



Republic of North Macedonia
Municipality of Konche

PROJECT APPRAISAL DOCUMENT

**“Vehicle for Collection and Transportation of Solid
Waste in the Municipality of Konche”**

World Bank
Second Municipal Services Improvement Project



Konche, September 2020

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Konche, September 2020

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1. INTRODUCTION

The project assumes procurement of transport vehicle for collection and transportation of solid waste with capacity of 2.3 m³ in order to increase the capacities of the municipality of Konche for collection, transportation and disposal of solid waste in the inhabitant areas of Gorni Lipovik, Gabrevci and Lubnica within the municipality.

The total amount of the project cost is Denars 1,600,000 MKD or 25,931.93 Euro (excluding VAT), from which 1,261,035 Denars (20,438.17 Euro) are Poverty/Social Inclusion grant from MISP 2 and 338,965 Denars (5,493.76 Euro) are co-financing from the Municipality of Konche

The initiative is important because of the significance of the problems with solid waste, including legal and illegal dumpsites, decreasing the quantities of solid waste, recycling and introduction of safety standards regarding solid waste disposal.

The activities that will be conducted within the project will contribute for increased access to services in the most deprived settlements identified with the Urban Audit. That will include access of services to residential buildings (houses) and various public institutions within these settlements. The vehicle for collection and transportation of solid waste will enable the municipality to protect the environment, to improve the health of the citizens and to increase the living standards of the citizens in the poorest communities with direct and indirect economic and environmental effects.

In accordance with the Law on Local Self-Government¹, the Municipality performs its competencies and services to the citizens including transportation and handling of municipal solid and technological waste

The project is in accordance with the strategic documentation of the municipality, i.e. "Integrated Development Plan for Municipality of Konche 2019-2022", which was adopted on August 29, 2019 (Archive No. 08-951/7), where the energy efficiency is under the Strategic Goal 1 - Improving the quality of life through the development of cultural, social, transport and communal infrastructure; Priority 2 - Improving the quality of public services; Measure 2.8 Improving the capacities of PCE "Lakavica" to provide better services to citizens and the "Plan for Waste Management of the Municipality of Konche 2017 – 2022" where mayor issue is the solid waste (collection, transportation and disposal), illegal landfills and pollution of the environment.

Other strategic documents to be mentioned are the Strategic Development Plan for 2014-2020 for the Municipalities of Radovis and Konche, where in goal no. 5 Improvement of general infrastructure to improve the quality of life of citizens in both municipalities, solid waste is one of the priorities.

The proposed technical specification is in-line with the existing standards and positive regulation for this kind of vehicles, which implies that the implementation of the project is technically feasible. The project will also have positive social or environmental impacts were identified during the preparation of the project.

The municipality already implemented two projects within MSIP, including project funded by sub-loan from MSIP I., Municipal Services Improvement Project - IPA Component - Sub-project for "Floor Arrangement and Placement of Urban Equipment at Entrance and Center in the village of Konche - Municipality of Konche and Regulation of the River Strugalnica in the Village of Dolni Lipovikj - Municipality of Konche", as well as the project "Installation of LED and solar lights, street lightning for street or park lightning in the Municipality of Konche" from Second MSIP. All these projects implies that the municipality has capacities to implement internationally funded projects, such as this one.

Furthermore, it is very difficult to relate the benefits of projects of this kind with the economic development and poverty levels in a certain municipality in a short-term. However, taking into account that increasing the quality of life and improvement of management of solid waste, the project will definitely have a wide positive impact on the economic growth, health and the poverty level in the longer term perspective.

¹ Law on Local-self Government, Official Gazette No. 5/02 dated January 29, 2002

2. PROJECT DESCRIPTION

2.1. General information on Konche municipality

The municipality of Konche is a typical rural municipality, located in the central-eastern part of the Republic of North Macedonia. The geographical configuration of the terrain is predominantly hilly and mountainous. The territory of the municipality covers the upper part of the basin of the river Kriva Lakavica, which is surrounded by low mountains on three sides: Konechka with Gradeshka mountain on the west and south side and the Smrdes mountain on the east side. Only to the north the terrain is open along the valley of the Lakavica River towards the river Bregalnica. The municipality extends to an area of 233,05 km² and is in the rank of medium-sized rural municipalities in the Republic of North Macedonia.

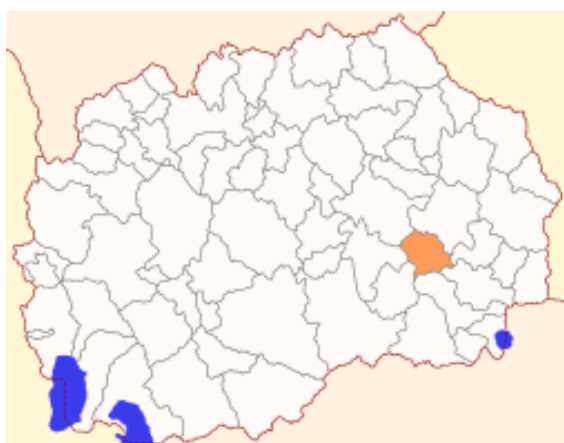


Figure 1. Location of the municipality of Konche
Source: State Statistical Office

Regarding the location, the Municipality of Konche is located on the right side of the road Radovish-Strumica. It is located 143 km from Skopje, or two hours and five minutes away by driving. The municipality is 64km away from the Corridor 10 (Negotino), 77 km from the Republic of Bulgaria (border crossing Dojran) and 100 km from the Republic of Greece (border crossing Bogorodica).

The transport connection and the accessibility of the municipality have been improved with the construction of the asphalt road from the village of Lipovikj, along the lake Mantovo, to the junction at the regional road Shtip-Radovish. Traveling along this road offers a vivid picturesque view, especially along the lake Mantovo. Unfortunately, lacking a good road connectivity to Strumica, through the villages of Lipovikj and Ric is still a handicap. Another important and picturesque road is passing from Radovish to the village of Konche. This road passes through Smrdes mountain, along the valley of Dedinska river.

The geographic location, the road connectivity with the municipalities bordering the municipality of Konche indicate that municipality of Konche has good connection, including the connection with Skopje and Strumica – Regional road A-4 (M-6). This road will be extended as highway (express magistral road) from Shtip to Strumica.

Table 1: Neighbouring municipalities and their distance from Konche municipality

Municipality	Road distance - km	Air distance - km
Radovish	22	17
Vasilevo	44	21
Strumica	49	22
Stip	55	32
Negotino	64	25
Valandovo	76	25
Demir Kapija	80	15



Figure 2. Local communities within the municipality of Konche

Source: State Statistical Office

The distance of Konche municipality from border crossing points is also additional positive impact on the connectivity i.e. 95 km to Greece – Dojran border-crossing and 76 km to Bulgaria – Novo Selo border-crossing.

The clean and ecologically healthy environment, rich in resources and potential for healthy food production has allowed the agriculture, animal husbandry, forestry and water economy to be the main economic activities. They have been directly involved in the municipality’s development.

According to the 2002 census, the total population in the municipality is 3,536 and the total number of households is 1,057. Regarding the ethnic structure of the population, the Macedonian population is dominant with 85.10% (3,007 inhabitants) of the total population, then Turks 14.73% (521 inhabitants), Serbs 0.08% (3 inhabitants) and else 0, 08% (3 inhabitants).

Table 2. Local communities in the municipality of Konche

#	Settlement	Area (km ²)	Inhabitants	
			2002	2018
Total		233.5	3,536	3,567
1	Konche	45.0	921	935
2	Dedino	22.1	744	757
3	Rakitec	12.8	504	509
4	Dolni Lipovikj	18.0	437	445
5	Lubnica	45.7	364	368
6	Gabrevci	10.9	360	365
7	Gorni Lipovikj	21.4	175	184
8	Skorusha	15.1	10	0
9	Garvan	10.4	13	4
10	Zagorci	7.3	8	0
11	Negrenovci	5.7	0	0
12	Dolni Radesh	4.4	0	0
13	Gorna Vrashtica	14.7	0	0
14	Dolna Vrashtica	45.0	0	0

Source: Census of population and households 2002 (revised in 2005) & Real Estate Cadastre Agency

The most prevalent in the agrarian structure are the plows and gardens (2,490.1ha), pastures (296.9ha) and meadows (263.7 ha). Tobacco is the most common culture, while from the other farming cultures are grown: grapes, gardening culture and others.

