduced for building EE improvements in Serbia (by building on a comprehensive WB study done on the subject a few years ago) was used as a basis for these estimates. In the absence of more detailed information about the specific solutions to be selected for further support under the CSUD Challenge Program, a similar figure can be used for estimating the required GHG reduction costs in terms of the total investment, although especially for many ICT based solutions the cost-efficiency of the investment can be significantly better. Nevertheless, by this and the financial leveraging target of about USD 10 million by the end of the project for actual investments, the corresponding **direct GHG reduction benefits could be in the range 100 ktons of CO2eq.**

For indirect GHG emission benefits, it was estimated for the EMIS project that by gradual adoption and effective use EMS and EMIS systems in the Serbian municipalities by encouraging both behavioural and operational changes as well as actual EE investments, the public sector energy consumption nation-wide could be reduced by an incremental 1% per year after the expected end of the project in 2020 (limited to space heating and electricity only), thereby resulting in cumulative GHG reduction of about 3 million tons of

CO_{2eq} by 2030. The value added of the CSUD project by successful replication of the new innovations promoted by the Challenge Program and its continuation by the Government after the UNDP/GEF project end could easily add another 0.5 - 1% in GHG savings i.e. a **cumulative amount of 1.5 - 3 million tons of CO_{2eq} by 2030 as an incremental indirect impact of the CSUD project.**

For further details about the assumptions and data used for the GHG reduction assessment made for the UNDP/GEF EMIS project, a reference is made to the respective project document of the EMIS project.

Annex 8.6 Capacity Assessment

UNDP Serbia conducted HACT Macro and Micro Assessment for all UNDP Implementing Partners in the Republic of Serbia. Macro-Assessment was conducted in 2010 by an independent authority indicating the lack of the capacity and resources of the Supreme Audit Institution as well as the immanent risk related to the cash management, budget reporting and internal audit function of public sector in the Republic of Serbia.

In terms of adherence to HACT, in 2016 UNDP Serbia conducted Macro-Assessment, Assessment of the Supreme Audit Institution of the Republic of Serbia and has created pre-conditions for HACT Micro-Assessment of potential key Implementing Partners in the Republic of Serbia (CPD 2016 -2020).

In October 2016 UNDP Serbia conducted Micro-Assessment of all key Implementing Partners of UNDP Serbia, including the Ministry of Agriculture and Environmental Protection.

Assessment was conducted by the independent Audit Company “Moore Stephens Revizija i Racunovodstvo” procured through UNDP procurement. The overall risk assessment was defined as “low”, and all key audit areas were defined as “low” as follows: Implementing Partner, Programme Management, Organizational Structure and Staffing, Accounting Policies and Procedures, Fixed Assets and Inventory, Financial Reporting and Monitoring, Procurement. The overall report indicated low risk status of the Ministry of Agriculture and Environmental Protection.

Full Micro-Assessment is attached to the project proposal.

UNDP is of the opinion that the Ministry is to be appointed as fully-fledged Implementing Partner to this project.

Special Clauses

In case of Government Cost Sharing for the funding to be mobilized by the Government of Serbia, separate Government Cost Sharing Agreement will be signed, stipulating mandatory requirements as per UNDP Programme and Operations Policies and Procedures (POPP), as well as UNDP Bureau for External Relations and Advocacy (BERA).

Annex 8.7 UNDP Environmental and Social Screening Report (REFER TO SEPARATE FILE)

Annex 8.8 Tracking Tool for Climate Change Mitigation Projects (REFER TO SEPARATE FILE)

Annex 8.9

STANDARD LETTER OF AGREEMENT BETWEEN UNDP AND THE MINISTRY OF AGRICULTURE AND ENVIRONMENTAL PROTECTION FOR THE PROVISION OF SUPPORT SERVICES

Your excellency,

1. Reference is made to consultations between officials of the Ministry of Agriculture and Environmental Protection (hereinafter referred to as "the Ministry") and officials of UNDP with respect to the provision of support services by the UNDP country office for nationally managed programmes and projects. UNDP and the Ministry hereby agree that the UNDP country office may provide such support services at the request of the Ministry through its institution designated in the relevant programme support document or project document, as described below.

