



Republic of Macedonia
Municipality Kratovo

PROJECT APPRAISAL DOCUMENT

“Construction of new green market in the
municipality Kratovo”



World Bank
Municipal Services Improvement Project

Skopje, August 2015

The Project's Appraisal Document was prepared by the Center for Promotion of Sustainable Agricultural Practices and Rural Development – CeProSARD, with the exception of Environmental Impact section prepared by the MSIP consultant Slavjanka Pejcinovska-Andonova.



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1.



INTRODUCTION

The project assumes construction of new green market in municipality Kratovo. Total area planned for the market together with all additional infrastructural facilities is 2,043m². The relevance of the project comes from the fact that the biggest part of the municipal residents is directly influenced by negative implications of the inadequate market conditions because the existing open market does not satisfy the legal requirements as a precondition for smooth and quality providing of its function. The bad condition of the existing market has harmful influence on the population health and traffic problems for the residents and as a result they constantly comply to the mayor and local administration about the existing situation. Therefore, the main purpose of the proposed technical solution is to provide long run improvement and smooth use of the local green market that will satisfy the needs of the municipal residents.

According to the data received by the municipality, all residents use the market services, part of the residents as sellers and part of the residents as buyers. At the same time, agricultural producers of the nearest municipalities: Strumica, Valandovo, Kriva Palanka, Rankovce and Kumanovo sale their products at this market as well. Buyers in the market besides the local population are tourists and residents that come to buy known agricultural ecological products in Kratovo (potato, beans, honey, curds and cheese).

The importance of this project is due to the benefits it brings. The municipality will ensure all standards for getting attractive and modern market place for all residents. Presently is used the existing location where are established stalls for sales of gardening products, dairy products, textiles, metal products, souvenirs and other products without appropriate infrastructure such as toilets, space for waste disposal, road for access and delivery of raw materials, parking place, refrigerators, etc. Considering that most of the municipal residents work in agriculture, improvement of the conditions for sale of agricultural products including livestock products will ensure economic development of the municipality due to the opportunity for development of small and medium businesses by the population of the production and service sector that live and work in this area. It will also increase the number of traders on the market.

The main purpose of the proposed technical solution is to provide a long lasting improvement of the market conditions and trade by meeting the needs of the residents in municipality Kratovo. Moreover, the purpose of the technical design is to provide conditions for all residents to buy healthy and safe agricultural products. At the same time, the new technical design will allow easier access to the market, parking space for vehicles of the buyers, but also a place for delivery of products. Also, the technical design will satisfy the needs of the residents who sell their products on the market due to the opportunity to have toilets and place for disposal of waste. It will facilitate the transport for all social groups especially for the elderly and people with special needs. The proposed technical solution is in-line with the existing standards and positive regulation for this kind of projects, which implies that the implementation of the project is technically feasible.

The mayor and the municipal administration strive to achieve full coverage of infrastructural facilities for their residents including storm water collection, water supply and sewerage system and other communal (utility) infrastructure throughout the municipal territory. It can be inferred that the implementation of this project will undoubtedly contribute towards improvement of the quality of life and well-being of the residents of municipality Kratovo. Municipality has implemented various similar projects in the past, some of which in collaboration with international institutions, which implies that is able to implement large construction projects such as this one.

The project is relevant to the development objective of the MSIP because it is both cost-efficient and cost-effective over a long run and also useful for the health of the residents and the environmental protection. No adverse social or environmental impacts were identified.

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 the services provided on the market and increasing the productivity are linked with decreasing poverty, the project will definitely have a wide positive impact on the economic growth and the poverty level, not only in a short term but also in the longer term perspective.



2.

PROJECT DESCRIPTION

2.1 General Information on municipality Kratovo

Municipality Kratovo is included in the group of smaller urban municipalities. The settlements' area covers the high western slopes of Osogovo Mountains, in the basin's regions of Emirichka and Zletovska River, as well as in the basin's region of Kratovska River and at the foot of the mountain Mangovica. It extends from east to west. The municipality is located in the vicinity of Macedonian-Bulgarian border, and therefore has a favorable geographical position. The traffic connection is relatively good, because the highway E-871 passes through its peripheral part. The only road to Stip-Kocani-Delcevo passes through Kratovo.

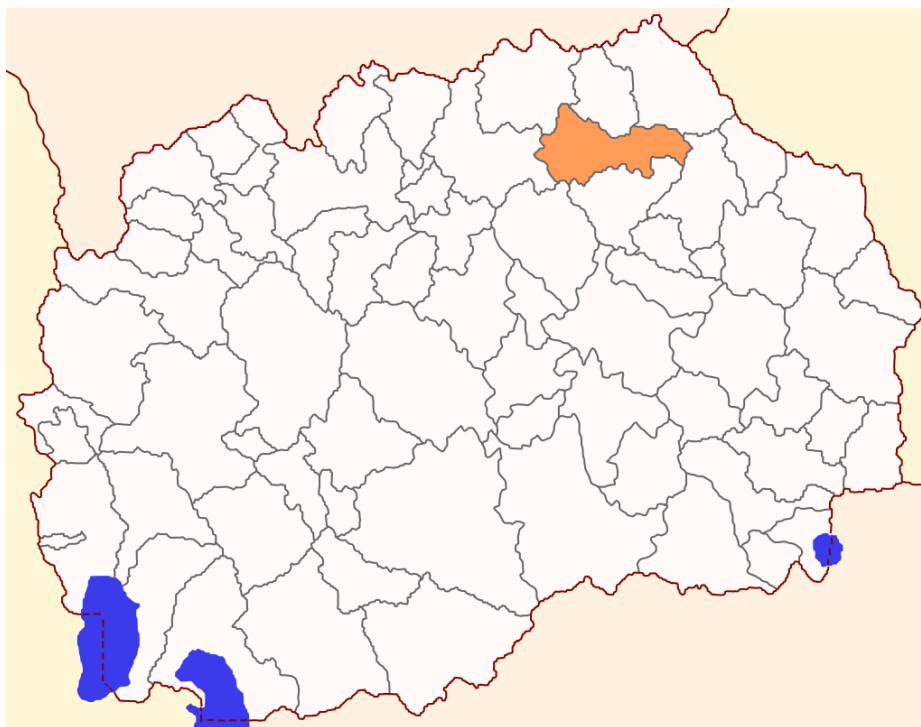


Figure 1 Location of municipality Kratovo

Source: State Statistical Office

It borders with municipalities Staro Nagoricane, Rankovce and Kriva Palanka on the north, the municipality Kocani on the east, municipalities Probishtip and Sveti Nikole on the south and the municipality Kumanovo on the west.

Municipality Kratovo is under the influence of moderate continental climate and mountain climate with moderately warm summers and moderately cold and rainy winters. The average annual temperature is approximately 11.3°C, with the highest maximum temperature of 38°C and minimum of -16.5°C. The area has intensive insolation with duration of 2,204 hours per year or 6.3 hours per day. The number of sunny days is 102, while cloudy are 161. Average annual relative humidity is 72%, the maximum humidity is in December and January 85%, February 83%, and the minimum humidity in July and August 60%.

As a result of low temperatures in the region, the icing period lasts 166 days per year and there are approximately 20 days with snow and very frequent is the occurrence of fog especially in the winter. On average there are 30 foggy days. Heavy rains appear approximately 6.7 days per year. In average annual rains are 506.8mm, maximum in May with 68.9mm, November with 53.6mm and June with 52.3mm, while the minimum rains are in August with 26.6mm, January with 32.6mm and February 32.9mm.

Municipality is located in relatively windy area. The dominant is the Northeast wind that blows throughout the year with frequency 331‰ and average speed 3.2m/s. Also, frequent is the Southwest wind. If fire appears on the location, it will not have negative influence on the market.

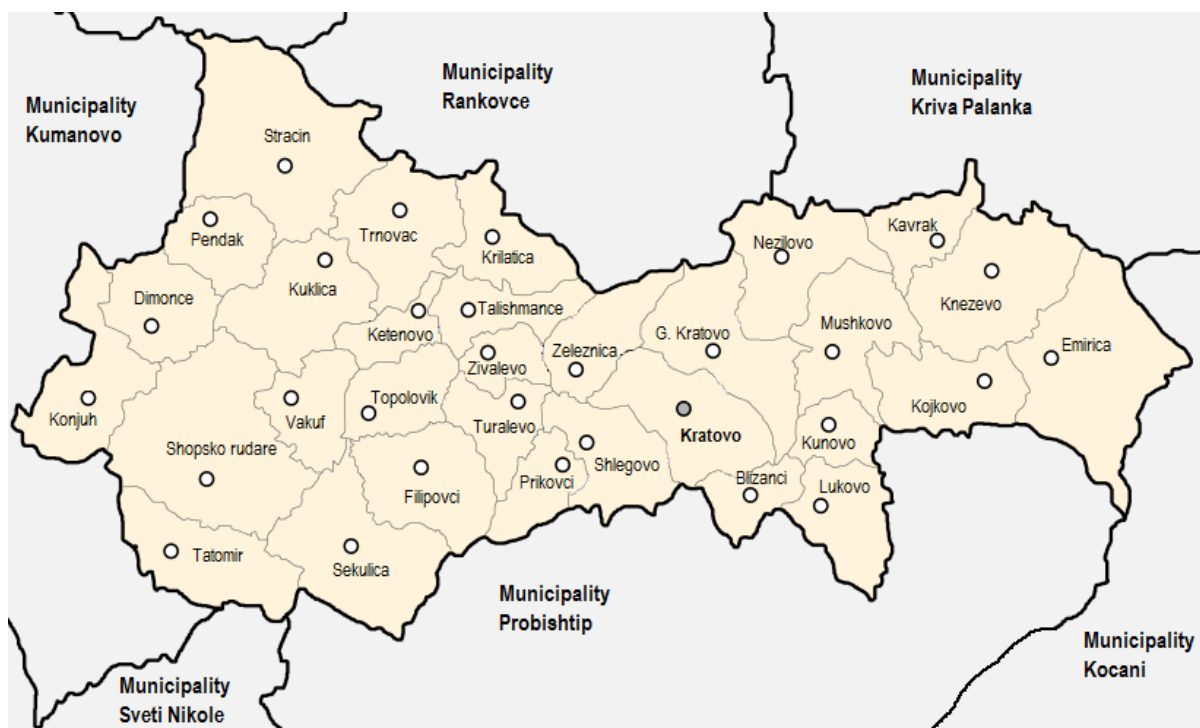


Figure 2 Settlements within municipality Kratovo
Source: State Statistical Office

The municipality consists of 31 settlements: 17 are lowland, 10 are mountainous and 4 are hilly. Population density is 29 residents per one km², which is far below the average in the country. In the central settlement of Kratovo live 6,924 residents, i.e. 64% of the total. The city Kratovo is one of the oldest cities in the Republic of Macedonia and in the Balkan. It is a very interesting tourist destination by itself because it is located in the crater of extinguished volcano on the Osogovo Mountains and spread between three small rivers: Kratovska, Bab Karina and Marceva River. Here are also some culture-historical features: the Medieval Towers, Kratovo's bridges (Radin, Johciski, Carsiski and Krajni Bridge), Simceva's Tower, Hadzi-Kostova's Tower and Emin-bey's Tower.