The main economic branch in the municipality is agriculture, especially the production of tobacco and peppers.

2.2. Information from the urban audit analysis

2.2.1. Information from the Urban Audit analysis

As presented in the Urban Audit (submitted and approved) of the Municipality of Konche the targeted villages (Gorni Lipovikj, Gabrevci and Lubnica) are most vulnerable and have lack of public services within the municipality.

The table with the priority settlements as per the accessibility of public services thus, as per the approved Urban Audit of the Municipality of Konche is presented below:

Table 10. Scoring of the local communities in the municipality of Konche according the Urban Audit

#	Settlement	Scoring	Ranking – Priority List	Explanation
1	Gorni Lipovikj	4	1	
2	Gabrevci	5	2	
3	Lubnica	6	3	
4	Garvan	Not scored	4	Insufficient info's for scoring
5	Skorusha	Not scored	5	Insufficient info's for scoring
6	Zagorci	Not scored	6	Insufficient info's for scoring
7	Negrenovci	Not scored	7	Displaced
8	Dolni Radesh	Not scored	8	Displaced
9	Gorna Vrashtica	Not scored	9	Displaced
10	Dolna Vrashtica	Not scored	10	Displaced
11	Dolni Lipovikj	10	11	
12	Rakitec	11	12	
13	Dedino	14	13	
14	Konche	15	14	

Source: Urban Audit of the Municipality of Konche

REMARK: The settlements of Garvan (4), Skorusha (5) and Zagorci (6) have lack of public and communal services, but they are populated with small number of inhabitants and there is lack of information. Settlements of Negrenovci (7), Dolni Radesh (8), Gorna Vrashtica (9) and Dolna Vrashtica (10) are ranjed because of lack of public and communal services they not classified as priorities because they are displaced.

The settlements i.e. villages listed below are most deprived as per the ISPI analysis with quality of life according the provided public services: Gorni Lipovikj, Gabrevci and Lubnica with the lowest ranks as per the prepared and approved Urban Audit.

Gorni Lipovikj village

The settlement is remote 14 km from the municipal center Regarding the communal infrastructure, water supply has been built, but no sewerage has been built and instead the wastewater is discharged to public areas and yards and part of the households have built illegal pits.

Also in terms of waste collection, there is no organized collection and transportation of waste to the municipal landfill. The municipality has provided waste collection bins to 20% of the population in the settlement, and the rest collect waste in makeshift bins for waste collection. But due to the distance of the settlement and the equipment of the public utility company with vehicles for garbage collection and collection, it is not able to perform this service in this settlement. That is why the population uses illegal landfills where they dump their own waste.

Gabrevci village

The settlement is located at a distance of 11 km from the municipal center and it is populated with majority Macedonian population. In terms of communal infrastructure, it has built a water supply system, fecal sewerage to which all households are connected.

The municipal public utility company collects household waste and dumps it at the municipal landfill once every two weeks. The municipality has provided waste collection bins to 30% of the population in the settlement, and the rest collect waste in makeshift bins for waste collection.

Lubnica village

The settlement is located at a distance of 2 km from the municipal center v. Konce and it has a Macedonian population. In terms of communal infrastructure, it has a functional water supply system, sewerage network to which all households are connected.

The municipal public utility company collects household waste and dumps it at the municipal landfill once every two weeks. The municipality has provided waste collection bins to 30% of the population in the settlement, and the rest collect waste in makeshift bins for waste collection.

Table 11. Summary of the Urban Audit process

Criteria	Comments	Appraisal
Urban Audi	Prepared, submitted, response on the recommendations and adds Final version of ISPI table confirmed and adopted	Urban Audit prepared submitted, approved and confirmed for preparation of the appraisal and for clear and transparent identification of the most vulnerable settlements ISPI table prepared
Settlements recognized, ranked and prioritized in the urban Audit	All aspects of scoring, ranking and prioritization taken into consideration	One of the lowest scores as per the ISPI table from the Urban Audit and sufficient explanation for the targeted settlements
Vulnerable category of citizens in the settlements	All aspects of categorization of vulnerability taken into consideration	Remote settlements within the municipality Vulnerable citizens not fully served with the proper public/communal and social/educational services Exclusion of proper services provision motivate and increase the mechanical migration of citizens toward other municipalities like Radovish, Strumica or abroad. Health hazard issue from lack of proper quality of organized solid waste management, sewage, water supply and road connection

The table 12 presents the priority requirements by the citizens, which are of different nature, depending on the needs of the settlements. The requests were obtained by individual meetings in the settlements. Based on the discussions, their prioritization is prepared and presented in the Urban Audit. The information from the population on public service needs are presented in the table below.

Table 12. Priorities of the citizens according their requests

#	Settlement	Request / priority
1	Gorni Lipovikj	<ul style="list-style-type: none"> • Organized collection, transportation and disposal of solid waste • Containers for solid waste disposal • Sewerage system for black water
2	Gabrevci	<ul style="list-style-type: none"> • Organized collection, transportation and disposal of solid waste • Containers for solid waste disposal • Improvement of the water supply system

3	Lubnica	<ul style="list-style-type: none"> • Organized collection, transportation and disposal of solid waste • Containers for solid waste disposal • Construction of streets within the settlement • Improvement/reconstruction of the water supply system
4	Dolni Lipovikj	<ul style="list-style-type: none"> • Construction of streets within the settlement
5	Rakitec	<ul style="list-style-type: none"> • Construction of streets within the settlement • Finalization of the sewerage system for black water
6	Dedino	<ul style="list-style-type: none"> • Construction of streets within the settlement • Finalization of the sewerage system for black water
7	Konche	<ul style="list-style-type: none"> • Finalization of the sewerage system for black water

Source: Urban Audit of the Municipality of Konche

2.3. General description of the Project

2.3.1. Project goal

The problem with the solid waste i.e. collection, transportation and disposal of the waste is one of the biggest municipal problems in the Municipality of Konche.

The project assumes procurement of special vehicle for collection, transportation and disposal of solid waste with capacity of 2.3 m³. The vehicle will be utilized for transportation waste from the settlements of Gorni Lipovikj, Gabrevci and Lubnica.

Municipal Public Utility Company "Lakavica" Konche was established on March 26, 2012, whose activities of public-communal character are: collection and transportation of municipal waste; providing drinking water; maintaining public cleanliness; as well as street lighting in all settlements in the municipality. The collection, transportation and disposal of the solid waste currently is established in three settlements in the Municipality of Konche i.e. Konche, Dedino, Rakitec and Dolni Lipovikj.

The solid waste in the municipality is collected by tractor trailer with capacity of 2,5 m³ (one unit).

The capacities of PUC "Lakavica" i.e. human resources and equipment are as follows:

- Number of employers: 31 (including General Manager);
- Number of settlements covered with organized waste management: 4 (Konche, Dedino, Rakitec and Dolni Lipovikj);
- Number of households included in the organized system for waste collection: 738
- Number of population served with the service (solid waste): 2,648
- Coverage (total): 74.24%;
- Percentage of recovery for 2018/2019: 100%;
- Tractor with trailer (2,5 m³) – Type TAFE: 1 (one unit). Year of production 2019;
- Tractor without trailer (possible capacity of 5 m³) – Type Landini: 1 (one unit). Year of production 2013;
- Metal containers with capacity of 400 liters: 15 units (not operational due to the lack of vehicle for collection).