2. The UNDP country office may provide support services for assistance with reporting requirements and direct payment. In providing such support services, the UNDP country office shall ensure that the capacity of the Government-designated institution (the Ministry) is strengthened to enable it to carry out such activities directly. The costs incurred by the UNDP country office in providing such support services shall be recovered from the project and in line with UNDP and GEF Guidelines.

3. The UNDP country office may provide, at the request of the designated institution, the following support services for the activities of the programme/project:

(a) Identification and/or recruitment of project and programme personnel;

(b) Identification and facilitation of training activities;

(c) Procurement of goods and services

4. The procurement of goods and services and the recruitment of project and programme personnel by the UNDP country office shall be in accordance with the UNDP regulations, rules, policies and procedures. Support services described in paragraph 3 above shall be detailed in an annex to the programme support document or project document, in the form provided in the Attachment hereto. If the requirements for support services by the country office change during the life of a programme or project the annex to the programme support document or project document is revised with the mutual agreement of the UNDP Resident Representative and the designated institution.

5. The relevant provisions of the UNDP standard basic assistance agreement signed on 24 March 1988 (Official Gazette of SFRJ 11/1988) with the Government of the Republic of Serbia (the "SBAA"), including the provisions on liability and privileges and immunities, shall apply to the provision of such support services. The overall responsibility for the nationally managed programme or project is retained through Government designated institution – the Ministry. The responsibility of the UNDP country office for the provision of the support services described herein shall be limited to the provision of such support services detailed in the annex to the programme support document or project document.

6. Any claim or dispute arising under or in connection with the provision of support services by the UNDP country office in accordance with this letter shall be handled pursuant to the relevant provisions of the SBAA.

7. The manner and method of cost-recovery by the UNDP country office in providing the support services described in paragraph 3 above shall be specified in the annex to the programme support document or project document.

8. The UNDP country office shall submit progress reports on the support services provided and shall report on the costs reimbursed in providing such services, as may be required.

9. Any modification of the present arrangements shall be effected by mutual written agreement of the parties hereto.

10. If you are in agreement with the provisions set forth above, please sign and return to this office two signed copies of this letter. Upon your signature, this letter shall constitute an agreement between the Ministry and UNDP on the terms and conditions for the provision of support services by the UNDP country office for nationally managed programmes and projects.

Yours sincerely,

Signed on behalf of UNDP
Steliana Nedera,
Deputy Resident Representative

For the Ministry of Agriculture and Environmental Protection of the Republic of Serbia
Stana Bozovic, State Secretary

Attachment

DESCRIPTION OF UNDP COUNTRY OFFICE SUPPORT SERVICES

- Reference is made to consultations between Ministry of Agriculture and Environmental Protection, the institution designated by the Government of the Republic of Serbia, and officials of UNDP with respect to the provision of support services by the UNDP country office for the nationally managed programme or project "Climate Smart Urban Development Challenge", project number 00094603 *"the Project*".
- In accordance with the provisions of the letter of agreement and the project document, the UNDP country office shall provide support services for the Project as described below.
- Support services to be provided:

