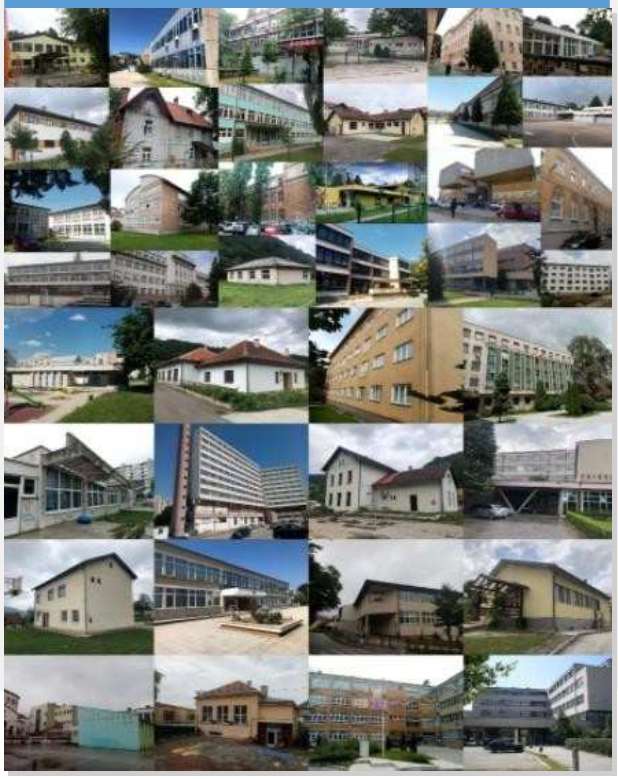

Non-Technical Summary

GRCFW2 Sarajevo Public Building – Energy Efficiency Project

January 2020

Contents

1. Introduction

Canton Sarajevo of Bosnia and Herzegovina (BiH) approached the European Bank for Reconstruction and Development (EBRD) with the request to finance an energy efficiency improvement programme in the Canton. This programme hopes to introduce energy efficiency measures in up to 40 public buildings (such as kindergartens, schools, faculties, health center, infirmary anddormitories).

These measures include the installation of thermal insulation and the upgrade of heating and ventilation in these buildings, such as the replacement of boilers and, if necessary, air conditioning units.

The 40 public buildings have been provisionally selected by a Pre-feasibility Study of energy efficiency of public buildings in the Sarajevo Cantonwhich was undertaken in 2017 by the United Nations Development Programme (UNDP). A Project Implementation Unit (PIU) is established in October 2019 within the Canton to manage all aspects of the day-to-day Project activities.

This Non-Technical Summary (NTS) provides a description of the Project and describes the potential benefits and impacts associated with the Project's implementation and operation of the planned energy efficiency measures. It also describes how these impacts will be mitigated and managed through all phases of the Project's development. In addition, it provides a summary of the public consultation activities and the approach to future stakeholder engagement.

2. What does the projectinclude?

2.1 The Project

Canton Sarajevo is the largest urban area in Bosnia and Herzegovina with a total population of 420,239 (2018 estimate[1]). The Canton consists of 9 municipalities, 4 of which comprise the City of Sarajevo, the Capital of Bosnia and Herzegovina.
The Project implements a set of measures for increasing the energy efficiency of up to 40 selected public buildings in Canton Sarajevo.

The proposed set of Energy Efficiency measures includes:

- Installation of thermal insulation in externalwalls;
- Installation of thermal insulation inroofs;
- Replacement ofwindows;
- Installation of high-efficiency lighting;and
- Upgrade of building heating and ventilation, including replacement of inefficient and/or coal fired boilers.

Figure 1 below presents a map view of the 40 public buildings which have been selected as part of this Project. These public buildings are used by approximately 26,479 people.