Municipality Kratovo has different kind of agricultural soil mostly with average production potential, along the flow of Kriva River high production potential and in the mountain areas with high potential in production of organic potato and beans. The soil is good for production of crops, vegetables, fruits and wine. The mountain areas have also high productive pastures for breeding big and small livestock.

The most prevalent in the agrarian structure are the pastures with 12,244ha, forests with 12,061ha, and cultivated agrarian soil with 10,824ha. Irrigation of agriculture is provided on 100ha of gardens and plough land. The intensive production is provided only on a small part of the agrarian soil. Enormous part of the agricultural land is abandoned as a result of migration of the population. Livestock production in the municipality is characterized with small livestock households and commercially oriented agricultural holdings. The total number of livestock in the municipality is approximately 26,900 heads, from which 19,000 sheep, 2,150 cows, 3,500 goats, 2,250 pigs and approximately 70,000 heads of poultry.

The municipality has a good forests potential where the most prevalent are oak and beech, while pine, Ella and other evergreen forests are newly plated. Unfortunately the inappropriate exploitation of the forests in the past was enormous and significantly lowered the forests area.

Significant natural resources in municipality Kratovo are: mines, agricultural land, forests and water potential. Municipality Kratovo is historically known by mines because it has many non-metal and metal mines. The most famous non-metal mines are: quartz, tuff and granite. Some of the metal mines are: lead, zinc and copper, as well as still not enough known locations of gold and uranium.

Table 1 Settlements in the municipality Kratovo

#	Settlements	Absolute attitude	Area (km²)	Residents (in 000)		Agrarian structure (ha)			
				1994	2002	Agricultural land	Pastures	Forests	Total
Municipality Kratovo		711	376	10,898	10,441	10,824	12,244	12,061	35,129
1	Blizanci	400	5.5	9	8	63	108	370	541
2	Vakuf	420	7.9	138	135	322	291	97	710
3	Gorno Kratovo	980	15.4	67	39	124	324	987	1,435
4	Dimonce	400	9.9	64	56	499	350	26	875
5	Emirica	1,310	24.3	37	18	217	595	1,490	2,302
6	Zeleznica	715	9.1	267	220	198	337	347	882
7	Zivalevo	550	4.5	164	155	202	119	103	424
8	Kavrak	1,360	7.2	71	62	230	127	363	720
9	Ketenovo	540	5.1	173	216	173	156	132	461
10	Knezevo	1,222	18.9	89	64	354	476	847	1,677
11	Kojkovo	950	11.8	62	36	208	226	709	1,143
12	Konjuh	490	14.1	184	150	658	602	49	1,309
13	Kratovo	700	13.9	6,481	6,924	212	356	631	1,199
14	Krilatica	510	9.7	228	141	379	346	147	872
15	Kuklica	460	13.6	116	97	468	757	81	1,306
16	Kunovo	1,300	5.1	7	3	44	134	315	493
17	Lukovo	1,000	9.9	16	4	48	167	742	957
18	Muskovo	1,210	12.9	47	51	211	460	602	1,273
19	Nezilovo	1,210	14.2	50	23	295	443	635	1,373
20	Pendak	570	8.3	56	13	361	403	19	783
21	Prikovci	800	6.7	153	114	204	104	263	571
22	Sekulica	700	18.2	235	177	709	472	517	1,698
23	Stracin	750	27.2	273	185	1,005	1,293	264	2,562
24	Talasmance	560	7.9	194	150	325	282	118	725
25	Tatomir	665	13.6	135	84	453	516	371	1,340
26	Topolovic	520	8.1	68	32	256	362	118	736
27	Trnovac	560	14.4	381	330	548	764	24	1,336
28	Turalevo	545	7.3	304	326	293	209	177	679
29	Filipovci	575	13.4	140	112	489	318	493	1,300
30	Slegovo	780	10.6	450	373	218	285	401	904
31	Sopsko Rudare	505	27.5	239	143	1,058	862	623	2,543

Source: Popovski, V., Selmani, A. and Panov, N. (2006). Municipalities in the Republic of Macedonia, Local Government of the Republic of Macedonia and its Territory Division

Here are situated some of the bigger economic subjects, such as the biggest combine for exploitation of ore and stone – Sileks, then Sileks for production of textile and some others. Besides the fact that it was one of the most exploitive mining regions, today the municipality has the biggest potential for development of village tourism, particularly in the highest settlement Emirica, Kavrak, Knezevo, Kunovo, Lukovo, Muskovo and Nezilovo.

2.2 Demographic and economic profile

2.2.1 Demographic profile

According to the last revised Census of population and households (2005) in 2002 municipality Kratovo has 10,441 residents. The number of residents has decreased by 4.2% since 1994. The total number of households is 3,304, i.e. 3.2 residents per household. The total number of dwellings is 4,951, i.e. 2.1 residents per dwelling.

Both numbers are far below the average in the country. A statistical data on the population and migration in municipality Kratovo, Northeast Region and the Republic of Macedonia are shown in the table below.

Table 2 Main demographic indicators

Demography indicators	Municipality Kratovo	Northeast Region	Republic of Macedonia
Demography - according to the last revised census data for 2002			
Total population	10,441	172,787	2,022,547
Natural increase per 1000 residents	-4.4	4.3	3.1
Live births per 1000 residents	8.1	13.3	11.9
Total households	3,304	46,296	564,296
Average households members	3.2	3.5	3.6
Total dwellings	4,951	59,488	698,143
Total immigrated residents	26	823	11,861
Total emigrated residents	83	934	11,219
Demography - State Statistical Office estimates for 2013			
Total population	9,654	175,863	2,065,769
Natural increase per 1000 residents	-3.5	2.4	1.9
Live births per 1000 residents	7.5	11.4	11.2
Total immigrated residents	26	623	8,405
Total emigrated residents	73	739	8,860

Source: State Statistical Office, MAKStat database, 2013; revised Census of population and households, 2005

The rates of population movement considering natural growth, births and migrations per year (from 2001 to 2013) are shown below. Hence, the analysis shows negative average rates of natural growth, birth and migration rate: -0.1, -0.2 and -0.1 through the years, respectively. The average values of population movement in the municipality are quite similar with the overall trend of natural movement of population in the rural areas in the country.

Table 3 Decreasing of population in municipality Kratovo

Year	Natural growth rate	Birth rate	Migration rate
2001	-0.7	-1.2	0.2
2002	-1.7	-0.5	-1.5
2003	-0.5	0.6	0.3
2004	2.7	-0.2	-0.4
2005	0.1	0.6	3.1
2006	-2.6	-1.7	-3.4
2007	-1.8	-0.3	1.1
2008	2.4	0.9	1.7
2009	1.0	-0.1	1.1
2010	-2.2	0.1	-0.7
2011	2.7	0.2	0.3
2012	-1.1	0.3	-0.7
2013	0.2	-0.8	-1.8
Average	-0.1	-0.2	-0.1

Source: State Statistical Office, MAKStat database

Live births data for municipality Kratovo, Northeast Region and the country are shown in table 4. The analysis through years shows bigger number of male babies, which is similar to the live births in the Northeast region and the overall country. In addition, according to the State Statistical data, there is fall of live births through years, which is also the same as in Northeast region and the Republic of Macedonia. This indicates aging of the population in the country, especially in the smaller settlements.

Table 4 Live births by gender

Year	Municipality Kratovo			Northeast Region			Republic of Macedonia		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2009	42	35	77	1,087	979	2,066	12,340	11,344	23,684
2010	44	33	77	1,098	1,032	2,130	12,631	11,665	24,296
2011	44	34	78	973	968	1,941	11,752	11,018	22,770
2012	47	33	80	1107	977	2,084	12,243	11,325	23,568
2013	38	34	72	1,054	952	2,006	12,093	11,045	23,138
Average	43	34	77	1,064	982	2,045	12,212	11,279	23,491

Source: State Statistical Office, MAKStat database

The next table gives an overview of a gender structure. The data shows bigger number of male population in municipality Kratovo, while Northeast region and the country have almost the same share of gender, representing an increased share of male population over the female population.

Table 5 Population according to the gender in 2013

Gender	Municipality Kratovo		Northeast Region		Republic of Macedonia	
	Number	Share	Number	Share	Number	Share
Male	5,003	51.8	89,548	50.9	1,034,841	50.1
Female	4,651	48.2	86,315	49.1	1,030,928	49.9
Total	9,654	100	175,863	100	2,065,769	100

Source: State Statistical Office, MAKStat database 2013

Table 6 Population according to the age structure in 2013

Repartition	Municipality Kratovo		Northeast Region		Republic of Macedonia	
	Number	Share	Number	Share	Number	Share
0	75	0.8	1,985	1.1	22,913	1.1
1-4	306	3.2	8,166	4.6	93,301	4.5
5-9	404	4.2	10,028	5.7	112,351	5.4
10-14	466	4.8	11,287	6.4	119,851	5.8
15-19	541	5.6	12,781	7.3	137,385	6.7
20-24	693	7.2	13,871	7.9	155,698	7.5
25-29	715	7.4	13,911	7.9	164,394	8.0
30-34	700	7.3	13,461	7.7	162,384	7.9
35-39	662	6.9	12,997	7.4	153,564	7.4
40-44	586	6.1	12,174	6.9	146,353	7.1
45-49	781	8.1	12,417	7.1	147,433	7.1
50-54	859	8.9	11,939	6.8	141,756	6.9
55-59	740	7.7	11,283	6.4	134,995	6.5
60-64	683	7.1	9,366	5.3	117,663	5.7
65-69	449	4.7	6,930	3.9	87,896	4.3
70-74	387	4.0	5,658	3.2	70,067	3.4
75-79	322	3.3	4,212	2.4	53,549	2.6
80 and more	283	2.9	3,333	1.9	43,857	2.1
unknown	2	0.0	64	0.0	359	0.0
Total	9,654	100	175,863	100	2,065,769	100

Source: State Statistical Office, MAKStat database 2013

The age distribution and its share in the total population in municipality Kratovo, Northeast Region and the Republic of Macedonia in 2013 are given in table 6.

Majority of population are Macedonians (98%). From the other minorities there are: Roma (1.4%) and other (mostly Serb) with less than 1%. The minority repartition is shown in table 7. Macedonians prevails in the Northeast Region and in the country as well, while Albanians takes the second place.

Table 7 Population according to ethnic affiliation in 2002

Repartition	Municipality Kratovo		Northeast Region		Republic of Macedonia	
	Number	Share	Number	Share	Number	Share
Macedonians	10,231	98.0	102,108	59.1	1,297,981	64.2
Albanians	-	-	53,651	31.1	509,083	25.2
Turks	8	0.1	302	0.2	77,959	3.9
Roma	151	1.4	5,133	3.0	53,879	2.7
Vlachos	1	-	152	0.1	9,695	0.5
Serb	33	0.3	10,512	6.1	35,939	1.8
Bosnians	-	-	28	0.0	17,018	0.8
Others	17	0.2	901	0.5	20,993	1.0
Total	10,441	100	172,787	100	2,022,547	100

Source: State Statistical Office, revised Census of population and households, 2005

2.2.2 Economic profile

Considering the State Statistical Office data for 2013, the following table presents infrastructure, education and economic data for municipality Kratovo, Northeast Region and the Republic of Macedonia. In municipality Kratovo there are 14 health and social institutions, 12 transport and storage institutions and 2 water supply and sewage management institution. The transport in the municipality is organized through 178km local roads. There are 4 schools for elementary education. In 2013/2014 school year there were 650 children attending the elementary schools. From the total population of 10,441, 8,789 are literate. In the municipality operate 244 business subjects, while the GDP per capita is calculated on a regional level, since there are no available data on the municipal contribution.