Currently, solid waste is collected from 738 households (2,648 citizens) in the settlements of Konche, Dedino, Rakitec and Dolni Lipovikj. All households that are part of the organized system for solid waste collection are equipped with containers with capacity of 120 liters. There are 15 containers with capacity of 400 liters provided in 2016 by the Ministry of Environment and Physical Planning, but they are not placed on site, due to insufficient equipment (Vehicle) for lifting and collection of the containers.

On the territory of Konche Municipality there is one temporary landfill for disposal of solid communal waste with total area of 5,000 m² (location cold "Krst-Chuka"): Also, several illegal dumpsites are registered in the settlements of:

- Gorni Lipovikj;
- Gabrevci; and
- Lubnica

Total area of the illegal dumpsites is 900 m².

The municipality of Konche continuously put efforts to increase the capacities of the PUC “Lakavica” in technical equipment i.e. vehicles, tractors and other equipment. The municipality also received 960 containers with capacity of 120 liters as donation from UNDP, that were transferred to the PUC “Lakavica” for distribution within the settlements in the municipality. Total number of containers corresponds with the total number of household, active entities in the business sector and weekend houses within the territory of the municipality.

Primary waste selection has not yet been performed, but according to the waste management program in the municipality of Konche, it is planned to start selecting waste during this year.

Out of 10 settlement in the Municipality of Konche, organized collection, transportation and disposal of solid waste is established in 4 (40%), although the total coverage of households is 738 (74,24%). From the remaining 6 settlements, 3 (Gorni Lipovikj, Gabrevci and Lubnica) will be covered with this project. According to the Urban Audit performed by the Municipality of Konche, the settlements of Gorni Lipovikj, gabrevci and Lubnica are underdeveloped with insufficient services and should be prioritized at this moment.

With the project it is envisaged procurement of specialized vehicle for solid waste transportation with capacity of 2,0 – 2,5 m³ which will cover the settlements of Gorni Lipovikj, Gabrevci and Lubnica in the organized waste collection management. The municipality i.e. PUC “Lakavica” will distribute containers with capacity of 120 liters within the settlements according to the number of inhabitants, the number of households and the density of building layouts.

2.3.2. Description of the settlements

1. **Village of Gorni Lipovikj.** The village of Gorni Lipovikj is located east from the municipal centre, about 14 km from Konche Municipality. According to the Census from 2002 there were 175 citizens with 40 households. According to the data from 2018 there are 184 citizens i.e. 41 households. There are variety groups regarding the stakeholders and final beneficiaries i.e. individual houses, individual tobacco and lime farmers, beekeepers, grossery shops, sheep farms, livestock breeders, lime producers. Frequency of vehicles, tractors and trucks is 80 – 100.

Picture 1. Gorni Lipovikj



Source: Data from the municipality of Konche

2. **Village of Gabrevci.** The village of Gabrevci is located north from the municipal centre next to Mantovo lake, about 8.6 km from Konche Municipality. According to the Census from 2002 there were 360

citizens with 90 households. According to the data from 2018 there are 365 citizens i.e. 90 households. There are variety groups regarding the stakeholders and final beneficiaries i.e. individual houses, private companies, individual tobacco and gardening farmers, cultural house, timber companies, transportation, sheep farm, cattle breeders etc. Frequency of vehicles, tractors and trucks is 150 – 200 per day.

Picture 2. Gabrevci



Source: Data from the municipality of Konche

3. **Village of Lubnica.** The village of Lubnica is located south from the municipal centre, about 5 km from Konche Municipality. According to the Census from 2002 there were 364 citizens with 90 households. According to the data from 2018 there are 368 citizens i.e. 90 households. There are variety groups regarding the stakeholders and final beneficiaries i.e. individual houses, private companies, individual tobacco and gardening farmers, beekeepers, shops, church, cultural home, timber companies, transportation companies, sales centre for tobacco, various business facilities, sheep farms, livestock breeders etc. Frequency of vehicles, tractors and trucks is 120 – 150 per day.

Picture 3. Lubnica village



Source: Data from the municipality of Konche

2.3.3.Landfills

In accordance with the legislation and feasibility studies prepared, the Municipality of Konche as part of the South-east Planning Region will be included in the regional waste management system and will be the beneficiary of the regional landfill. According to the feasibility study, the waste will be collected by the public utility and transported to a transfer station from where it will be transported to a regional landfill. Until the implementation of this regional sanitary landfill, the Municipality of Konche is using existing temporary landfill

which will be closed after the construction and utilization of the regional landfill. Currently on the territory of the municipality one temporary landfill is used for solid communal waste disposal on the location named “Krst – Chuka” near Konche village and it is spread on 5,000 m². The landfill is managed by PUC “Lakavica” Konche. The landfill as temporary location for disposal of solid waste is determined with Decision No. 07-113/1 by the Council of the Municipality, dated 29.03.2002.

Picture 4. Temporary Landfill in Konche municipality (Krst-Chuka)



2.3.4. Current situation in the Municipality of Konche

The official statistical data i.e. Census of population and households in 2002 shows that the Municipality of Konche has total number of population 3,536 and 1057 households. According the official statistical data for the Statistical Office from 2018 (calculation for possible number of population) are 3,567 and 1,065 households.

The level of coverage with solid waste collection, transportation and disposal services, determined by the number of served households, is approximately 75% or 2,646, i.e., the PCE “Lakavica” provide the service in 4 out of 10 settlements. According to the data obtained from the field visits and the measurement of fractions, 948.82 tons of solid waste are generated annually on the territory of Konche Municipality.

According to the percentage of settlements that receive waste collection, transport and disposal service with a existing number of served population i.e. 2,648 inhabitants plus 917 inhabitants that will be included within the organized system for collection, transportation and disposal of solid waste. According to that number approximately 99% of the population will be covered with the service. more than 950 tons of solid waste will be collected. By attaining this value per capita per year (or per day), as well as the attenuation of the value in kilograms per capita per year (or per day), the following normative quantities for the generated quantities are expected in the Municipality of Konche:

- Annually, each resident of the municipality generates a total of 266 kg / inhabitant / year); and
- Generated quantities expressed in kilograms per day, amount to 1,933.04 kg of municipal waste per day (or 0.73 kg / inhabit per day).

If all settlements in the municipality are covered with the service, that is, if a total of 3,567 inhabitants receive a service for collection and transportation of waste, in accordance with the established norms obtained from the data on collected quantities of waste per year reported by PUC “Lakavica” (0.73 kg / inhabitant / day), the estimated amount of generated waste in the municipality will be 266 kg / inhabitant/year or total 948.82 t/year.

The tables below give an overview of the available capacity of the municipal enterprise, expressed in m³, so that the total volume of the equipment for waste collection and transportation is 2.5 m³ with possibility to extend the capacity to 7,5 m³ with existing tractor that operates without trail but has capacity to operate with 5 m³, as well as the total capacity of the collection containers in which the households take the waste, which then the communal enterprise PUC "Lakavica" collects, transports and dispose to nearby municipal landfill “Krst-Chuka”. The volume of waste collection containers and the available capacity that is still in operation and owned by the PUC "Lakavica" is given below in the table.

Table 13. Vehicles used for collection, transportation and disposal of solid waste in the municipality of Konche

	Village/Settlement	Vehicles used for collection, transportation and disposal of solid waste		
		Truck with compactor	Truck for collection large metal containers	Tractor with trailer
1	Konche	/	/	2.5 m ³
2	Dedino	/	/	2.5 m ³
3	Rakitec	/	/	2.5 m ³
4	Dolni Lipovikj	/	/	2.5 m ³
5	Mantovo (Vlach cottages)	/	/	2.5 m ³

Source: Source: Municipality of Konche & PUC "Lakavica"

Table 14. Existing number and capacity of the containers in Konche municipality

	Village/Settlement	Number of waste collection containers according the capacity				
		Large containers (5, 7, 9 m ³)	Containers (1,1 m ³)	Metal containers (400 l)	Plastic containers (120 l)	Small urban beans
1	Konche	/	/	/	261	10
2	Dedino	/	/	/	211	/
3	Rakitec	/	/	/	145	/
4	Dolni Lipovikj	/	/	/	121	/
5	Mantovo (Vlach cottages)	/	/	/	/	5
Total		0	0	0	738	15

Source: Source: Municipality of Konche & PUC "Lakavica"

- REMARK: The containers with capacity of 400 liters (15 units) are not distributed due to the lack of vehicle for collection

PUC "Lakavica" is responsible for organized collection, transportation and disposal of solid waste for 738 households in the Municipality of Konche, i.e. 4 out of 10 settlements are covered currently. The remaining rural settlements and households in the municipality are not covered with the services due to lack of technical capacities and financial resources.