UNDP Support services as per UNDP Programme and Operations Policies and Procedures	**Schedule for the provision of the support services**	**Amount and method of reimbursement of UNDP (where appropriate)[1)]**	**Cost to UNDP of providing such support services (where appropriate)[2), 3)]**
Outcome 1			
International Consultants	As per AWP/ProDoc	15,000	As per actual cost
Local Consultants	As per AWP/ProDoc	184,000	As per actual cost
Contractual services – individual	As per AWP/ProDoc	78,000	As per actual cost
Travel	As per AWP/ProDoc	10,000	As per actual cost
Contractual services – companies	As per AWP/ProDoc	50,000	As per actual cost
Equipment	As per AWP/ProDoc	95,000	As per actual cost
Innovation awards	As per AWP/ProDoc	200,000	As per actual cost
Printing and publication costs	As per AWP/ProDoc	5,000	As per actual cost
Miscellaneous	As per AWP/ProDoc	5,000	As per actual cost
Training workshops & meetings	As per AWP/ProDoc	13,000	As per actual cost
Outcome 2			
International Consultants	As per AWP/ProDoc	97,500	As per actual cost
Local Consultants	As per AWP/ProDoc	80,000	As per actual cost
Contractual services – individual	As per AWP/ProDoc	197,000	As per actual cost
Travel	As per AWP/ProDoc	15,000	As per actual cost
Contractual services – companies	As per AWP/ProDoc	80,000	As per actual cost
Equipment	As per AWP/ProDoc	100,000	As per actual cost
Innovation awards	As per AWP/ProDoc	500,000	As per actual cost
Printing and publication costs	As per AWP/ProDoc	10,000	As per actual cost
Miscellaneous	As per AWP/ProDoc	5,500	As per actual cost
Training workshops & meetings	As per AWP/ProDoc	10,000	As per actual cost

Monitoring and Evaluation			
International Consultants	As per AWP/ProDoc	33,750	As per actual cost
Contractual services – individual	As per AWP/ProDoc	23,000	As per actual cost
Travel	As per AWP/ProDoc	4,500	As per actual cost
Professional Services	As per AWP/ProDoc	15,000	As per actual cost
Miscellaneous	As per AWP/ProDoc	3,750	As per actual cost
Training workshops & meetings	As per AWP/ProDoc	15,000	As per actual cost
Project management			
Contractual services – individual	As per AWP/ProDoc	80,000	As per actual cost
Travel	As per AWP/ProDoc	2,000	As per actual cost
Miscellaneous	As per AWP/ProDoc	3,000	As per actual cost
Direct Project Costs	As per AWP/ProDoc	20,000	As per actual cost

1) *A revision of the Annual Work Plan (including adjustment to the actual funds availability to the project), provided in the Project Document, conducted in agreement with the MoAEP, may result in the adjustment of amounts authorized to be disbursed by UNDP, which will be reflected in the revision of the AWP to be signed by the National Project Director and UNDP.*

2) *Support Services Actual Cost which adheres to the „UNDP Cost Recovery Operational Guidelines for Implementation of Direct Project Costing" effective as of January 2014*

3) *Support services provision by UNDP may be a subject to revision requested as per formal Letter to be submitted by the Ministry of Agriculture and Environmental Protection to UNDP. Direct project costs charged against the GEF-financed project budget will not exceed the amount approved by GEF Secretariat for these services, which is $20,000.*

4.Description of functions and responsibilities of the parties involved:

UNDP shall conduct the full process while the role of the Implementing Partner (IP) will be as follows:

- The Implementing Partner will send a timetable for services requested annually;
- The Implementing Partner will send the request to UNDP for the services enclosing the specifications or Terms of Reference required;
- For the hiring staff process: the IP representatives will be on the interview panel as ex officio members, i.e. as observers, if requested.

<u>Implementing Partner – Ministry of Agriculture and Environmental protection of the Republic of Serbia:</u>

The Ministry of Agriculture and Environmental Protection is designated as the Implementing Partner based on a consultative process led by the UNDP Country Office with the Ministry. The Implementing Partner assumes overall responsibility for the management of the programme or project, which has two dimensions:

- responsibility for achievement of outcome, through output(s) and key activities; and
- accountability to UNDP for use of programme or project resources (refer to Box 1).

Box 1 – Responsibilities of the Ministry of Agriculture and Environmental Protection

- Assume primary responsibility to the Government of the Republic of Serbia and to UNDP for the overall performance of the project and for the use of resources.
- Effectively manage the project on the basis of clear annual work plans that are approved jointly by the project management, the Ministry of Agriculture and Environmental Protection and UNDP.
- Ensure that key activities are undertaken, and output is produced, in accordance with the document and work-plans.
- Designate or appoint, in cooperation with UNDP, the management of the project from the Ministry of Agriculture and Environmental Protection side (National Project Director).
- Ensure that due operational procedures for Projects are applied. Assume technical, financial and administrative accountability of the project.
- Provide the necessary personnel, physical facilities (office space, equipment, etc.) and other resources that are part of the Ministry counterpart's contribution, as specified in the project document.
- Participate in monitoring, evaluation and reporting on the substantive and financial performance and impact of the project to the Ministry and UNDP.