[1] Source: https://zis.ks.gov.ba/statistika/vitalna_statistika

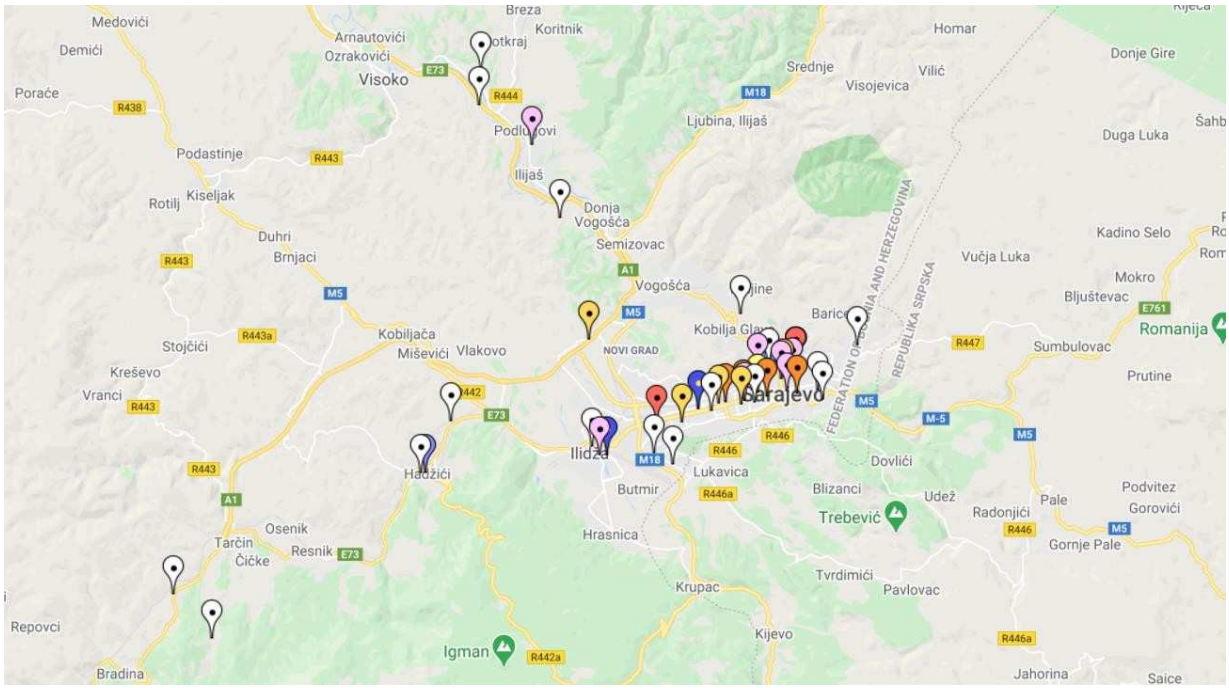

Figure 1 – Map View of the 40 Public Buildings Selected

The buildings included in this Project are presented in Appendix I.

2.1 ProjectStatus

The Project is at procurement phase – procurement for consultancy services. Project-specific management plans and other formal management systems to be employed on this specific Project have not yet been developed. Energy audits and detailed designs are to be finished by June 2021, which will determine the exact measures to be introduced in each building.

An assessment of the corporate arrangements currently in place within the Canton for Environmental, Health, Safety and Social Management has been undertaken. This assessment and the resulting action plans will ensure the wellbeing of the users and local environment of these public buildings during construction.

3. Why are these Energy Efficiency MeasuresRequired?

Bosnia and Herzegovina is the most energy and carbon intensive economy in the Western Balkan region. Bosnia and Herzegovinahas a high energy intensity relying heavily on coal. This negatively affects the country's economy, represents an important environmental challenge and limits the country's ability to efficiently meet growing energy demand in a sustainable way.

The building infrastructure sector is estimated to account for around 50% of final energy consumption. Reasons for the high energy intensity in this sector include the large number ofdated buildings (more than 77% of public buildings were constructed prior to 1987) with poor insulation, old heating and lighting systems and years of under-maintenance.
This Project is therefore needed to improve the energy efficiency of these public buildings. This will provide benefits to the country's economy, as well as decrease the city's energy demand and consequently reduce air emissions in the Canton Sarajevo.