Considering the current situation that approximately 327 households of the municipality are not covered by organized waste collection, and very low capacity for collection and transportation of the solid waste, their limitations and functionalities, as well as the obligation of the PUC "Lakavica" urgently to respond and provide timely and quality communal service, as well as the problem with illegal disposal of solid waste within the Municipality of Konche, PUC "Lakavica" should find an appropriate solution in order to prevent the further creation of new dumpsites and to increase the technical capacities as soon as possible.

2.3.5. Existing arrangement of containers in the settlements covered with solid waste collection

Existing number of containers in the villages that are part of the organized solid waste management system:

Table 15. Existing number of citizens, households and containers already covered with the service (120 litres)

Village/Settlement	Number of citizens	Number of households	Number of containers
Konche	935	261	261
Dedino	757	211	211
Rakitec	509	145	145
Dolni Lipovikj	445	121	121
Total	2,646	738	738

Source: Source: Municipality of Konche & PUC "Lakavica"

2.3.6.Future situation

The project envisages to establish organized collection solid waste in settlements of Gorni Lipovikj, Gabrevci and Lubnica. Municipality of Konche and PUC "LAKAVICA" will distribute 221 containers with capacity of 120 litres in the targeted settlements according to the number of inhabitants, the number of households and the density of building layouts.

The containers will be distributed to all households, they will be informed about the dynamic of collection so they could provide the waste as closer as for easier access of the containers for collection by PUC "Lakavica".

According to the information from PUC "Lakavica" and Municipality of Konche, currently the emptying of the containers is once a week. After establishing the organized collection in 3 new settlements with the vehicle that is subject of this project, the dynamic of collection could be twice a week.

The estimated price for collection of solid waste for each household is 100 Denars/Per month (1.63 Euro) and 150 Denars (2.44 Euro) for legal entities. The collection of the solid waste is emptied once a week from each household. The specialized vehicle for solid waste collection and transportation will be procured by the municipality and handed over to the public utility company with a decision for further management and operation.

Number of containers that will be distributed in the three targeted settlements is 221 in total. If its necessary, the Municipality of Konche will distribute more containers according the needs and the situation on the field.

Table 16. Number of containers that will be distributed (Gorni Lipovikj, Gabrevci and Lubnica)

Village/Settlement	Number of citizens	Number of households	Number of containers
Gorni Lipovikj	184	41	41
Gabrevci	365	90	90
Lubnica	368	90	90
Total	917	221	221

Source: Data from the municipality of Konche

Additionally, Municipality of Konche will provide containers for the business entities from these three settlements that are interested to be included in the organized solid waste management system.

These three settlements are among the poorest in the municipality according the Urban Audit (land occupation and planning providing urban and infrastructure services). Additionally, these three settlements are the only remaining populated villages that are not covered with the collection of solid waste. Out of 14 villages, 4 settlements are already within the system (Konche, Dedino, Rakitec and Dolni Lipovikj), 4 are permanently displaced (Dolni Radesh, Dolna Vrashtica, Gorna Vrashtica and Negrenovci) and 3 settlements are to be displaced in the upcoming period (Skorusha, Garvan and Zagorci).

2.3.7.Technical specification of the vehicle

The project envisages purchasing specialized small size vehicle (min 2,3 m³) for collection and transportation of solid waste in the settlements of Gorni Lipkovikj, Gabrevci and Lubnica. The municipality already provided plastic containers with capacity of 120 liters that will be distributed in the above listed settlements according to the number of inhabitants, the number of households and the density of building layouts.

Technical specification of the vehicle is explained below:

Technical characteristics

- Type of vehicle: Commercial vehicle for loading and compacting solid waste;
- Standardization: Vehicle must meet the technical standards binding in the Republic of North Macedonia (Law on motor vehicles – Official Gazette no. 140/08);
- Emission standard: Minimum EUR4 emission standards - EU Directive 98/69/EC (& 2002//80/EC) compliance;
- Cabin for minimum 2 passengers – Number of passenger seats should be related with the minimum number of persons to operate with the vehicle;
- Front-wheel drive;

- Type of engine: Diesel Engine;
- Engine displacement: Between 1200 and 1500 cc;
- Engine power: Between 80 and 105 HP (60 – 78,5 kW);
- Number of gears: 5 + 1 (reverse);

Container for solid waste and loading

- Load capacity (weight): min. 800 kg;
- Load capacity (volume): Minimum 2,3 m³;
- Material of the container: Metal (sheet steel);
- Manual loading holes on both sides of the container;
- System for lifting and emptying bins: Automatic;
- Capacity of the bins: 120, 240 and 360 liters;
- electrohydraulic pump
- two cylindrical stabilizers
- Upgradable for dumping system;

Additional equipment and other characteristics

- Steering wheel: Servo steering wheel with height and depth adjustment;
- Air condition;
- Breaks: ABS;
- Central locking
- Airbag: Min. for the driver seat;

Direct beneficiaries are more than 900 residents, as well as more than 500 residents that gravitate within the targeted settlement. Apart from the solid waste, the problem in the Municipality of Konche is the agriculture waste of the local residents that currently is seen as a problem that should grow into opportunity.

The Municipality and PUC “Lakavica” are responsible for solid waste operations, maintenance and improvement. For maintaining sound functioning of the organized solid waste management, the Municipality improves, support and increase the capacities for solid waste collection, transportation and disposal

Insufficiently capacities for collection and inappropriate disposal of the solid waste indirectly causes environmental harmful effects with increased pollution and diseases, which affects the health of the population. The municipal administration employees undertake continuous activities to reduce the problems with the waste, therefore, the main objective of the proposed project activities is to ensure long-term improvement of the capacities for collection, transportation and disposal of the solid waste.

2.3.8. Situation after execution of the project

With the implementation of the proposed project, the villages of Gorni Lipovik, Gabrevci and Lubnica will be included in the organized system for solid waste management of the Municipality of Konche.

The proposed settlements will be equipped with certain number of containers (120 liters capacity) in order to provide appropriate service (solid waste collection) for each household:

1. Village/settlement of Gorni Lipovik – 41 containers;
2. Village/settlement of Gabrevci – 90 containers;
3. Village/settlement of Lubnica – 90 containers.

The public communal enterprise “Lakavica” in coordination with the municipality will provide appropriate service i.e. collection, transportation and disposal of the solid waste for 221 households, more detailed 41 in Gorni Lipovik, 90 for Gabrevci and 90 for Lubnica.

The emptying of the containers from the above mentioned villages will take place at least once a week. After the municipality and the PUC "Lakavica" establish the dynamic for solid waste collection, there is possibility for collection of the garbage twice a week.

The realization of the project is expected to contribute to the improvement of the collection, transportation and disposal of the solid waste, which is not the case at the moment.

As a result of the project implementation, the outcome expected is that the municipality will have improved solid waste management in 7 settlements in order to provide better living, health and working conditions for the local population, providing better conditions for potential investors and the possibility of retaining young residents in the municipality. Continuous maintenance and reconstruction of the infrastructure network increases the prospects for faster economic development in the region and migration of young married couples into the municipality.

One of the most important general benefits of this project, due to the reduction of earth, water and air pollution, decrease number of fires from garbage burning, reduction of greenhouse gas emissions, thus contributing to the reduction of climate change.