Table 8 Main macroeconomic indicators

Macroeconomic indicators	Unit	Year	Municipality Kratovo	Northeast Region	Republic of Macedonia
Infrastructure					
Local roads	km	2014	178	1,056	9,513
Health and social institutions	Number	2013	14	233	3,315
Transport and storage institutions	Number	2013	12	310	6,095
Water supply, sewage disposal and waste management institutions	Number	2013	2	14	306
Education					
Educational institutions	Number	2013	4	82	1,025
Children that attend primary school	Number	2013/2014	650	17,514	191,051
Children that attend secondary school	Number	2013/2014	270	7,941	86,418
Population literacy at age 10 and more	Number	2002	8,789	140,437	1,693,044
Women literacy at age 10 and more	Number	2002	4,146	67,281	829,755
Economy					
Active business subjects	Number	2014	244	4,159	70,659
GDP per capita	MKD	2012	-	147,095	226,440

Source: State Statistical Office, MAKStat database, 2013; revised Census of population and households, 2005

According to the last revised Census data for 2002 the total number of population in age of 15 and over is working age population. In municipality Kratovo its number is 8,635; economically active people are 4,123, of whom 61.1% are employed, while 38.9% are still looking for a job. The municipality has 52.3% economically inactive persons. Considering gender, there are 32.6% women less employed than men.

According to the last revised data from the Census of population and households in 2002, the activity rate in municipality Kratovo is above this rate in the Northeast Region and almost the same with the activity rate in the country. The employment rate is above the Northeast region and the same as the employment rate in the

country, while the unemployment is below this rate compared to Northeast region and above this rate compared to the Republic of Macedonia.

Table 9 Activity of the population between 15 years and more in 2002

Population activity		Municipality Kratovo		Northeast Region		Republic of Macedonia	
		Number	Share	Number	Share	Number	Share
Economically active	All	4,123	47.7	60,020	45.2	743,676	47.2
	Employed	2,518	61.1	30,841	51.4	460,544	61.9
	Employed women	822	32.6	10,000	32.4	174,974	38.0
	Unemployed	1,605	38.9	29,179	48.6	283,132	38.1
Economically inactive		4,512	52.3	72,749	54.8	833,325	52.8
Activity rate		47.7		45.2		47.2	
Employment rate		29.2		23.2		29.2	
Unemployment rate		38.9		48.6		38.1	

Source: State Statistical Office, revised Census of population and households, 2005

In the following table is given a distribution of the economic activities in the municipality considering the number of active business subjects by sectors in 2014.

Table 10 Active business subjects by sectors in 2014

Sector	Municipality Kratovo		Northeast Region		Republic of Macedonia	
	Number	Share	Number	Share	Number	Share
Agriculture, forestry and fishing	13	5.3	168	4.0	2,842	4.0
Mining and quarrying	2	0.8	12	0.3	180	0.3
Manufacturing	23	9.4	593	14.3	7,675	10.9
Electricity, gas, steam and air conditioning supply	-	-	1	0.0	151	0.2
Water supply, sewerage, waste management and remediation activities	2	0.8	14	0.3	298	0.4
Construction	14	5.7	206	5.0	4,349	6.2
Wholesale and retail trade; repair of motor vehicles and motorcycles	100	41.0	1,550	37.3	24,674	34.9
Transportation and storage	12	4.9	310	7.5	5,919	8.4
Accommodation and food service activities	29	11.9	292	7.0	4,493	6.4
Information and communication	-	-	46	1.1	1,475	2.1
Financial and insurance activities	-	-	19	0.5	400	0.6
Real estate activities	-	-	17	0.4	507	0.7
Professional, scientific and technical activities	8	3.3	244	5.9	6,095	8.6
Administrative and support service activities	3	1.2	54	1.3	1,554	2.2
Public administration and defense; compulsory social security	2	0.8	13	0.3	264	0.4
Education	4	1.6	82	2.0	1,064	1.5
Human health and social work activities	14	5.7	233	5.6	3,322	4.7
Arts, entertainment and recreation	5	2.0	52	1.3	1,185	1.7
Other service activities	13	5.3	253	6.1	4,212	6.0
Total	244	100	4,159	100	70,659	100

Source: State Statistical Office, MAKStat database 2014

According to State Statistical Office there were 244 active business subjects in municipality Kratovo in 2014. The most important and dominant sectors were the wholesale and retail trade; repair of motor vehicles and motorcycles with 41%. From the other sectors the most dominant are accommodation and food services with 11.9% and manufacturing industry with 9.4%.

2.3 General description of the project

2.3.1. Current situation

A new green market that will ensure all standards for getting attractive and modern market place is planned to be constructed at the location of the existing green market in Kratovo.

The existing market does not satisfy the legal requirements as a prerequisite for smooth and quality performance of its function. Presently is used the existing location where are established stalls for sales of gardening products, dairy products, textiles, metal products, souvenirs and other products without appropriate infrastructure such as toilets, space for waste disposal, road for access and delivery of raw materials, parking, refrigerators, etc.



Figure 3 Existing market in municipality Kratovo
Source: CeProSARD archive¹

According to the data received by the municipality, all residents use the market services, part of the residents as traders and part as buyers. At the same time, agricultural producers from the neighboring municipalities: Strumica, Valandovo, Kriva Palanka, Rankovce and Kumanovo sale their products at this market. Buyers in the market besides the local population are tourists and people who come to buy known agricultural ecological products of Kratovo (potato, beans, honey, curds and cheese). Management of the existing market is under concession by the private company for communal services "Silkom" Ltd. from Kratovo (new market will be managed by the public communal enterprise).

The project assumes construction of a green market with complete infrastructure in accordance with the existing General Urban Plan (GUP), Law on Urban and Physical Planning (Official Gazette of the Republic of Macedonia, no.51/05, 137/07 and 91/09) and by-laws in the area. At the planned cadastral plots CP983, CP984/1, CP984/2 and CP984/3, on the total area of 3,074m², is planned construction of 2,043m² market (class of the building B2)².

The project will provide bigger and better organized market area with provision of sanitary and hygienic conditions, traffic for access and delivery of products, parking and connection of electrical installations for the normal operation of the facility. Enclosed facility for sale of products sensitive on external conditions, such as meat and dairy products, will be obtained with reconstruction of an existing facility located within the green market in Kratovo. The facility has 26m².

¹ CeProSARD team provide evidence of the present condition of the market location on 23.06.2015

² Local Urban Planning documentation of CP983, CP984/1, CP984/2 and CP984/3 from Urban Block 6 – municipality Kratovo, pg.11

Presently, the existing market is used for purchase of agricultural products between local residents of all settlements in municipality Kratovo, as well as purchase of agricultural products from nearest municipalities and beyond the region. This is very significant for preserving the custom of buying on the green markets. It should be mentioned that products sold at the market are used by the local restaurants and catering facilities in preparation of traditional food which is a landmark of the tourist offer in the municipality. At the same time, products sold on the market are used in production of food in the existing kitchen of the "Daily center for children with special needs" and in the "National kitchen" for socially vulnerable people that is located in the kindergarten "Canka Andreevska" near the market. Products sold on the market are also used for the kindergarten. Improvement of the conditions for sale of agricultural products including livestock products will ensure economic development of the municipality due to the opportunity for development of small and medium businesses in production and service sectors.

The existing market condition is very bad, so there is a need of construction of a whole new facility to ensure its use in the future. Bad market condition is a reason of many environmental harmful influences on the population health and as a result they complain to the Major and municipal administration. Therefore, the main objective of the planned technical solution is to ensure long term improvement for smooth use of the local market that will satisfy the needs of the municipal residents.

2.3.2. Future situation

The project will ensure maximal area of urban plot for construction of 2,043m² local green market on CP 983, 984/1, 984/2 and 984/3 in the cadastral municipality Kratovo. On the north, the market border with the street "Gjorgija Kratovski", while from the remaining three sides there are cliffs overhanging above the market.

Technical solution assumes construction of covered facility, closed on the side of the street "Gjorgija Kratovski" with a wall and accompanying infrastructural facilities with the following areas:

Table 11 Balances of urban plot areas

#	Area of the places planned for:	Area in m ²
i	Market with toilets	1,300
ii	Parking – plateau	514
iii	Manipulation area	303
iv	Pedestrian communication and sidewalks	150
v	Greenery	30

Source: Main project for green market, phase architecture technical number 98/13³, pg.14

In the area of 725m² residents will sell vegetables, fruits, dairy and other products. The market will be closed with a wall on the side of the street "Gjorgija Kratovski". Benefits that will be realized with a construction of the new market are the following:

- Will establish space that can functionally meet the needs of the modern green market. Selling of products will be deployed in accordance with durability and type of products. In the green market, fully enclosed facility will be prepared for sale of products sensitive on change on external temperatures (meat, milk, etc.). Souvenirs and other products will be separated from the agricultural products;
- Regulation in traffic is one of the benefits of construction of the new market. Traffic solution is in accordance with the General Urban Plan of the city of Kratovo. Visitors will use two entrances on the side of the street, and for delivery of products the entrance is solved with entry and exit in one way through controlled entrances;
- Designed parking place will allow safe parking of the vehicles of the buyers and delivery services. The designed parking places are in accordance with the existing regulation in the Republic of Macedonia, or with the Article 59 of the Rulebook on standards and norms for urban planning (Official Gazette of the Republic of Macedonia no.78/05, 140/07 and 12/09). With such organization of the area there is no

³ The main project is prepared by the Studio for design, construction and supervision "Dzon I Dzon" Skopje

place for interferences of traders by the visitors and vice versa, while the facility will continue functioning without traffic in any weather conditions;

- One of the most significant benefits of this project is the improved sanitation and hygienic conditions for the users of the facility, with construction and connection of the facility to the city infrastructural network. Planned construction of a water supply system and bringing clan water will allow construction of toilets for the traders and visitors in a separate part of the plot. At the same time, planned construction and connection of the facility with the existing water supply system will allow hygiene in the market to be provided on a daily basis by cleaning the stalls and toilets;
- Construction of sewerage system and connection of the facility to the existing city sewerage system will expel sewerage waters to the main collector in Kratovo. The collector system will lead sewerage waters to a waste water treatment plant, which is planned for construction in the nearest future and then they will be released in Kratovska River;
- Collection of the storm waters, especially after torrential rains, and their release in the appropriate street storm water system is another project benefit;
- Communal waste produced by the market will be placed in a separate part that will be fenced and properly marked;
- Setting electrical installation on the market will allow lightening and use of electrical equipment on the stalls and in the area where it is necessary for maintenance of products (refrigerators);
- Supply with sanitary water and water for fire protection will be provided through extension of the existing outside installations to the appropriate places. Installation of pipes for water for fire protection in the new facility is designed to ensure the needed pressure;
- Establishment of lightening installation, as well as planned fire protection of the facility will improve safety conditions on the market.

In figure 4 is shown the location of the market that will be constructed in municipality Kratovo.