Bosnia and Herzegovina also has both national and international commitments in relation to driving energy efficiency across the region. At the cantonal level, the Energy Efficiency Action Plan for Public Buildings in Canton Sarajevo for 2018-2020 was developed in 2018 and sets out measures and proposals to meet goals of increasing energy efficiencyin up to 36 selected public buildings from different sectors(education, health, internal affairs, labor and social policy, culture and sport). This Plan includes the proposal to establish a Cantonal energy efficiency system with an institutional framework and organizational structure that includes units for monitoring, implementation, control and reporting.
The Sarajevo Green City Action Plan is also being developed as an updated version of the Cantonal Action Plan and provides high level guidance on energy efficiency initiatives which should be implemented.

4. What is the Benefit of the Project to Local People andtheEconomy?

The installation of energy efficiency measures in the selected public buildings will locally help to reduce air pollution and greenhouse gases that contribute to climate change as the demand for energy will be decreased.

The installation of these measures will also boost markets for energy efficient goods and services. The use of these measures in public buildings will help create awareness and demand for energy efficiency measures and projects which will gradually build a sustainable and local energy service company industry. This will assist in expanding and improving the market for energy efficiency measures in residential buildings.

It is intended that a high percentage of employees would be from the local area as far as possible, dependent on skills. Although this work is temporary, job opportunities are expected to benefit the local community. The use of local labor will be maximized where possible.

5. PotentialAdverseSocio-EconomicImpactsoftheProject

5.1 Land and EconomicImpacts

No land acquisition or permanent or temporary resettlement of people or economic displacement will be caused by the Project activities.

During the thermal insulation placement on the public building facades, it is possible that some access could be restricted to entrances of the buildings for users of the buildings and neighboring businesses. Canton Sarajevo will ensure that the Construction Site Organization Plan and Construction Environmental Management Plan (CEMP) developed by the Contractors include the requirements for scaffolding to always allow for one entrance/exit of the building to be accessible, with wheelchair ramps always being available. If the scaffolding occupies the space used by business entities, it is necessary to provide them with substitute space during theworkexecution.

In order to ensure that the construction activities do not significantly affect access in the City of Sarajevo, PIU shall develop a General Traffic Management Plan in cooperation with the Consultant for PIU Support and the Ministry of Transport of the Canton Sarajevo. This will ensure that access is not severely restricted for the affected kindergartens, schools, faculties, health center, infirmary anddormitories, as well as for neighboring businesses.

The timing of construction and refurbishment works will be considered and agreed with representatives of each building, so that educational and work processes will not be disrupted.Such considerations will take into account the use and access requirements for each selected building.

5.2 Social Interaction and Community Healthand Safety

TemporaryWorkforce

The majority of employment will be through the construction phase, mainly through localcontractors. It is intended that a high percentage of employees shall be from the local area as far as possible, dependent on skills.

Fire Safety of Thermal Insulation

Thermal insulation must have appropriate fire-fighting characteristics according to the national standards, and material quality certificates will be provided by the Supplier / Contractor. The Design Engineer will also submit a fire safety report/study to the Canton Sarajevo. This report/study will include an assessment of the fire safety of the materials used, techniques of installation and overall designs. This report/study will confirm that the external walls of the buildings will adequately resist the spread of fire over the walls and from one building to another, taking into account the height, use and position of thebuilding.

Pressure on Social Infrastructure and Services

As detailed energy audits have not yet been carried out, approximate construction and installation periods per building have not yet been developed. However, given that construction will be renovation works (no new builds) and that larger buildings can be renovated in sections at a time, no extended pressures on local infrastructure or services is expected.

Water

The project will demand a relatively low level of water use and will not significantly impact any local water supplies.

Traffic Safety and Logistics

A small amount of increased traffic will be experienced and access may affect certain public buildings during the works. PIU should develop a General Traffic Management Plan in cooperation with the Consultant for PIU Support and the Ministry of Transport of the Canton Sarajevo which will ensure the smooth flow of pedestrian and vehicle traffic during work execution and will ensure safe communication corridors for access to the building where the works will be performed.