The implementation of the project in the municipality should trigger positive impulses and effects on the entire immediate environment from aspects of higher organization, infrastructural equipment and spatial planning if it is based on the principles of sustainable development. With the implementation of the project, it is also expected to increase the value of the property of real estate and other residential or commercial buildings that are in the immediate vicinity of the route of the streets, which increases the growth of the property tax revenues in the municipality. Thus of utmost importance is the thorough and rapid realization of infrastructure projects, this includes improving and modernizing the municipal capacities on solid waste management.

2.3.9.Strategic goals

The implementation of the project i.e. procurement of specialized vehicle for solid waste collection and transportation in 3 villages in the municipality, will contribute to the development of the site, the local economy and the implementation of strategic documents of the municipality. The activities that will be implemented will contribute for safe environment and secured access to residential buildings, post offices, banks, home of culture, primary schools and kindergartens, health institutions, religious buildings and green market. with direct and indirect economic and environmental effects.

This is a strategic commitment for the local development of the municipality of Konche, which is in accordance with the "Integrated Development Plan for Municipality of Konche 2019-2022", which was adopted in 2019 and already started with implementation. The follow up will depend on the selected priority issues and the financial possibilities of the municipality. Mutual Strategic Development Plan for 2014-2020 for the Municipalities of Radovis and Konche, the "Plan for Waste Management of the Municipality of Konche 2017 – 2022" and the Urban Audit prepared, submitted and approved to MSIP 2.

This will undoubtedly contribute to improving the quality of life and well-being of all residents of the Municipality of Konche. The realization of this project will contribute towards better and cleaner environment, improvement of the working and health conditions.

2.4. Conclusions

The project is in line with the strategic priorities of the municipality of Konche and will contribute in achieving the vision of the municipality to ensure sufficient collection, transportation and disposal of solid waste.

The relevance of the project results from the fact to decrease the risk of solid waste born diseases and to provide healthy environment for the citizens in the municipality. The Municipality of Konche identified the need to improve the capacities for collection, transportation and disposal of solid waste.. The proposed technical solution is in accordance with existing standards and regulations for this kind of projects. For successful implementation of projects, knowledge and experience is required, especially on project management and specific technical issues.

3. SOCIAL IMPACT

3.1.1. Social diversity and gender

The project envisages improvement of the organized system for solid waste collection in 3 settlements in the municipality of Konche. In the Municipality of Konche there are 14 villages in total, out of them 4 are not populated (evicted): Negrenovci, Dolni Radesh, Gorna Vrashtica and Dolna Vrashtica. In order to improve living standards and to remain the population in their homeland, the Municipality of Konche identified the need to include additionally 3 settlements (Gorni Lipovikj, Gabrevci and Lubnica) in the organized system for solid waste collection according the goals and priorities in the “Integrated Development Plan for Municipality of Konche 2019-2022” and the “Plan for Waste Management of the Municipality of Konche 2017 – 2022”.

Providing the specialized vehicle for collection, transportation and disposal of solid waste for the municipality of Konche, involves residents from different social groups (minorities, gender, language, young couples, etc.). By age, there are different groups including children, youths and elderly people, some of them are people with special needs. According to the Census 2002, the gender structure considered more male population over the female population for 6.68%. According to the last census, there are 1,886 male residents or 53.34% and 1,650 females or 46.66%. Targeted villages of Gorni Lipovikj, Gabrevci and Lubnica has in total 917 residents out of which women are 432 (47%) and men are 485 (53%).

The locations with significant problems related to solid waste within the municipality of Konche covers residential buildings and private businesses, as well as facilities such as school, playgrounds, churches, and other religious buildings, etc. Direct beneficiaries are 917 residents, as well as more than 500 residents that gravitate in the villages of Gorni Lipovikj, Gabrevci and Lubnica).

The overall improvement of health and protection of the environment and agriculture land will be additional benefit for the among vulnerable groups, such as children and women, which represent 45% of the total number of beneficiaries in the targeted villages.

3.1.2. Institutional setup

On legal bases, the municipal Council might request information from the Mayor in reference to the project's implementation at any time. In addition, based on experience with other similar projects in the region, the municipality in coordination with the public utility enterprise will be responsible for maintaining the equipment i.e. vehicle after the completion of the project. In addition, the municipality has an administration, which has experience to monitor the impact of the implemented activities within the project.

According to the interviews and discussions, the private companies and sole proprietor will have great benefits from the improvement of the organized waste management. The construction will provide easy and safer access to all consumers, which will increase the health standards as well as earnings and trade. This information was confirmed by the public debate participants.

3.1.3. Stakeholders and final beneficiaries

There are three villages directly benefiting from the project:

1. **Village of Gorni Lipovikj** – Total population of 184. Part of the intervention are all households within the village, out of that 97 are men and 87 are women. There are variety groups regarding the stakeholders and final beneficiaries i.e. individual houses, individual tobacco and lime farmers, beekeepers, grossery shops, sheep farms, livestock breeders, lime producers. Frequency of vehicles, tractors and trucks is 80 – 100.
2. **Village of Gabrevci** – Total population of 365. Part of the intervention are all households within the village, out of that 195 are men and 173 women. There are variety groups regarding the stakeholders and final beneficiaries i.e. individual houses, private companies, individual tobacco and gardening farmers, cultural house, timber companies, transportation, sheep farm, cattle breeders etc. Frequency of vehicles, tractors and trucks is 150 – 200 per day.

3. **Village of Lubnica** – Total population of 368. Part of the intervention are all households within the village, out of that 195 are men and 173 are women. There are variety groups regarding the stakeholders and final beneficiaries i.e. individual houses, private companies, individual tobacco and gardening farmers, beekeepers, shops, church, cultural home, timber companies, transportation companies, sales centre for tobacco, various business facilities, sheep farms, livestock breeders etc. Frequency of vehicles, tractors and trucks is 120 – 150 per day.

3.1.4. Citizen participation

The Municipality of Konche conducted a wider public promotion of the possible outcomes of the project in the targeted settlements (Gorni Lipovikj, Gabrevci and Lubnica) presenting the project for purchasing specialized vehicle for collection, transportation and disposal of solid waste through MSIP project as grant. The reaction of the citizens confirmed that this proposal of the municipality as important priority for improvement of the social, health and economic life of the citizens in comparison with the available budget spending of the local government (co-financing). Two information meetings were held in June and July. On the first meeting there were representatives from the villages of Gabrevci and Lubnica with participation of 12 citizens out of that number 5 were women. On the second meeting there were representatives from the villages of Gorni Lipovikj, Gabrevci and Lubnica with participation of 15 citizens out of that number 6 were women.

The municipality of Konche officially communicates with the citizens in several ways. The most effective communication mechanism is the direct meetings and discussions. Despite this communication the other effective way is through official website of the municipality of Konche (<http://konce.gov.mk/>) and the email addresses of the responsible representatives of the special units of the local administration, where citizens can receive information, are being served, and post questions and receive answers (“Пријави проблем” / “Report a problem”). Additionally, the municipality uses Facebook social network, where the municipality mostly makes promotions, news releases, and shares information. Also, the Mayor has a practice of holding individual or group meetings with citizens. The meetings are held minimum twice a month (possibility is open for every week) with citizens who had a schedule appointment with the mayor. Occasionally, the municipality issues an official newspaper where all important activities, projects, meeting and decisions are published. The municipality has well established practice of citizens’ engagement activities in monitoring project implementation process. This includes placement of feedback drop box and annual public consultations with published results. These participative practices ensure the possibility of residents to influence on necessary changes if they arise during the implementation of the project if need. The municipality will take all actions possible to protect the investment. The project is expected to influence the overall wellbeing in the municipality, it is expected for residents to give full support during realization of the project.