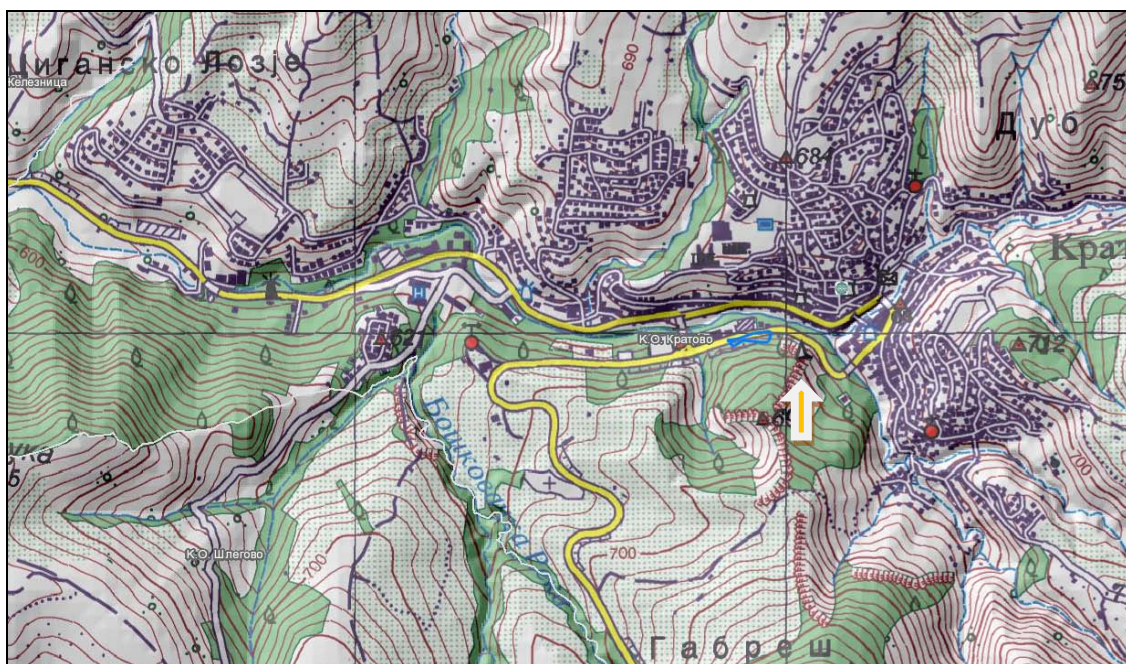


Figure 4 Location of the market in municipality Kratovo

Source: <http://gis.katastar.gov.mk/arec/>

*Note: the location of the market subject to construction is marked with blue color and white pointer

There are two companies that provide communal services in municipality Kratovo. Communal State Enterprise "Kratovo" is managing the cemetery and street lightening. On the other side, a private company for communal services "Silkom" Ltd. from Kratovo is a concessioner responsible for the market maintenance, water supply and public cleaning. Municipality Kratovo and "Silkom" have already signed an agreement according to which the concession of the market will be terminated by the end of this year and then the market will be under municipal responsibility (more precisely, the communal enterprise "Kratovo" will take over the management of the new market). The other services provided by "Silkom" will remain the same. In that way, collection of waste and cleaning of the market will be in competence of "Silkom", which is an authorized organization for waste management. The municipality will receive income from fee payments of the traders for using the stalls for selling their products. Therefore, it is very important thorough and rapid implementation of this infrastructural project.

2.3.3. Strategic goals

The project assumes construction of new green market on the location of the existing green market in municipality Kratovo. In order to ensure sale of agricultural products for all settlements in the municipality a realization of the project is necessary – construction of modern market with all sanitary technical, hygienic and safety conditions. The realization of the proposed infrastructural project indirectly will ensure good conditions for development of small and medium businesses from the agricultural and manufacturing sector in the municipality. Development factors, such as infrastructure, transportation links, market and other available resources, allow realization of commitments planned with the Physical plan of the Republic of Macedonia on dispersion of the industry for the period till 2020 and on the location of the industrial capacities in the area around the cities and in the wider rural areas. Therefore, it should be taken into account the determination of physical development planning of the industry for use of principles and standards for environmental protection and sustainable local development.

According to the Law on local Self-Government from 2002, in the section on organization and management of communal infrastructure, the municipality is responsible for construction and maintenance of green markets. Construction of the market with complete infrastructure is in accordance with the existing General Urban Plan (GUP) of city of Kratovo. Project documentation for the new market in municipality Kratovo is made in accordance with the Local Urban Planning Documentation for CP983, CP984/1, CP984/2 and CP984/3 from Urban Block 6 – municipality Kratovo and follows general and specific conditions for construction and physical limitation in this field, as well as the existing data of the existing and planned infrastructural facilities.

In the Program for arranging of the building land, construction and maintenance of communal facilities and local roads in municipality Kratovo for 2015, adopted by the municipal Council with archive number 07-1833/1 from 26.12.2014, in part 2, Special part; 2.1 Construction of streets in the city and municipality, planned activity for 2015 is arranging and coverage of the green market.

Considering its functionality, the city green market will be modern facility that will contribute not only to economic development of the municipality, but also to development of the region. Its construction will also contribute to preserve traditional values of trading environmental indigenous products and production of traditional culinary specialties. This will improve opportunities for tourism development. Current situation results in reducing and avoiding using green market by potential users and targeting the other markets in the nearest municipalities that have better infrastructural and hygienic sanitary conditions.

Implementation of the project such as construction of the green market in the municipality with a quality infrastructure will represent a contribution to the development of the location, local economy and implementation of planning documents in municipality Kratovo. Activities provided on the green market will provide development of small and medium businesses, as well as communication and connection of the settlements, etc. Construction and functioning of the anticipated content will ensure economic, cultural, tourist, health and other type of municipality functions with direct and indirect economic effects.

This will ensure improvement of the quality of life and welfare of all municipal residents. Project will ensure improvement of sanitary hygienic and safety conditions on the market, increase in the capacity of sale of different products, ensure safety feeling for buying healthy and quality products, improvement of the commercial activities, as well as increase in the open social and tourist activities.

2.3.4. Knowledge and experience of municipality Kratovo

The following table illustrates the municipal experience in implementation of different types of projects mostly related to the municipal development including infrastructural activities, creation and implementation of programs for local development and purchase of equipment.

Table 12 Implemented infrastructure projects in the period of 2005-2014

#	Project name	Financing source	Budget (MKD)
1	Paving of street from Kriva Reka to settlement Krilatica	ELS Kratovo, Government of the Republic of Macedonia	2,000,000
2	Paving of street from settlement Ketenovo to the location "Kameni Kukli"	Bureau for not enough developed areas, ELS Kratovo	4,000,000
3	Change of the water pipe line in the city of Kratovo	Program KARDS	30,750,000
4	Construction of new water supply system from settlement Sakulica to settlement Shopsko Rudari in length of 11km	ELS Kratovo, Government of the Republic of Macedonia	5,000,000
5	Construction of water supply system in settlement Zelenica	Government of the Republic of Macedonia	2,000,000
6	Construction of new reservoir for middle area 300m ³ in Kratovo	Ministry of transport and communications	6,000,000
7	Construction of filter station in Kratovo	USAID	36,900,000
8	Construction of streets in the old part of the city and construction of new streets	SIP-3 program	21,525,000
9	Organization and regulation of area in Roma local community	SIP-3 program	3,075,000
10	Boreholes for water supply in settlement Konjuh	Municipality Kratovo	1,000,000
11	Construction of the building "Zlatkova Kula"	American embassy	100,000
12	Construction and adaptation of multimedia cultural center - cinema	Swiss agency on cooperation and development, Ministry of culture and Municipality Kratovo	10,000,000
13	Construction of "Saat Kula"	Ministry of culture and World Bank	100,000
14	Construction of the school in settlement Sakulica	SIP-3 program	3,075,000
15	Replacement of the electrical installation of the school "Koco Racin" Kratovo	USAID-PEP, Municipality Kratovo	1,662,000
16	Construction of playground for football and basketball in the school "Koco Racin"	UEFA	3,075,000
17	Construction of the playground "Stara Musala"	Agency for youths and sport	12,000,000
18	Construction of a sport hall	Agency for youths and sport	2,500,000
19	Construction of the sewerage system in settlement Turalevo	Government of the Republic of Macedonia	5,000,000
20	Construction of the sewerage system in settlement Stracin	Government of the Republic of Macedonia	3,800,000
21	Replacement of windows and doors in the primary school "Koco Racin"	USAID-PEP, Municipality Kratovo	1,662,000
22	Construction and adaptation of cinema hall in the cultural center	IPA 1	30,750,000
Total			185,974,000

Source: Municipality Kratovo

The knowledge and experience needed for successful implementation of the project are related to project management, technical knowledge and execution of procurement practices. Municipality Kratovo has participated in a wide variety of large constructions or other type of local development projects with different investors, where the municipality allocated the land and provided the investors with technical services, and gained in return new

businesses on its territory or improved municipal facilities, schooling facilities, water supply system, etc. The municipality has implemented several projects on improving municipal services supported by national and international donors. It can be inferred that the municipality is able to contribute with the necessary experience to large construction projects such as construction of new and construction of the existing streets, water supply and sewerage systems, as well as extension of the green market.

2.4 Conclusions

The project is in line with the strategic priorities of municipality Kratovo and will contribute to achieving the vision of the municipal administration to improve the economic situation of the municipality and ensure favorable life conditions for residents.

The relevance of the project results from the fact that most of the population is affected by the negative implications of inadequate market conditions. The proposed technical solution is in accordance with the existing standards and regulations for this kind of projects. For successful implementation of projects, knowledge and experience is required, especially on project management and technical knowledge. Municipality Kratovo has implemented a variety of similar projects in the past, some in cooperation with international institutions, which means that the municipality is able to carry out large construction projects such as construction of the green market.



3.

SOCIAL IMPACT

3.1 Sociological study

3.1.1 Social analysis

This study is based upon the methodological concept of World Bank summarized as Five Entry Points, One Result. This concept requires exploration of five components: social diversity and gender, institutions, rules and behavior, stakeholders, participation and social risk. The assessment anticipated field research to get available information on interest and attitudes of stakeholders. The research was based on meeting with a focus group and face to face interviews with the municipality representatives including the mayor, municipal advisors and representative from the financial sector. Meetings were performed in order to give a social assessment of the project on construction of a new green market in the municipality.

The interviews were organized with 8 municipal officials: Mayor, representative from the financial sector and 6 advisors from different political sides (3 from ruling political party and 3 from the political parties in opposition). All advisors were from different settlements in the municipality including Kratovo where the market subject to this appraisal is located. Between the interviewers there were 3 women, 2 from the political party in opposition and 1 from the political party in position. They all presented their opinions about the role and influence of various stakeholders in the process of decision making relevant to the project, as well as the level of information, capacities and readiness of the residents to support the project. Taking their delegation and duties into account, the above mentioned officials proved to be useful interpreters of the opinions of the residents since being their representatives and having frequent meetings, they are very familiar with the needs, attitudes and opinions of the local population and the project. The answers from the interviews are very indicative a very good insight in the local processes to the project.

The focus group consisted of municipal residents, all direct users of the project. All participants were from different settlements within the municipality, but mostly from the settlements Kratovo and Turalevo. There were 5 participants in the focus group that work in different public and private organizations from whom only 1 women.