6. What will be the Key Environmental Impacts of the Project and how will they be Mitigated?

6.1 Waste

Waste generation for the Project will be limited. Any waste generated (such as loose render/plaster, disassembled windows and doors, replaced drains, insulation and meter packaging) will be dispose on a temporary construction-site landfill until it is permanently transported to the city landfill – this is the obligation of the Contractor.

Waste management procedures based on the Canton Waste Management Plan will be put in place by the Contractor and monitored by the Supervising Engineer. It is expected that a relatively small amount of waste will be generated.

6.2 Other Materials

Asbestos-containing materials (ACMs) will likely be present in the 40 selected buildings and the boilers to be replaced. As such, an intrusive asbestos survey will be carried out across all areas of the selected buildings. This will confirm if asbestos is present.

An Asbestos Management Plan (AMP) will present the location of these asbestos materials in the selected buildings, as well as its condition, the likelihood of worker or community exposure and the control measures that have been adopted to prevent exposure. Where asbestos is damaged and no adequate control measures can be introduced to control exposure, trained and competent contractors will be hired to remove the asbestos.

Other hazardous materials used by the Project for the installation of the thermal insulation are anticipated to be limited to polystyrene panels, adhesives and plaster.

6.3 Water Usage and Discharges

Water scarcity is classified as low in Sarajevo. The quantities of water required for the Project are expected to be insignificant. Nevertheless, where possible water consumption will be minimized and where appropriate non-potable water will be used.

Wastewater generation will be limited to sanitary wastewater from the contractors, which will be appropriately managed by the Contractors.

6.4 Biodiversity

No known ecological resources or features or significance were identified within the project site. There is a possibility that certain trees growing close to selected public buildings will be protected by national legislation. If such protected trees are to be affected by the Project works, the Contractor will be required to submit plans to the relevant Ministry demonstrating the protection measures to be implemented. The Supervising Engineer will monitor this closely, and the activities will be carried out in cooperation with the Cantonal Institute for the Protection of Cultural, Historical and Natural Heritage Sarajevo.

6.5 Visual Impacts

The Project will improve the external visual appearance of the approximately 40 public buildings. Insulation will be coated in a plaster and painted to improve the building aesthetic in more recent builds. In older buildings, which have cultural and historical heritage features, it is necessary to carefully apply energy efficiency measures, by engaging contractors who have the appropriate authorization (if deemed necessary) and in cooperation with the Cantonal Institute for Cultural, Historical and Natural Heritage Sarajevo.

6.6 Construction Dust and Noise

Limited air emissions and noise pollution are expected. Some minor dust will be emitted during the installation of the improved thermal insulation on the building facades, but will be controlled through the Contractor's Environmental Management Plan.

6.7 Construction Traffic

Some of the public buildings in central Sarajevo have limited access routes and areas for trucks/vans to park nearby. Some health facilities are also included in the 40 selected buildings to which require continual access to these buildings. A Traffic Management Plan will therefore be developed and implemented by the Canton Sarajevo during the Project.

The Traffic Management Plan will include adequate measures for separating construction traffic and parked vehicles from normal traffic and pedestrian walkways. It will also include requirements for construction traffic to not impede traffic and pedestrians at peak times (such as the start and end of the school/working day).

During the construction period, the contractor will ensure clear access at all times for the health facilities, and at least one clear entrance/exit for all other buildings included.

7. Stakeholder EngagementPlan

A Stakeholder Engagement Plan (SEP) has been developed with the objective of identifying key stakeholders and ensuring that, where relevant, they are informed in a timely manner of the potential impacts of the Project. The SEP willbe primary implemented by CantonSarajevoand PIU with the help from Consultant for PIU Support.

The SEP also identifies a formal grievance mechanism to be used by stakeholders (internal and external) for dealing with complaints, queries and comments. If activities change or new activities relating to stakeholder engagement commence, the SEP will be brought up to date. It will also be reviewed periodically during project implementation and updated as necessary. The SEP includes the following:

- Public consultations and information disclosurerequirements;
- Identification of stakeholders and other affectedparties;
- Overview of previous engagementactivities;
- SEP including methods of engagement and resources;and
- A grievance mechanism with a template for provision ofcomments/complaints.