Project Management:

The ultimate responsibility on behalf of the Ministry of Agriculture and Environmental Protection for managing the programme or project is placed on a senior Ministry official who shall be designated as the National Project Director (NPD).

The NPD is the party representing the Ministry of Agriculture and Environmental Protection ownership and authority over the programme/project, responsibility for achieving the objectives and accountability to the Ministry and UNDP for the use of resources.

Commensurate with these responsibilities, the NPD holds the ultimate authority to expend funds from the project budget. No project funds can be drawn and spent without his/her signed approval, or approval by UNDP responsible managers if a due arrangement via work planning has been made for delegation of approval authority from the NPD. (See Box 2 for details on the duties and responsibilities of the NPD).

Box 2 – Duties and Responsibilities of the National Project Director

In consultation with UNDP, the Ministry of Agriculture and Environmental Protection designates the National Project Director among officials from the Ministry of Agriculture and Environmental Protection at a level that provides enough authority and insight to represent the counterpart's *ownership* and *authority* over the project, to assume *responsibility* for achieving project objectives and ensure *accountability* to the head of the Implementing Partner and UNDP for the use of project resources and achieving outputs.

Duties and Responsibilities

a) Assume overall responsibility for the successful execution and implementation of the project, accountability to the counterpart and UNDP for the proper and effective use of attached resources;

b) Ensure consistency of the project with partner's reform strategy and relevant Ministry policies and legal procedures;

c) Serve as a focal point for the coordination of projects with other development partners, Ministry and other stakeholders;

d) Ensure that all counterpart's inputs committed to the project are made available and used according to the work plan;

e) Supervise the preparation of project work plans (annual and quarterly), updating, clearance and approval, in consultation with UNDP and other stakeholders and ensure the timely request of inputs according to the project work plans;

f) Support, in cooperation with UNDP, the recruitment of the project professional and support staff as per the agreed recruitment system outlined in National Implementation by the Government of UNDP Supported Projects: Guidelines and Procedures;

g) Support the effective implementation of the project and delivery of the expected results, objectives and impact;

h) Ensures appropriate supervision over the management of the project, including financial management;

i) Ensures participation of Ministry officials in the implementation of the project;

j) Supports adequate monitoring and impact assessment of the project;

k) Enhances adequate documentation of the project experience and its dissemination.

Selection criteria:

National Project Director is appointed/nominated by the Ministry of Agriculture and Environmental Protection and should be senior management official.

Remuneration and entitlements:

National Project Director must not receive monetary compensation from project funds for the discharge of his/her functions.

SIGNATURE PAGE

UNDAF Outcome(s)/Indicator(s): By 2020, there are improved capacities to combat climate change and manage natural resources and communities are more resilient to the effects natural and man-made disasters

CPAP Outcome(s)/Indicator(s): Number of priority adaptation and mitigation measures started and under implementation

Implementing Partner: Ministry of Agriculture and Environmental Protection

Responsible Partner: UNDP

Country: Serbia

Programme Period:	2016-2020
Atlas Award ID:	00087660
Project ID:	00094603
PIMS #	5551
Start date:	Jan. 2017
End Date	Dec. 2021
Management Arrangements	NIM
PAC Meeting Date	23 December 2016

Total resources required:	US$ 12,510,000
Total allocated resources:	US$ 12,510,000
Regular UNDP (TRAC):	US$ 100,000
Other:	
GEF	US$ 1,950,000
Other Cash	US$ 9,960,000
In-kind	US$ 500,000

Agreed by the Ministry of Agriculture and Environmental Protection

Stana Bozovic, State Secretary

NAME SIGNATURE Date/Month/Year

Agreed by UNDP:

Steliana Nedera,
Deputy Resident Representative

21/02/2017.

NAME SIGNATURE Date/Month/Year