3.1.5. Social and political risks

There are no social risks for implementation of the project. The project is supported by all legal bodies within the municipality and the citizens. The municipal council of Konche Municipality, consists of 9 representatives from different political parties. In spite of their political orientation, the councillors by any decision or discussion did not show attitude to endanger the realization of the project. As elaborated earlier, the councillors have already expressed their support for the project with approval of the Urban Audit that was submitted to MSIP 2.

Although there is a wide range of priorities in many fields within the local government competencies, most of them identified the infrastructure, environmental & health issues (including solid waste disposal) and improving the living standards of the population. Last few years the citizens rate the problem with solid waste as one of the highest priority. The implementation of the project i.e. providing specialized vehicle for collection, transportation and disposal of solid waste and resolving the problems in three settlements within the municipality of Konche will cover one of these conditions for improving the living standards.

Considering the fact that the residents are fully informed about the possibility of providing the vehicle that is subject to this appraisal, there is no risk for resident not to be in favor about the project implementation.

3.2. Other issues of considerations

The project is not a subject to resettlement issues because it involves purchasing of vehicle i.e. equipment. Execution of the project will improve the health and social conditions of the population of the targeted settlements and will allow economic development i.e. better conditions for new small businesses. that will lead to new jobs for the local population and contribute to the employment of young people.

3.3. Potential success and recommendation

The project is expected to be socially successful because it is considered both cost-efficient and cost-effective over a long run and also useful for the improvement of the community living in the Municipality of Konche. It is of a high municipal priority for the public administration and for residents. The project is procurement of vehicle so there is no a resettlement issues and no expropriation issues to be raised during the execution of the project.

The main outcome of the change that will bring about prosperity are the increased capacities of the municipal authorities (mayors, councillors, public enterprise) about the decision making and capability for seeking funds and implementation project from the World Bank funded by MSIP 2 programme. Since the problem of inefficient capacities for solid waste collection, transportation and disposal for many years it has been publicly declared and discussed on many occasions. Direct beneficiaries of the project are the residents of 3 settlements of Konche municipality (Gorni Lipovikj, Gabrevci and Lubnica). Indirectly, the project will effect the whole population of the Municipality of Konche.

A part of the vulnerable and poor groups identified by the municipality (people with special needs, single parents and elderly people), as well as kids and school children have special needs considering appropriate collection and disposal of the solid waste that will improve their living conditions and increase the health standards. The project has no gender issues as its universally balanced with strategic approach of the municipality towards all development efforts.

The project is universally balanced regarding the ethnic distribution of population or inter-local community rivalry. The action will allow benefits to all nationalities, and will cover the majority of residents in the municipality and there are no land ownership concerns that need to be resolved.

4. ENVIRONMENTAL IMPACT

The action envisages improvement of the organized solid waste management through increasing capacities of the municipality i.e. PUC "Lakavica" with providing specialized vehicle for collection and transportation of the solid waste. The vehicle will be with capacity of min. 2.3 m³ for collection and transportation of waste with general goal to keep environment clean and specific goal to improve the quality of public services in the Municipality of Konche and to improve health conditions for the citizens.

The grant including the co-financing of the municipality will contribute improvements within the municipality in several aspects:

- Improved services for collection and transportation of solid waste from the households;
- Maintain clean environment;
- Improved health conditions for the citizens;
- Decreasing the solid waste born diseases;
- Increasing the revenues of the PUC "Lakavica".

The vehicle will provide conditions for additional 3 settlements to be included within the organized solid waste management i.e. collection, transportation and disposal of the waste (see table 10 for the villages that have not been covered currently).

In order to prevent and reduce possible environmental and occupational safety risks, the procurement of the new vehicle should be in accordance with the following standards:

1. Minimum engine requirements aiming to limit the **air pollutant emissions** within the national level standards, as follows:
Communal Solid Waste Collection vehicle: Diesel engine minimum Euro 4,
2. EU Directive 2000/14/EC (**noise specification** - noise level lower than 102 dB (A)); To comply with this, the Bidder shall propose vehicles which will possess Compliance Letter in line with the *Rulebook for the closer types of specific sources of noise and terms and conditions which should be fulfilled by the facilities, equipment, installations and devices that are used in the open space in respect of the emitted noise and the standards for noise prevention* (Official Gazette No. 142/2013).
3. To ensure OH&S aspects, training should be delivered to at least two drivers from the PCU "Lakavica" to be familiar with handling of the new vehicle, including prevention measures for COVID-19. The driver/s involving in driving the new vehicle should be also trained on environmentally friendly driving to increase fuel efficiency, to maintain the vehicle clean and in go

The collected communal solid waste from households is disposed in one municipal landfill named by the location "Krst-Chuka" located near Konche settlement with are of 5,000 m². There are other small illegal dumpsites with total area of 900 m². In order to prevent from further illegal solid waste disposal on the territory of the Municipality of Konche, each beneficiary i.e. household in the targeted villages (Gorni Lipovikj, Gabrevci and Lubnica) will be offered to sign written agreement with obligation to dispose the waste in the plastic waste bins of 120 litres that will be provided by the Municipality of Konche. Heaving in mind the previous experience with the households from the villages that are already part of the organized solid waste management system, it is expected that 100% of the total beneficiary households (221) shall sign these agreements for waste collection service, six months after the vehicle is provided.

In the following tables (Environmental Mitigation Plan and Monitoring Plan) the preventive measures are provided. The main responsibility falls within the PUC "Lakavica" from Konce to implement these measures.

The project is in line with relevant strategic planning document adopted by the Municipality of Konche "Integrated Development Plan for Municipality of Konche 2019-2022" and the "Plan for Waste Management of the Municipality of Konche 2017 – 2022" where major issues are the solid waste (collection, transportation and disposal), illegal landfills and pollution of the environment.

The Communal Inspector and the Project Manager from the Municipality of Konche will have the responsibility to monitor the implementation of the project activities together with the municipal administration. The

implementation of all proposed mitigation measures provided in the Environmental Mitigation Plan and continuous monitoring of their execution is also crucial for successful project implementation.

The regular maintenance of the vehicle during the **operational phase** is crucial for minimization of the environmental and occupational safety risks. The PUC "Lakavica" staff and the municipal staff are responsible for implementation of the mitigation measures during the operational phase and they are responsible for monitoring as well.

4.1. Environmental Mitigation Plan

Potential impact	Impact scale	Proposed mitigation measures	Responsibility
Project activity: Procurement and delivery of vehicles and equipment for CSE “Komunalna Higiena” from Novaci in the Municipality of Novaci			
<p>Possible adverse health impacts on workers and inhabitants due to:</p> <ul style="list-style-type: none"> • Non-compliance with strict OH&S standards • No training delivered to the driver/s 	<p>Local/ within Municipality of Konce</p> <p>Long term/major</p>	<p>The preventive measures could be implemented when the new vehicles are delivered including:</p> <ul style="list-style-type: none"> • Check all technical specifications of the delivered vehicle/equipment accessories in comparison with the technical requirements (at least EURO 4 engine specification and noise specifications as minimum environmental requirements) established prior to the tender procedure; • Check the fuel quantity, lubrication oil quantity, braking and steering system at the spot and lighting system as well; • The review of the producer manual and driving manual recommendations for smooth running of the vehicles/equipment accessories (nomination of the responsible person within the CSE “Komunalna Higiena”); • Delivery of training to the drivers of the vehicle/equipment accessories for most economical running of the vehicles and workers for handling the accessories; • Delivery of training to CSE nominated person for regular maintenance of the vehicle as well. • Implementation of the Occupational Health & Safety measures for prevention of COVID -19 for the workers and participating municipal staff, during the procurement process 	<ul style="list-style-type: none"> • Contractor – Bidder • Director of the PUC “Lakavica” and technical staff within the PUC
Project activity: Putting the vehicle/equipment accessories into operation			
<p>Environmental and health impacts on workers and inhabitants due to:</p> <ul style="list-style-type: none"> • Improper putting into operation (running). 	<p>Local / within Municipality of Konce</p> <p>Long term/major</p>	<ul style="list-style-type: none"> • Perform the procedure of homologation of the vehicle; • The noise specification should be checked; • The level of noise during operation should not exceed the national limited level of 102 dB(A) (according to national legislation and EU requirement); • Perform the annual approval test at the authorized compliance body issuing the registration card for the vehicles. • For traffic control and safety, the information about the project – new waste collection vehicle should be announced through the social media of the Municipality informing about the planned vehicle routes and frequency of waste collection (especially important for new settlements which will be covered with communal service) • The traffic flow through the Municipality need to be coordinated with the responsible technical staff within the PUC • Signing of Agreements with approximately 220 new households in the 3 new settlements for delivery of their communal solid waste to the PUC “Lakavica” and payment of a set monthly fee. These Agreements shall be 	<ul style="list-style-type: none"> • Contractor – Bidder • Director of the PUC “Lakavica”