Stakeholders can be persons and/or legal entities that may be directly or indirectly affected by the Project either in a positive or negative way, who wish to express their views.

8. Contacts

Contact details and responsibilities for the SEP implementation are as follows:

Canton Sarajevo
Name: Aida Veladžić
Address: Sarajevo, Reisa Džemaludina Čauševića 1
Telephone: +387(0)33 562086
E-mail:piu.ee@mki.ks.gov.ba

Appendix 1 – List of the Buildings

No	Name of the institution	Ministry	Adress	Municipality	Type of institution	Measure 1, facade	Measure 2, roof investment	Measure 3, windows	Measure 4, mechanical	Measure 5, LED investment	**Total BAM**	Number of users
1	Health Center Ilidža	Ministry of Health	Dr. Mustafe Pintola 1	Ilidža	Health Center	1	1	1	1	1	985.111,68	300
2	Dormitory Bjelave (Pavilion 1)	Ministry of Science, Higher Education and Youth	Bardakčije 1	Centar	Dormitory	1	1	1	1	1	534.829,41	127
3	Dormitory Bjelave (Pavilion 3)	Ministry of Science, Higher Education and Youth	Bardakčije 1	Centar	Dormitory	1	1	1	1	1	553.249,39	120
4	Dormitory Nedžarići	Ministry of Science, Higher Education and Youth	Aleja Bosne Srebrene bb	Novi Grad	Dormitory	1	1	1	1	1	2.111.996,91	960
5	Kindergarden „Mašnica“	Ministry of Education	Kemala Kapetanovića 30	Novo Sarajevo	Kindergarden	1	1	1	1	1	201.308,89	172
6	Kindergarden „Ribica“	Ministry of Education	Igmanski put 85	Hadžići	Kindergarden	1	1	1	1	1	115.797,49	45
7	Kindergarden „Labudovi“	Ministry of Education	Prvomajska 41	Novi Grad	Kindergarden	1	1	1	1	1	116.723,01	50
8	Kindergarden „Dunje“	Ministry of Education	Brčanska bb	Novi Grad	Kindergarden	1	1	1	1	1	192.725,55	125

9	Kindergarden „Slavuj“	Ministry of Education	Josipa Vancaša 25	Centar	Kindergarden	1	1	1	1	1	126.871,11	80
10	Kindergarden „Kekec“	Ministry of Education	Ferde Hauptmana 36	Novo Sarajevo	Kindergarden	1	0	0	1	1	76.293,95	155
11	Faculty of Veterinary Medicine	Ministry of Science, Higher Education and Youth	Zmaja od Bosne 90	Novo Sarajevo	Faculty	1	1	1	1	1	1.071.369,28	550
12	Faculty of Pedagogy	Ministry of Science, Higher Education and Youth	Skenderija 72	Centar	Faculty	1	1	1	1	1	169.102,67	350
13	Gymnasium „Obala“	Ministry of Education	Obala Kulina bana 3	Centar	High School	1	1	1	1	1	898.923,27	563
14	Medical High School	Ministry of Education	Tahmiščina 2	Centar	High School	1	1	1	1	1	406.587,79	500
15	Second Gymnasium	Ministry of Education	Sutjeska 1	Centar	High School	1	1	1	1	1	827.891,67	550
16	Elementary School „Mehmed beg Kapetanović-Ljubušak“,	Ministry of Education	Braće Begić 19	Centar	Elementary School	1	1	1	1	1	421.673,64	416
17	Elementary School „9. may - Lokve“	Ministry of Education	Lokve 125	Hadžići	Elementary School	1	1	1	1	0	59.784,66	21
18	Elementary School „Zajko Delić“	Ministry of Education	Kenana Brkanića 6	Vogošća	Elementary School	1	1	1	1	1	348.857,09	543
19	Elementary School „Hadžići - Binježevo“	Ministry of Education	Binježevo 31	Hadžići	Elementary School	1	1	1	1	0	66.389,95	6
20	First Elementary School	Ministry of Education	Mala aleja 15	Ilidža	Elementary School	1	1	1	1	1	366.497,23	753
21	Faculty of Philosophy	Ministry of Science, Higher Education and Youth	Franje Račkog 1	Centar	Faculty	1	1	1	1	1	1.040.100,00	4.500
22	Third Gymnasium	Ministry of Education	Vilsonovo šetalište 16	Novo Sarajevo	High School	1	1	1	1	1	505.678,72	630
23	Elementary School „Hilmi ef.Šarić - Korča“	Ministry of Education	Korča bb	Hadžići	Elementary School	1	1	1	1	1	51.691,36	30
24	Elementary School „Hilmi ef.Šarić - Raštelica“	Ministry of Education	Donja Raštelica bb	Hadžići	Elementary School	1	1	1	1	1	67.226,55	60