3.1.2 Social diversity and gender

In municipality Kratovo there are residents from different social groups (minorities, gender, language, young couples, etc.) By age there are different groups both including children, youths and elderly people; some of them are people with special needs. There are approximately 60 children and almost 120 people with special needs in the municipality. All residents from all social groups are users of the market.

The prevailing nationality in municipality Kratovo is Macedonians (98%). From the other nationalities are Roma population 1.4% and other minorities with less than 1%. A lot of young people are leaving municipality, moving into the bigger cities or other countries, but most of them came to the municipality to stay during the weekend. On the other side, a lot of residents from the nearest municipalities, mainly from municipalities Probishtip, Kumanovo and Strumica come to the market to sale their agricultural products. More than 100 traders are selling their products mostly on Saturday, which is famous as market day in Kratovo. Residents who use market services are nearly equal considering male and female population. As a result, the market is crowded, especially on Saturdays, with no traffic access and no space for all residents who want to sale or buy products on the market. On the other side, the stalls are not covered and the rain makes problems to the traders due to which they mostly cover their products with tents or umbrellas. At the same time, the rain makes mud on the ground that creates additional difficulties for movement, especially for the people with special needs.

The main municipal priority is to improve the quality of life through economic development and employment of the local population, but also to improve the infrastructure, through construction of streets, green market, parking place, sewerage and storm water system and improving the efficiency of communal services, as well as through construction of sport terrains for the younger population. According to the female population, the most important issues are construction of green market, children playground and parking place. At the same time, the advisors of community added the construction of the green market subject to this appraisal as a priority which was already emphasized by the overall population that regularly uses the market services.

Asked about the number of beneficiaries of the project, the interviewees expressed their opinion that all municipal residents will be beneficiaries of the project because this is the only green market in the municipality. Agricultural products are also sold in other smaller shops located in the municipality, but there is no opportunity for selection of products and choice to the buyers. It is very important to emphasize that all residents that will not find a place for selling their products go to the other green markets in different municipalities which additionally increase the transportation costs and the risk of damaging products. Moreover, the municipality aims to establish a small industrial zone where new small businesses will be developed. This is very significant because one of the most important businesses in the municipality is the primary agricultural production and trade.

According to the population who use the green market, it is in very bad condition with many holes and mud, there is no parking space for the vehicles of the residents who come to buy products and no space for delivery vehicles. They all park on the street that creates additional difficulties for those who pass by. At the same time, there is no storm water and sewerage system at the existing market place, no toilets for the residents and no space for waste disposal from agricultural products. There is also no water for cleaning the place after the market is closed. If the project is implemented toilets with technical water will be constructed, but also a place for waste disposal and parking space for the vehicles. This will increase the hygienic condition in the market. The construction of the market is expected additionally to increase the interest in opening new small and medium businesses at its location, especially in the field of agricultural production which are necessary according to the population that participate in the focus group.

Construction of the new green market will be beneficial for safety of women with children, school children, elderly people and residents with special needs, for safety walking, buying and consumption of dairy products. Presently, there is a small sale of dairy products which are placed on the existing open market with no refrigerators in the summer period which additionally increases the risk of buying unsafe dairy products for consumption. All these planned project activities will provide favorable conditions for the foreign investors to come and work in the municipality which additionally will improve the economic situation.

3.1.3 Institutions, rules and behavior

According to the interviewees' opinions the selected contractor must provide guarantees for the realization of the project. The municipal Council might request information from the mayor in reference to the project any time. In addition, based on experience with other similar projects, the municipal administration has the capacity to maintain the green market after the implementation of the project. At the same time, the municipality has an administration which has experience to monitor the progress of the project.

Presently, the existing market is maintained by the private company for communal services "Silkom" Ltd. Kratovo, but the new market will be under municipal responsibility. The settlements are not directly involved in the maintenance, but they can contribute by request of the residents and municipality. There will be one person employed in communal enterprise who will be responsible for collecting of fees from traders of stalls.

According to the interviews the private companies will benefit from the construction of the market. The construction will provide easy access to all consumers, which will increase the turnover and profits. This information was confirmed by the focus group and interviewed participants, especially in the interest for opening new businesses from foreign investments. Moreover, near the market are located kindergarten, hospital and daily center for children with special needs. They all buy agricultural products at the market. In the kindergarten is open a national kitchen that produce food for marginalized and poor people, but also for these three social facilities (kindergarten, hospital and daily center for children with special needs). For production of the food in the national kitchen, the green market is the main source of ingredients.

3.1.4 Stakeholders

There are several important stakeholders of the project. The interviewees fully agree that the most influential participant in the process of decisions making at the municipal level are the mayor and the municipal council. Residents, as an organized group of stakeholders, articulate their opinions directly to the council and the mayor, through the local communities, direct contact with the municipal advisors and forums organized by the mayor.

The residents can influence the decisions making process, as their opinions are always taken into consideration by the mayor and the council.

The interviewees stated that the project is supported by all councilors representing different political parties in the municipal council that means that political consensus is achieved on this issue and that the councilors are considering the project as one of the top priorities of municipality Kratovo. In respect to residents, all councilors confirm that all of them support or will support the project, because it is in the general interest at the municipal level. The project was already discussed at the council meetings and the construction of the green market was approved as priority. The focus group participants confirm the need of construction of the market.

One very important question that was discussed is related to the potential *“feeling of inequality among the residents and possibility they could endanger the realization of the project in order to get some personal or group benefits”* The interviewees and focus group participants stated that there is not risk or problems that can appear during the implementation of this project because, like they stated it is for everyone's benefit and good and the project will contribute to live improvement of all residents in the municipality.

3.1.5 Participation

The residents have submitted their complaints about the current situation in the market that is subject to this appraisal, which again implies that the residents are fully in favor of the project. The residents are well informed about this project by direct interview and discussions with the councilors in each settlement. Also, public information on all infrastructural activities undertaken by the municipality is presented at the local media and on the web page of the municipality. They can influence the necessary changes if there is a need. Residents, through their settlements raise issues concerning communal infrastructure, maintenance of public facilities (water supply system, streets, cultural houses, sport facilities, etc.) environmental protection, maintenance and regulation of cemeteries, they provide initiatives on landscaping of the area, public transport, education, health protection, social protection, cultural and sport manifestations, development of good inter-settlement relations, purchase of stocks and services, as well as protection of customers and other issues significant for everyday live and work of residents.

3.1.6 Social risks

High social risk for carrying out the project cannot be perceived. In municipality Kratovo, the municipal council organizes meetings to discuss the municipal development priorities and their realization. In spite of their political orientation, the councilors cannot endanger the realization of the project. As elaborated earlier, the councilors have already expressed their support for the project. Interviewees presented a wide range of priorities in many areas within the local government competencies. They identified the infrastructure and employment growth as crucial for local economic development.

Additionally, it was discussed in detail whether the residents are fully informed about the intended construction of the market that is subject to this appraisal. In that way, there is no risk for resident not to be informed about the project activities. It is very important to state that the municipality has the intention to improve infrastructure in all settlements and in the future to invest in storm water, sewerage and water supply system wherever deemed necessary, but also in construction of waste water treatment plant. It solves the problems that were persistent for many years. With the implementation of this strategically important project, the municipality is sending a strong signal that plans to solve this issue.

The municipality has already completed all expropriation activities, i.e. the existing market is located in the area of municipality ownership. In the middle of the existing market there is one building which was in ownership of Makpetrol Company, but the municipality conducted expropriation. The building will be used for sale of dairy products which are sensitive to changes on different weather conditions and highly perishable, i.e. the building will be reconstructed and electricity will be established which will allow use of refrigerators for keeping dairy products. This reduces the risk of buying unsafe products.

With the construction of the market and storm water system the risk of flooding will be minimized. The storm water will be led to the nearest river Kratovska. The sewerage system installed in the market will be connected to the existing sewerage system which additionally minimizes the risk of environmental pollution.

3.2 Other areas of considerations

The construction of the market is expected to improve the overall living conditions in the municipality. The implementation of the project is expected to create savings in the municipal budget for maintenance and flooding preventions on the long term basis. This will improve local public finances and allow reallocating them to other municipal services. Moreover, increased income by fee payment from traders on the market will result in growth of municipal revenues. At the same time, the realization of the project will decrease costs of the overall population who avoid the local market and travel to neighboring municipalities.

3.3 Resettlement issues

The project is not a subject to resettlement issues because it involves construction of a new market in the municipal territory where the existing green market is already placed. The expropriation of the building within the market was already finished, and there are no other expropriation activities that need to be provided by the municipality. The expropriation of the building will allow using of refrigerators for dairy products, highly sensitive to external conditions.

The construction of the market will improve the economic conditions in the municipality and will allow for development of new small and medium businesses, as well as development of agricultural production and purchase of agricultural (healthy and organic) products. This will ensure improvement in the quality of life and welfare of all municipal residents. At the same time, project will improve sanitary hygienic and safety conditions on the market, increase the trade of different products, improvement of the commercial activities, as well as increase in the open social and tourist activities for the residents of the municipality. The increased number of businesses will open new jobs for the local population and contribute to the employment of young people. In such way, decreasing the emigration is expected.

3.4 Conclusion on the project potential success and recommendation

The project is expected to be socially successful for the following reason:

- It is both cost-efficient and cost-effective over a long run and also useful for the improvement of the community living in municipality;
- The project is municipal priority for the public administration and for residents;
- The stakeholders are very motivated by the realization of the project;
- The project is not a subject to a resettlement issues;
- No expropriation issue will be raised during the implementation of the project because the new market will be on the same location of the existing market which is in ownership of the municipality.

The main drivers of the change that will bring about prosperity are the municipal authorities (mayors and councilors) who have initiated and made the decision on seeking funding from the World Bank funded MSIP. Since the problem of bad infrastructure exists for many years it has been publicly declared and discussed on many occasions. Direct beneficiaries of the project are the residents who sale their products on the markets, but also all other residents from the municipality and wider region who buy their products on the market. Hence, vulnerable and poor groups identified by the municipality (people with special needs, single mothers and elderly people), as well as kids and school children have special needs considering modern market with toilets, water and parking place that will ease their movement. Gender balance needs to be incorporated in the strategic approach of the municipality and public communal enterprise towards all development efforts.

High social risks for carrying out this project cannot be perceived. There are no issues connected with ethnic distribution of population or inter-local community rivalry: the action will allow benefits for all nationalities, it will cover the majority of residents in the municipality and there are no land ownership concerns that need to be resolved.

4.



ENVIRONMENTAL IMPACT

This project assumes construction of new green market area in City of Kratovo, municipality Kratovo. The construction activities will be performed on the 2,043m² area. According to the Main Project Design the construction of the new green market will be implemented through several sub-project activities:

- Construction of green market area (including setting a electricity installation and construction of sanitary facilities);
- Construction of road infrastructure in and around green market area for delivery and distribution of goods and products and access for local population to the market area;
- Construction of parking lot area for appropriate and easy access to the green market area for local residents and tourists;
- Construction of water supply, storm water and sewerage system;
- Placement of the new waste containers for appropriate waste disposal; and
- Construction of supporting walls around the green market green area.