Potential impact	Impact scale	Proposed mitigation measures	Responsibility
		signed within a 6 months period upon delivery of the new waste collection vehicle to the Municipality of Konche by the supplier.	
Project activity: Regular operation of the vehicles/equipment accessories			
<p>Improper or lack of regular maintenance could increase environmental and occupational safety risks due to:</p> <ul style="list-style-type: none"> • low fuel efficiency, • higher emissions of GHGs and other pollutants • increase in noise level 	<p>Local/ within Municipality of Konche</p> <p>Long term/major</p>	<ul style="list-style-type: none"> • The PUC should prepare the Waste Collection Plan on monthly/annual base including all local settlements with frequency of collection and the most efficient traffic route • Implementation of the Occupational Health & Safety measures for prevention of COVID -19 for the PUC workers/ municipal staff and local population • Regular maintenance and repair of the new vehicle/equipment and delivery of the spare parts on time by the professional service company; • Signing a contract with the service company for regular maintenance, replacement of spare parts, preventive lubricant oil changes, checks on electronic and hydraulic compression systems, proper tire maintenance is one of the most important safety functions, etc.; • Regular washing of the vehicle/containers; • Perform regular annual approval test during the annual registration of the vehicle; • The PUC should prepare the Fuel consumption and CO2 emissions data Reports on annual base for the vehicle; • The Report should contain at least the amount of diesel fuel consumption, type of diesel fuel used and the CO2 emissions derived from the consumption, working hours and the total length of the routes passed. 	<ul style="list-style-type: none"> • Director of the PUC "Lakavica" and technical staff within the PUC

4.2. Environmental Monitoring Plan

What <i>parameter is to be monitored?</i>	Where <i>is the parameter to be monitored?</i>	How <i>is the parameter to be monitored?</i>	When <i>is the parameter to be monitored (frequency of measurement)?</i>	Why <i>is the parameter to be monitored?</i>	Cost		Responsibility	
					Procurement	Operations	Procurement	Operations
Project stage: Delivery and put into operation (running) the new vehicle, waste containers and bins								
The environmental and safety protection measures applied before put the vehicle into operation Prevention measures for COVID-19 are in place	On the PUC "Lakavica" parking site	Check the fuel quantity, lubrication oil quantity and breaking and steering system at the spot Test running successfully done Visual check of the implementation of prescribed COVID-19 prevention measures	Immediately after arriving of the vehicles, trucks and machines in the PUC "Lakavica"	To prevent health and safety risks – mechanical broken and injuries			Contractor - Bidder Director of the PUC "Lakavica" Municipal staff	
Standard technical operational parameters of this kind of vehicle (protective steering, brakes, EURO 4 engine emission standard, fuel consumption...)	Pre-registration inspection at the authorized body for annual registration	Monitoring of the technical specifications Approval test Report showing that the vehicle is in compliance with safety requirements, environmental requirements related to noise, exhaust emissions and fitted devices	On annual basis	To ensure safety running of the vehicle and minimization of the environmental and health impacts				Director of the PUC "Lakavica" with technical team
Announcement of the frequency and start-up of vehicle's running and	Through the public announcement via social media and announcement	Visual/audio check	Before start-up of running the vehicle's	To increase the public awareness about the new waste management practice				Director of the PUC "Lakavica" with technical

What <i>parameter is to be monitored?</i>	Where <i>is the parameter to be monitored?</i>	How <i>is the parameter to be monitored?</i>	When <i>is the parameter to be monitored (frequency of measurement)?</i>	Why <i>is the parameter to be monitored?</i>	Cost		Responsibility	
					Procurement	Operations	Procurement	Operations
collection	boards in the targeted villages of the municipality			and waste collection frequency				team Municipal appointee
Signed Agreements with the new 220 households	Administration of PUC "Lakavica"	Visual check of the documentation	Before start-up of running the vehicle	To introduce the regular waste management practice and waste collection frequency in the new settlements				Director of the PUC "Lakavica" with technical team Municipal appointee
Project stage: Running of the vehicle								
Skill of driver/s on modern driving techniques and some improved performances of the new vehicles, trucks and machines	At the PUC "Lakavica" site	Training records kept Review of the training records	Before official start up of running	To improve the driving techniques and to be familiar with vehicles, trucks and machines characteristics				Director of the PUC "Lakavica" technical team Municipal staff
Good maintenance practice and repair performed by professional staff Preparation of the Fuel consumption and CO ₂ emissions data Report on annual bas	At the service company At the PUC "Lakavica" site	Review of reports from the service company Review the Annual Report	Periodically (six months min.) On annual base	To minimize the environmental and occupational safety risks through high fuel efficiency and decrease of emissions of GHGs				Director of the PUC "Lakavica" with technical team Municipal staff

5. TECHNICAL SOLUTION

5.1. Description of the current technical capacities of the municipality

The capacities of PUC "Lakavica" i.e. human resources and equipment are as follows:

- Number of employers: 31 (including General Manager);
- Number of settlements covered with organized waste management: 4 (Konche, Dedino, Rakitec and Dolni Lipovikj);
- Coverage (total): 74.24%;
- Percentage of recovery for 2018/2019: 100%;
- Tractor with trailer (2,5 m³) – Type TAFE: 1 (one unit);
- Tractor without trailer (possible capacity of 5 m³) – Type Landini: 1 (one unit);
- Plastic container with capacity of 120 liters: 960 units (738 units in use);
- Metal containers with capacity of 400 liters: 15 units (not operational due to the lack of vehicle for collection).

Currently, solid waste is collected from 738 households (400 citizens) in the settlements of Konche, Dedino, Rakitec and Dolni Lipovikj. All households that are part of the organized system for solid waste collection are equipped with containers with capacity of 120 liters. There are 15 containers with capacity of 400 liters provided in 2016 by the Ministry of Environment and Physical Planning, but they are not placed on site, due to insufficient equipment (Vehicle) for lifting and collection of the containers.

5.2. Technical description of the equipment envisaged with this project

The project envisages purchasing specialized small size vehicle (2,3 m³) for collection and transportation solid waste in the settlements of Gorni Lipkovikj, Gabrevci and Lubnica.

Technical specification i.e. requirements of the vehicle:

Technical characteristics of the vehicle

- Type of vehicle: Commercial vehicle for loading and compacting solid waste;
- Standardization: Vehicle must meet the technical standards binding in the Republic of North Macedonia (Law on motor vehicles – Official Gazette no. 140/08);
- Emission standard: Minimum EURO4 emission standards - EU Directive 98/69/EC (& 2002/80/EC) compliance;
- Cabin for minimum 2 passengers – Number of passenger seats should be related with the minimum number of persons to operate with the vehicle;
- Front-wheel drive;
- Type of engine: Diesel Engine;
- Engine displacement: Between 1200 and 1500 cc;
- Engine power: Between 80 and 105 HP (60 – 78,5 kW);
- Number of gears: 5 + 1 (reverse).