25	High School „Nedžad Ibrišimović“	Ministry of Education	Kakanjska 16	Ilijaš	High School	1	1	1	1	1	345.413,41	463
26	High School of Catering and Tourism	Ministry of Education	Dugi Sokak 9	Stari Grad	High School	1	1	1	1	1	208.740,54	601
27	High school for traffic and telecommunication (workshop)	Ministry of Education	Velešići 2	Novo Sarajevo	High School	1	1	1	1	1	923.477,97	632
28	Faculty of Natural Sciences and Mathematics (old building)	Ministry of Science, Higher Education and Youth	Zmaja od Bosne 33-35	Novo Sarajevo	Faculty	1	1	1	0	1	1.065.372,83	2.000
29	Third Elementary School	Ministry of Education	Nasihe Kapidžić Hadžić 1	Ilidža	Elementary School	1	1	1	1	1	364.890,86	646
30	Elementary School „Podlugovi - Ljubnići“	Ministry of Education	Ljubnići bb	Ilijaš	Elementary School	1	1	1	1	1	68.719,41	45
31	Elementary School „Vrhbosna“	Ministry of Education	Baruthana 60	Stari Grad	Elementary School	1	1	0	1	1	107.449,15	290
32	High School of Mechanical Engineering,High School for Metal Occupations High School of Construction and Geodesy	Ministry of Education	Zmaja od Bosne 8	Centar	High School	1	1	1	1	1	1.525.659,20	919
33	Elementary School „Podlugovi - Lješevo“	Ministry of Education	Lješevo bb	Ilijaš	Elementary School	1	1	1	1	1	105.231,54	39
34	Elementary School „Stari Ilijaš - Malešići“	Ministry of Education	Malešići bb	Ilijaš	Elementary School	1	1	1	1	0	58.041,83	41
35	Elementary School „Grbavica I“	Ministry of Education	Grbavička 14	Novo Sarajevo	Elementary School	1	1	1	1	1	474.702,61	330
36	Elementary School „Šejh Muhamed ef.Hadžijamaković“	Ministry of Education	Iza Hrida 15	Stari Grad	Elementary School	1	1	1	1	1	298.773,54	350
37	Health Center Novi Grad, ambulance Saraj polje	Ministry of Health	X transverzala bb	Novi Grad	Health Center	1	1	1	1	0	535.966,87	180
38	Elementary School „Osman Nakaš“	Ministry of Education	Gradačačka 39	Novi Grad	Elementary School	1	1	1	1	1	407.833,94	662

39	Elementary School „Ćamil Sijarić“	Ministry of Education	Braće Mulić 16	Novi Grad	Elementary School	1	0	0	1	0	166.722,08	1.000
40	Elementary School „Skender Kulenović“	Ministry of Education	Bulevar Mimar Sinana bb	Novi Grad	Elementary School	1	1	1	1	0	631.759,64	990
											18.605.436,66	20.794
				unforeseen workscca 5%							19.558.300,00	

Total savings		
Energy	kWh/a	11.670.918,31
CO2	tCO2/a	3.420,20
Costs	BAM/a	1.351.583,90