The existing green market facility is open area used for trade of different kind of goods: fruits, vegetables, gardening, textile and metal products, souvenirs, etc. Currently, the green market area does not fulfill the minimal requirements for normal operation of the trade activities. There is a deficiency of sanitary facilities, lack of refrigerators (for storage of dairy and meat products), lack of space for waste disposal, difficult access to the existing green market area (bad road infrastructure for delivery and distribution of goods, products) etc. There is a need for immediate improvement in the current conditions of the existing green market area in City of Kratovo.

The completion of all sub-project activities will ensure socio-economic benefits for the municipality Kratovo and the region. Main improvements will enable better conditions for all sellers /farmers and SMEs on local and regional level (they are from different settlements within the municipal area, but also wider – coming from Strumica, Valandovo, Kriva Palanka, Rankovce and Kumanovo) who are selling their products and goods within the green market area, improvement of the traffic flow within the green market area and more economic benefits for population. The proper waste management, existence of water supply, sewage and storm water systems will improve the human health and will prevent the environmental risks to soil, air quality and water quality.

The location of the green market area within the City of Kratovo is presented below.

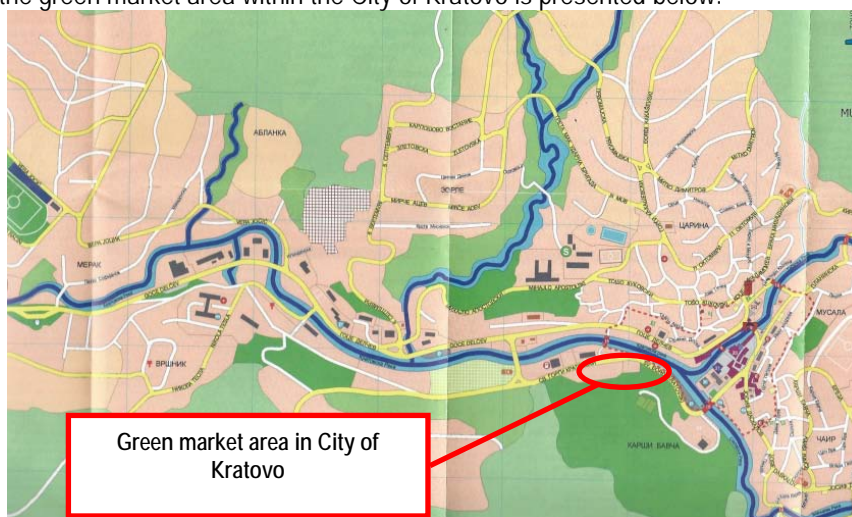


Figure 5 Location of the green market area in the City of Kratovo

4.1 Main project activities with environmental impact

The main sub-project activities that may have adverse environmental impact during the implementation are presented in the Table 13. These activities could increase the level of noise and vibration within the green market area and partly along the street "Gjorgija Kratovski", could increase the traffic flow in the area and surrounding streets, hence these activities will need to follow the OH&S requirements and will generate the different waste

streams that will ask for proper handling and general management. All adverse environmental impacts in the construction phase will be short term with minor significance.

Table 13 Main project activities

<i>Name of the project location</i>	<i>Planned project activities</i>
Construction of the new green market area in City of Kratovo	Clearing, securing (and marking out the route of the green market area); Excavation of soil, supply of construction material (pipes, wood, steel, crushed stone material, interlock tiles, etc); Construction of green market area with 725m ² (according to Main Project Design the construction will be made of steel); Construction of access road and sidewalk (with length of 153m) to the green market area; Construction of parking lot area with 514m ² with total 18 parking lot spaces; Construction of water supply, storm water and sewerage system; Setting the new waste containers for appropriate waste disposal (positive impact); and Construction of supporting walls in high of 120cm (the side of the cliff) and 90cm (in front of the street "Gjorgija Kratovski").

4.2 Main environmental impacts and sensitive receptors

The main project location is in urban area in City of Kratovo. The main obligation of the Contractor prior the start of construction activities is preparation and implementation of the **OH&S Plan** for prevention of the possible injuries of the workers, local residents (who daily visits and work near this location) and tourists. For proper traffic flow and transportation of goods and people (within the green market area and partly on the street "Gjorgija Kratovski") the **Traffic Management Plan** needs to be prepared together with municipal staff (Traffic Engineer) and Police Department. The Plan should include the directions for re-routing the traffic and works time schedule of the construction activities, traffic regime along the construction area and surrounding streets, etc. The **Information note/Press** is also very important before starting with the project activities in order to inform the general public about the duration and type of the sub-project activities. Very important task for the municipality of Kratovo is to nominate the other temporary place/green market area to be used during the construction period. The citizens need to be informed about the temporary green market location and regular cleaning and proper waste management of this temporary area dedicated to the selling of green products are essential for minimization of potential risks to human health. The adverse impacts will be long term – through the whole period of project duration with major significance for the workers, community and drivers driving along and close to the green market area.

During the construction activities the **increased level of noise** will be generated from the operation of the heavy construction machinery, which will be used for supply of construction material. According to the requirements of the Law on noise sensitive protection, Official Gazette No. 79/07, 124/10, 47/11 and 163/13 the level of noise sensitivity of the project location have been identified to the area with II degree of noise protection: noise limit values should not exceed 45dBA for night and 55dBA for evening and day. The mitigation noise measures should be in accordance with national noise legislation. The impact will be short term, irreversible with minor significance.

The main **waste streams** that may occur during construction activities are: excavation of soil, construction and demolition waste, communal waste and contaminated soil from occasionally oil leakage (from construction machinery). The proper waste management should be in accordance to national waste legislation (Law on Waste and List of Waste codes – Official Gazette of RM No.100/05) and should cover following steps: temporary waste disposal on appropriate place on the construction site, selection of the waste streams (recycle if possible), transportation and final waste disposal on appropriate landfill (performed by the private enterprise "Silkom" form Kratovo on landfill Meckin Dol, located 4km west form Kratovo). Directions and guidelines for proper waste management should be given in the **Waste Management Plan** prepared and implied from the Contractor. In Table 14 the estimated quantities of waste from excavation of soil from project activities are presented.

Table 14 Estimated values of waste from excavation of soil during project activities

Type of waste	Name of sub-project					
	Construction of access road in and around the green market area	Construction of sidewalk	Construction of parking lot area	Construction of storm, water system, water supply and sewage system	Excavation of soil for construction of toilets in new green market area	Construction of new green market area
Excavation of soil	178m ³	30.6m ³	287.84m ³	77.46m ³	15.26m ³	35.96m ³

The Kratovska River passes about 60m north from project location. The water characterization of the Kratovska River according to the national legislation (Regulation for Categorization of Water Courses and Lakes - The Official Gazette of the Republic of Macedonia No. 18/99) is III class (eutrophic - cannot be used for bathing and recreation, water sports and fish growing). The possible risk of the **water pollution** of Kratovska River that may occur during construction activities is from the possible soil erosion, waste disposal into the river band and motor oil leakage. The adverse impact could be local with short duration but it could be with major significance. The main protection measures from water pollution are not to dispose any wet concrete in or close to watercourse, prevent and monitor if any leakage of fuels, lubricants occurs, disposal of waste near the river and any erosion of the soil near the river bands occurs, etc.

In the operational phase, the daily operation of the market and usage of sanitary facilities as well as after closure cleaning of the market will generate waste waters containing heavy food waste, grease and fat posing potential risks to good ecological status of recipient water. Currently, there is no WWTP for urban waste waters in Municipality of Kratovo, and although the construction of WWTP was identified as a priority in the strategic planning documents (LEAP, 2008 and LER, 2006), no construction actions are implemented until now. The Municipality should install the food sedimentation trap and fat and grease separator system for the capacity of approx. 300-500 l/day waste water. Some of the main characteristics of the separator that should be taken into account during the procurement are: capacity of inlet waste waters, design of the separator to ensure disposal, cleaning and filling without odour build-up, ground or underground model, capacity of sludge trap, capacity of grease storage, etc.

The preventive checkups of the separator's functionality and regular clean up the grease and heavy parts deposits in the separator are essential preventive measures within the operational phase to ensure less organic content in the waste waters and proper sewage system operation. The impact on recipient water is expected to be long-term with high significance.

The waste generated within the chamber of the oil/water separator contains solids from oil/water separator (waste code according to the List of Waste 13 05 01*) and oil from oil/water separator (waste code 13 05 06*) and both waste streams should be treated as hazardous waste. The keeping records on cleaning of separator, but also the final disposal of it should be established by the operator.

The Strict Natural Reserve "Ploce Litotelmi" (declared according to Law for declaration of location "Ploce Litotelmi" for strict natural reserve in RM (Official Gazette No. 71/03) is located about 15km from the project location. Main characteristic of this reserve is recesses (formations) called "lythotelms" which represents natural habitat of the endemic relict species - dragon crab (*Tanymastix stagnalis*). Because "Ploce Litotelmi" is located far away from the project location the construction activities will not have negative impact on this reserve. Also there is no cultural heritage where project activities will have adverse impact.



Figure 6 Natural Reserve "Ploce Litotelmi"

The tables below comprise Mitigation and Monitoring Plan. The main responsibility for implementation of the mitigation measures is on Contractor but main responsibility of the monitoring of their implementation lays on Supervisor and municipality staff.

4.3 Mitigation Plan

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
Construction of new green market area in City of Kratovo in municipality Kratovo				
<p>Preparatory activities before construction works start</p> <p>Marking out the route of the project location: construction of new green market area in City of Kratovo in municipality Kratovo</p>	<p>Possible adverse social and health impacts to the population, drivers and workers due to:</p> <ul style="list-style-type: none"> – Lack of ensured safety measures at the start of construction works – Injury passing near by the construction site and open trench and manholes – Not compliance with strict OH&S standards and work procedure – Inappropriate public access within the new green market area (partly street "Gjorgija Kratovski") 	<p>Local/ within the new green market area (partly street "Gjorgija Kratovski")</p> <p>Short term during the construction period (new green market area (partly street "Gjorgija Kratovski"))</p> <p>Significance - major</p>	<ul style="list-style-type: none"> ➤ Preparation, implementation and approval of the OH&S Plan and the Traffic Management Plan together with the municipal staff prior start up activities; ➤ Provision of the information at local Radio/ TV and municipality board about the construction activities – start and finish of work for each day, duration of work and re-routing the traffic near the street "Gjorgija Kratovski"; ➤ Application of good construction practice for marking out the construction site including: <ul style="list-style-type: none"> • Ensure the appropriate marking out the construction site; • Placement of attention signs especially for limitation of speed driving near the new green market area (near street "Gjorgija Kratovski" and surrounding streets); • Warning tapes and signage need to be provided and their existence should be checked on daily basis; • Installation of Notice board with general information about the project, Contractor and Supervisor at construction site; • Forbidden entrance of unemployed persons within the warning tapes; • Community and Worker's OH&S measures should be applied (first aid, protective clothes for the workers, appropriate machines and tools, mobile toilet should be placed on the construction site, drinking water and food for the workers should be ensured, etc.); • The construction site and small access roads should be kept clean; • Machines should be handled only by experienced and trained personnel, thus reducing the risk of accidents; • Larger quantities of flammable liquids should not be kept on the construction site. 	<ul style="list-style-type: none"> • Contractor – Bidder • Supervisor • Municipal staff (Communal Inspector and Environmental Inspector)