Capacity of the container for solid waste and loading

- Load capacity (weight): min 800 kg;
- Load capacity (volume): Between min 2,3 m³;
- Material of the container: Metal (sheet steel);
- Manual loading holes on right sides of the container;
- System for lifting and emptying bins: Min. semi-automatic;
- Capacity of the bins: 120, 240 and 360 liters;
- electrohydraulic pump
- two cylindrical stabilizers

- Upgradable for dumping system.

Additional equipment and other characteristics

- Steering wheel: Servo steering wheel with height and depth adjustment;
- Air condition;
- Breaks: ABS;
- Central locking
- Airbag: Min. for the driver seat;

5.3. Conclusion and recommendations

The project and the request for the grant i.e. providing specialized small sized vehicle for collection and transportation of solid waste is in line with the existing positive regulations and standards in the country. Main activity within the project is the procurement of the vehicle for the need Konche municipality. The opportunity for this grant comes through the awarded sub-loan (Energy efficiency project for LED and solar lightning). The Municipality of Konche meets all the conditions that need to be met in order to use the available grant from MSIP 2.

Also, the project and the request for loan is in line with the strategic documentation of the municipality, i.e. "Integrated Development Plan for Municipality of Konche 2019-2022", the "Strategic Development Plan for 2014-2020" for the Municipalities of Radovis and Konche (still operational), the "Plan for Waste Management of the Municipality of Konche 2017 – 2022" and the "Annual Urban Planning Programme for 2019".

It is of great importance that the Municipality of Konche proposed the improvement of the solid waste management in additional 3 settlements in the municipality where there is a high problem with waste disposal in terms of improved health and environmental situation. The project is high priority based on the strategic documents, public debates and needs of the citizens.

6. FINANCIAL ANALYSIS

The Municipality of Konche signed the sub-loan agreement with the Ministry of Finance on 11.12.2019 (Arch. No. 03-1484) in the amount of MKD 5,251,236 MKD. The sub-loan refers to installation of LED light bulbs on the streets in the settlements of the Municipality of Konche.

The project is completed on June 5, 2020 by utilization of 5.247.719 Denars of the sub-loan funds. The total number of installed LED lights exceed the envisaged number of LED lights according to the sub-loan project appraisal document i.e. installed were 380 LED lights as originally planned plus additional 71 LED lights or in total 451 LED lights and 40 new solar lights including photovoltaic panels.

Municipality of Konche on the bases of the initially signed contract with the contractor, which is in the amount of Denars 4,670,499, obtains the right to use the social inclusion grant up to a maximum of 27% of the contract amount or Denars 1,261,035.

With support and guideline from the MSIP PMU, Municipality of Konche conducted an urban mapping of the poorest and marginalized settlements within the Municipality and prepared an Urban Audit Report. The Report was accepted by the Municipal Council on April 30, 2020, with Decision No 08-590/3, and confirms the availability of the social inclusion grant fund in the amount of 1,261,035 Denars (20,438.17 Euro).

Additionally, the Council of the Konche Municipality adopted a Decision no. 08-1103/4, dated September 10, 2020 for co-financing the supply under the project "Procurement of a vehicle for collection and transportation of solid waste" from the municipal Budget with the amount of Denars 338,965, as well as the amount of 1,261,035 Denars provided under the Second MSIP poverty social inclusion grant funds and Decision no. 08-1170/3, dated September 25, 2020 that the project is a priority for the detected poorest settlement in the Municipality as presented in the Urban Audit.

6.1. Project costs and financing

The project envisages purchasing of 1 (one) specialized vehicle for collection, transportation and disposal of solid waste with capacity of minimum 2,3 m³. The vehicle will be used for collection of waste from the villages Gorni Lipovik, Gabrevci and Lubnica, which currently do not receive this public service. After the project is being implemented, all 3 villages will be included in the organized system for solid waste collection managed by the municipal communal utility "Lakavica" – Konche.

The total amount of the initial investment i.e. procurement outlay as mentioned above has been estimated at Denars 1,600,000 (Euro 85,386) including VAT. Out of that 1,261,035 Denars (20,438.17 Euro) are funds provided by the Second MSIP as a grant.

Table 17. Structure of the project financing

	Value (including VAT, MKD)	Value (including VAT, EUR)
Purchasing vehicle for transportation solid waste with min. capacity of 2,3 m ³	1,600,000.00	25,931.93
Total:	1,600,000.00	25,931.93
Financing:		
Second MSIP Grant	1,261,035.00	20,438.17
Municipal co-financing	338,965.00	5,493.76
Total financing	1,600,000.00	25,931.93

Source: Subject-calculation (1EUR=61.5MKD)

It is assumed that the purchasing of the vehicle (including procurement procedure) will last approximately 4-5 months, which means that all the above-mentioned investment costs will be carried out in the first quarter of 2021.

The vehicle will be property of the Municipality of Konche so all costs associated with its regular maintenance will be borne by the Municipality. But since the PUC "Lakavica" Konche has sufficient professional capacities to operate with this type of vehicles, with the Council decision it will be given to them for day to day use.

In order to provide efficient and effective solid waste service all 3 proposed poorest settlements will be equipped with 221 containers (120 liters capacity) for each household of which for: Gorni Lipovikj – 41 containers, Gabrevci – 90 containers and Lubnica – 90 containers).

According to the information from the PUC "Lakavica" and the Municipality of Konche, the currently frequency for waste collection is once per week. After purchasing of a new vehicle and extending the services to the additional 3 new settlements, the dynamic of collection could be twice a week.

The estimated cost for collection of solid waste for each household is 100 Denars/Per month (1.63 Euro) or 150 Denars (2.44 Euro) for legal entities. This symbolic monthly fee for collection of solid waste is acceptable for the citizens, although there is a possibility low income families i.e. social assistance beneficiaries and other vulnerable groups to be exempted from paying the fee, on the case by case bases and in accordance with the decision of the Board of directors of the PUC "Lakavica" approved by the municipal Council.

6.2. Conclusions

The total value of the project is Denars 1,600,000 (Euro 25,931.93) including VAT and the project's costs will be covered with MSIP grant funds in the amount of 1,261,035 Denars or 20,438.17 Euro and municipal own funds in the amount of 338,965 Denars or 5,493.76 Euro.

According to the existing financial capacities, Municipality of Konche can provide the envisaged amount as co-financing from its own resources. The co-financing from the municipal Budget is confirmed with Decision no. 08-1103/4, dated September 10, 2020.

Implementation of the project will significantly contribute to improve the living standards, including health and to protect the environment in the same time. Moreover, the implementation of the project brings substantial immeasurable health and social benefits. So, when implemented it is expected that the project will lead towards reduction of inappropriate disposal of solid waste, minimise the environment pollution and decreased diseases born from inappropriate solid waste disposal.

7. CONCLUSION

The project will definitively improve the capacities for collection, transportation and disposal of solid waste in the Municipality of Konche, therefore, it will lead towards protection of the environment and health of the citizens. The project will further provide positive impact and conditions for the economic development of the municipality to improve its economic future and the quality of life for the residents in the municipality.

The capacity for efficient and adequate infrastructure creates economic opportunities, encourages social integration, clean surrounding and protected environment, all of which correspond fully with the EU 2020 strategy, which was used as a guideline in the strategic document on local level i.e. "Plan for Waste Management of the Municipality of Konche 2017 – 2022"

There is no doubt, that all kind of investments and improvement of the capacities on solid waste disposal is essential for the further economic development of the Municipality of Konche. The quality of the equipment is often part of the criteria accounting for protection of the environment, quality of life, social, health and economic welfare.

Additionally, developing the capacities on environmental issues, including solid waste of the municipality is to make it easier for businesses to operate. Whilst it contributes to providing better living conditions, it also creates pure environment that promotes economic growth.

In this respect and as elaborated earlier, the project will cause significant unquantifiable benefits such as increasing the health and safety of the residents, as well as to protect the environment and to provide conditions for production of organic and health food for the targeted villages (Gabrevcu, Dolni Lipovikj and Lubnica). The implementation of the project is also expected to increase the safety of the population related to disease from inappropriate disposal of the solid waste.