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
	Possible noise disturbance as a result of outdoor equipment usage and transportation vehicles driving around the site	Local/within the new green market area (partly street "Gjorgija Kratovski") short term /major	<ul style="list-style-type: none"> The level of noise sensitivity of the project location have been identified to the area with II degree of noise protection; Noise limit values should not exceed 45dBA for night and 55dBA for evening and day; The construction works should not be permitted during the nights; the operations on site shall be restricted to the hours 7.00 -19.00. 	<ul style="list-style-type: none"> Contractor –Bidder Supervisor
	Possible impact on soil and water (Kratovska River) and possible cause of soil erosion as result of construction activities	Local/ short term/ major due to the distance from the construction site (about 60m is located Kratovska River)	<ul style="list-style-type: none"> The land around the green market area needs to be stabilized with supporting walls with height of 120 and 90cm in order to prevent erosion of soil, Minimize storage or disposal of substances harmful to water –Kratovska River (e.g. fuels for construction machinery) on the construction site; organize proper handling of waste ; All access roads and asphalt surfaces should be maintained clean in order to prevent runoffs from them into the ground water and other water flows. 	<ul style="list-style-type: none"> Contractor – Bidder Supervisor
	Possible adverse environmental impact and health effects could occur as a result of generation of the different waste	Local within the new green market area (partly street "Gjorgija Kratovski")	<ul style="list-style-type: none"> Identification of the different waste types at the construction site (soil, sand, asphalt, bottles, food, etc.); Classification of waste according the national List of Waste (Official Gazette no.100/05); The main waste would be classified under the Waste Chapter 17 "Construction and demolition wastes (including excavated soil from contaminated sites)" with 	<ul style="list-style-type: none"> Contractor – Bidder Supervisor

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
	streams The inappropriate waste management and not in time collection and transportation of waste streams	short term/ major	the waste code 17 01 – Waste from concrete, bricks, 17 05 04 – Excavated soil, 17 09 04 – Mixed waste from construction sites; <ul style="list-style-type: none"> • Small amount of solid municipal waste could be found (food, beverages), as well as packaging waste (paper, bottles, glass, etc.); • Collection of the generated waste on daily basis, selection of waste, transportation and final disposal at municipal landfill "Meckin Dol" which is located 4km west from City of Kratovo; • Collection, transportation and final disposal of the inert and communal waste by the private enterprise "Silkom" Kratovo; • Possible hazardous waste (motor oils, vehicle fuels) should be collected separately and authorized collector and transporter should be sub-contracted to transport and finally dispose the hazardous waste; • The materials should be covered during the transportation to avoid waste dispersion; • Burning of waste should be prohibited. 	<ul style="list-style-type: none"> • Municipality staff (Communal Inspector) • Mayor of the Municipality of Kratovo • Private enterprise "Silkom" Kratovo.
Operational phase: Daily market operation				
Operation of the market including daily consumption of water (for sanitary purposes and cleaning the market after working hours)	Possible adverse impacts to the recipient waters and the proper functioning of the whole sewage system due to: – Lack of waste water treatment facility to protect the recipient water of pollution;	Local/long term impact High significance	<ul style="list-style-type: none"> • Procurement and installation of the food sedimentation trap and fat, oil and grease separator after the market waste water discharge; • Regular completed clean up of sedimentation trap, sludge trap and separator at least once a month or according the manufacturer's recommendations; • The proper handling with two types of waste generated in the separator (grease – and heavy food debris and sludge); • Perform regular checks and inspections of the separator's proper condition and proper operation including the following: dimensioning of the separator, the structured condition and fittings, work of the pumps, electrical equipment and ventilation ducts and keeping records and operation log; • The Agreement should be signed with the authorized dealer of the separator for performing annually maintenance (competent person) according the 	<ul style="list-style-type: none"> • Mayor of the Municipality of Kratovo • Operator of the market (PCE "Kratovo")

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
	<ul style="list-style-type: none"> – Fat, oil and grease deposits on the sewage pipes could block the flow and damage the network or cause leakages. – Pollution of soil if any leakages happened. 		<p>manufacturer's specifications;</p> <ul style="list-style-type: none"> • An operating log should be maintained for the separator including at least: completed inspections, maintenance, checks and disposals; • The keeping records on these operating logs need to be organized by the investor; • Procurement of spare parts for smoothly operation without downtime should be ensured. 	
Daily operation of market and generation of various waste streams on site	Possible adverse environmental impact (soil, water and air pollution) and health effects could occur as a result of inappropriate waste management and not in time collection and transportation of waste streams	Local/long term impact High significance	<ul style="list-style-type: none"> • The proper waste management (selection on spot) of recyclable waste streams is essential (paper, glass, plastic bottles, cans, packaging waste – cardboard, wood, metal, hazardous waste, etc); • The principles of good practices on food market should be established by operator and awareness of the vendors/traders should be conducted to avoid the waste generation, to reduce it, to donate the food rest before it become waste and to transform it into useful resources as much as possible; • The vendors/traders public awareness should be focus as well on properly storage of food and inspection of storage equipment, to give big discounts to food that is close to the expire date instead of dispose food becoming the waste, to adopt and maintenance of safety and good hygiene practice for donation of food, to understand better the proper separation, collection and recycling of food waste, etc. • The special waste bins/containers should be procured and installed for recyclable waste streams, non-recyclable and biodegradable waste stream; • The re-use of waste streams that could be used and recycle of those that could be used as a raw material is very important; • The contract with authorized companies for special waste streams (license issued by the MoEPP) should be signed between the PCE "Kratovo" and the 	<ul style="list-style-type: none"> • Mayor of the Municipality of Kratovo • Operator of the market (PCE "Kratovo")

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
			<p>licensed company;</p> <ul style="list-style-type: none"> • The daily clean up of waste generated by decomposition of green products should be performed and possible treatment of biodegradable waste should be established; • The sanitary hygiene should be implemented on daily basis in the sanitary facilities and on the market itself in order to minimize the potential of health diseases (more frequently in the summer period). 	

4.4 Monitoring Plan

What parameter to be monitored?	Where is the parameter to be monitored?	How is the parameter monitored?	When is the parameter monitored (frequency of measurement)?	Why is the parameter monitored?	Cost		Responsibility	
					Construction	Operations	Construction of new green market area in City of Kratovo in municipality Kratovo	Operations of new green market area
Project stage: Preparation activities/ Start up of the construction work (clean up and marking out the route of the area where the project activities will be performed)								
The safety protection measures applied for the workers, local residents and tourists	On the construction site	Visual checks	During the clean-up activities At the beginning of each working day during the project activities	To prevent health and safety risks – mechanical injuries To be in compliance with national communal health regulation and OH&S standards			Contractor - Bidder Supervisor Communal Inspector at the municipality Kratovo	
Project stage: Construction of new green market area in City of Kratovo								
Safety traffic flow near the green market area (on street "Gjorgija Kratovski")in the City of Kratovo	On the site	Visual monitoring	During the working day	To ensure the coordinated traffic flow through the City of Kratovo			Contractor - Bidder Supervisor Communal Inspector at the municipality Kratovo	
Disposal of the waste streams (solid and liquid) on the construction site and near the Kratovska River as potential water pollution of ecological status of water course	In City of Kratovo near the project location	Visual check if the waste is disposed on construction site and near or in river band of the Kratovska River	During the construction period (once per week)	To ensure good status of water quality and proper waste management			Contractor - Bidder Supervisor	
Primary selection of	On the site	Review the	At the beginning of work	To separate hazardous			Contractor –	

What parameter to be monitored?	Where is the parameter to be monitored?	How is the parameter monitored?	When is the parameter monitored (frequency of measurement)?	Why is the parameter monitored?	Cost		Responsibility	
					Construction	Operations	Construction of new green market area in City of Kratovo in municipality Kratovo	Operations of new green market area
the waste streams as they are generated at the site		documentation	with new material/s	from the non-hazardous waste as well as inert from biodegradable waste			Bidder Supervisor	
Collection and transport as well storage of hazardous waste (if any occurs)	On safety temporary storage	Review the transportation list and conditions at the storage facility	Before the transportation of the hazardous waste (if there is any)	To improve the waste management practice on municipality and national level/ Not to dispose the hazardous waste on the waste disposal spots			Authorized Contractor for collection and transportation of hazardous waste (if any occurs)	
Collection transportation and final disposal of the solid waste Fulfilled Annual Report for collection, transportation and disposal of waste	On/around the site	Visual monitoring and reviewing the transportation and disposal lists from the sub-contractor	After the collection and transportation of the solid waste on regular base each day	Not to leave the waste on the spot to avoid the environmental and health impact on local citizens and to have the real data for generated waste streams			Contractor – Bidder Supervisor	
Noise measurements	Near the construction site and near the street "Gjorgija Kratovski"	Noise measurement equipment	During the work peaks	To ensure noise level limits according regulation			Contractor - Bidder	

What parameter to be monitored?	Where is the parameter to be monitored?	How is the parameter monitored?	When is the parameter monitored (frequency of measurement)?	Why is the parameter monitored?	Cost		Responsibility	
					Construction	Operations	Construction of new green market area in City of Kratovo in municipality Kratovo	Operations of new green market area
Procurement, installation and commissioning of the food sedimentation trap and oil/water separator for treatment of waste waters coming from the market	On site	Review of documentation received by the manufacturer and installation check lists and test report	After commissioning the equipment	To ensure proper installation and functioning of the equipment and protection of quality of recipient water				Municipality of Kratovo Operator of the market (PCE "Kratovo")
Regular cleaning of the deposits (heavy food , grease, fat, oils and solids) within the separator Regular checks and inspections of the equipment components (pumps, fittings, electronic parts, etc)	On site	Performing the clean up activities and inspections by authorized personnel according the manufacturer's guidance and recommendations	On regular base (cleaning at least once per month and inspections on annual basis)	To ensure proper separation of the organic content into waste waters coming from the sanitary facilities and flushing market area after closure the market				Municipality of Kratovo Operator of the market (PCE "Kratovo")

What parameter to be monitored?	Where is the parameter to be monitored?	How is the parameter monitored?	When is the parameter monitored (frequency of measurement)?	Why is the parameter monitored?	Cost		Responsibility	
					Construction	Operations	Construction of new green market area in City of Kratovo in municipality Kratovo	Operations of new green market area
Launch of public awareness campaign for proper food waste management (emphases should be put on vendors and customers)	On site	Participation of the vendors and local residents on the public awareness (PA) events and through the improvement of food waste behaviour	Before and few months after conducting the PA campaign	To raise the awareness about the principles on proper food handling to avoid, reduce, re-usage of food waste and donate the food or sell with discount price				Operator of the market (PCE "Kratovo") Private company "Silkom" responsible for waste management in the city and the market area
Procurement and installation of waste bins/containers for proper separation of waste streams on the market	On the market area and around it	Visual monitoring	On regular daily basis	To separate the various waste streams according the waste characteristics in order to conduct the waste treatment and to re-use it as much as possible				Operator of the market (PCE "Kratovo") Private company "Silkom" responsible for waste management in the city and the market area



5.

TECHNICAL SOLUTION

5.1 Description

The project assumes construction of green market in the city of Kratovo, municipality Kratovo. The new market will be constructed at the existing location, which presently is open area with market stalls placed on damaged paved surface. In the area near the market there are no toilets, no place for waste disposal, and no parking place for buyers or products delivery. On the existing location there is no water supply and sewerage system and there is no electricity, which does not allow use of refrigerators for the products sensitive on changes on the outside temperature. Total area planned for construction of the market together with all accompanying infrastructural facilities is 2,043m².

Because the new market is planned on the existing market location all plots are in the ownership of the municipality⁴. Only a small building located in the middle of the market was in ownership of Makpetrol Company. However, the municipality has already completed expropriation of the building and it will be reconstructed and used for selling dairy and thermal sensitive products. The new market will be classified as "large commercial unit – Market" (class of the building B2)⁵ of significant importance for municipal economic development.

Technical documentation for construction of the green market is prepared in accordance with the legal requirements and existing standards in the Republic of Macedonia for construction of this kind of facilities and follows the terrain configuration, spatial limitations in this field and available data for the existing and planned accompanying infrastructural facilities. The location of the market is shown in the figures 7 and 8.

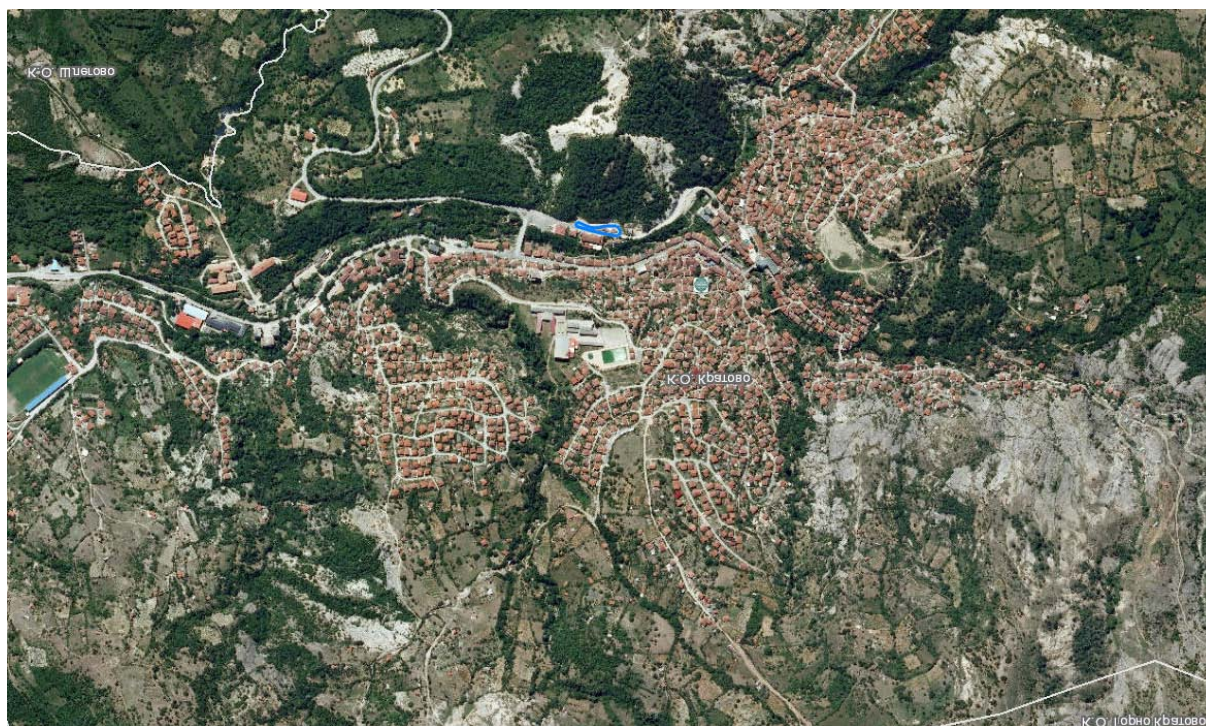


Figure 7 Location of the green market in municipality Kratovo

Source: <http://gis.katastar.gov.mk/arec/>

*Note: The location of the market assumed for construction is market with blue color.

⁴ Property certificate no.706, Property certificate no.994 and Property certificate no. 2831 of cadastre in municipality Kratovo

⁵ Local Urban Planning Documentation of CP983, CP 984/1. CP 984/2 and CP 984/3 of Urban Block 6 – municipality Kratovo, pg.11

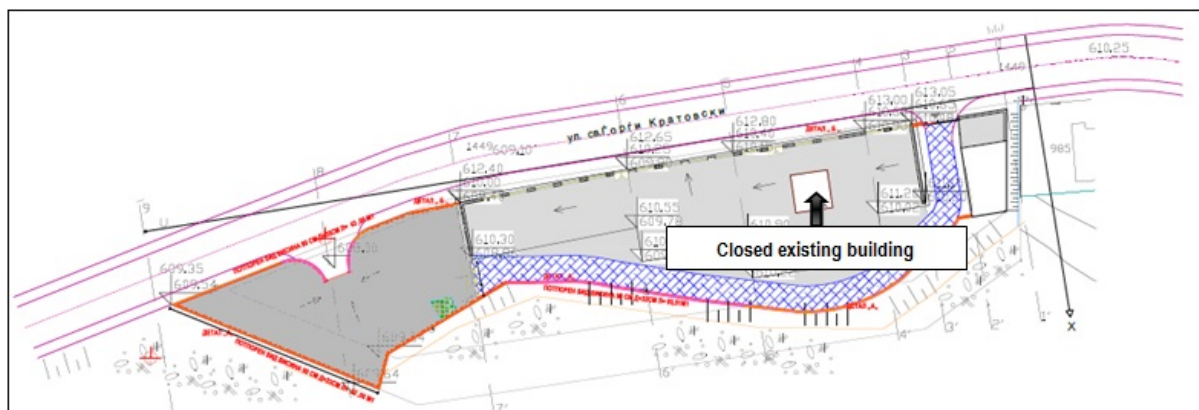


Figure 8 Structure of the green market in municipality Kratovo
Source: Main project for green market with technical number 98/13, October 2013

5.2 Analysis, evaluation and potential amendments

The project on construction of the green market (building class B2) located in Kratovo is very significant for development of the municipal economy. On the target location there is an existing market place, only with placed stalls, which is not constructed in accordance with the standards for this kind of facilities. Technical documentation is prepared in accordance with planning documentation, i.e. Local Urban Planning Documentation of CP 983, CP 984/1, CP 984/2 and CP 984/3 of Urban Block 6 – Municipality Kratovo, prepared by the "Urban Gis" LLC Kumanovo. Main design for the structure, architecture, water supply and electricity was prepared. The overall documentation is with technical number 98/13 from October 2013 prepared by the "Studio for design, construction and supervision of John and Johnny" from Skopje. Also, elaborate on safety at work and Elaborate on fire protection, explosions and hazardous substances are prepared by the same organization.

The company for surveyor's works, design and trade "Geo-metr" LLC Kratovo prepared the elaborate for surveyor's works for special numerical data on implementation of urban planning documentation in the procedure for establishing a building plot for the construction of the market facility. The elaborate is based on a data received from the Real Estate Cadastre Kumanovo with no.1109/70 since 28.01.2014, 1109-74 since 30.01.2014 and conclusion of the plan for the city Kratovo LUPD with no.12-12/2 since 28.01.2014 released by municipality Kratovo.

Total area of the urban plot designated for green market in Kratovo is 2,043m², while the market will occupy an area of 725m² with irregular shape. Toilets for traders and visitors are also planned for construction in a separate building with area of 70.62m² located at the end of the plot. The toilets are placed in a building that contains two parts. The first part is open area of 26.93m² where waste containers will be placed. The second enclosed part will consist of: a hall with area 9.08², storage room with area of 4.53m², man toilet with area of 16.32m² and women toilet with area of 13.76m².

The structure, size and proposed technical solution of the city green market is based on the current legislation, regulations and standards applicable to this type of facilities, large commercial units - markets.

During construction the following works will be needed:

- Marking and fencing the location - this work includes marking of location, survey measurements in connection with the transfer of data from the Project, or the terrain in drawing and maintaining the insignia on the ground during the entire period of construction. Fencing the location will assume clearing its dismantling and storage of existing equipment, stalls, and fences.
- Due to the existing cliff on the terrain on one side of the market a protection on the slope of the cliff is planned by galvanized mesh attached to steel ropes and concrete weights, as well as preparation of the retaining wall.

- Preparatory works consist of excavation of sections on the route of the existing worn concrete to the elevation of solid ground and transport of construction waste to landfill.
- Excavations works consist of making the underground layer where compaction is performed with mechanization for compacting chosen according to the type of the underground layers. Excavations works including excavation of soil and preparation of the underground layer are planned for:
 - o Area of the market $P=890\text{m}^2$;
 - o Sidewalk with length $L=153\text{m}$;
 - o Parking place with $P=514\text{m}^2$;
 - o Retaining wall of 120cm on the side of the cliff;
 - o Wall in front of the street high 90cm and long $L=175\text{m}$;
 - o Construction of sewerage, water supply and storm water system.
- Concrete works will be provided for the surface of the market, retaining walls, parking place for delivery trucks, toilets and waste facility, as well as concrete works for construction of sewerage manhole.
- Placement of paving interlock tiles will be performed on the sidewalks and parking place for customer vehicles.
- Construction of the steel structure for the market.
- Performance of insulation works, masonry works, covering works, tinsmith works, and placement of floor, carpenter works and locksmith works will be provided in the sanitary facility and the market.
- Electricity installation will include the following components:
 - o Distribution boards;
 - o Electricity cables ;
 - o Distribution cables and lightening elements;
 - o Distribution cables and sockets elements and
 - o Protective grounding and lightning installation.

The project envisages construction of modern functional facility on the place of the existing market that does not satisfy the main hygienic and technical standards. The new covered market will be closed on the side of the street "Gjorgjija Kratovski" and will contain all accompanying infrastructure facilities such as: toilets, parking place, water supply, sewerage systems and electricity.

Protection of the cliff is planned for safety on the location. For this, double knitted steel mesh type 80x100mm with width 2-3m and short steel wedges with $l=0.5\text{m}$ $\Phi 12\text{mm}$ will be used.

Retaining wall high 120cm and thick $d=22\text{cm}$ will be placed on the side of the cliff. The retaining wall will be made of concrete type (CT30) and reinforcement wire mesh MA 500/560, Q188, with $\Phi 6$ of 15x15cm openings. At the same time, construction of the wall is planned in the front of the street with height 90cm, length $L=175\text{m}$ and width $d=10\text{cm}$. The reinforced walls will be placed on fundamental tapes constructed with concrete CT30. Reinforced walls will be covered with travertine tiles with dimensions 20/40/12.5cm.

For covering of the market and toilets, as two separate parts, structural and seismic calculations are prepared by using the licensed computer program "TOWER 6". Hence, the market is planned to be covered with steel construction by using the material CN 240C, i.e. with production mark C 0362. All reinforced concrete elements are planned with concrete type – CT30. All constructive elements are reinforced with ribbed longitudinal and cross-sectional reinforcement RA 400/500-2.

Roof tiles construction on the market will be placed on a wooden elements 5/5cm, planks 2.4cm and wooden construction of rafters with dimensions $b/h=10/14\text{cm}$. Carriers wooden construction of the roof is placed on a steel carriers, designed also by cold-shaped profiles 150.150.4. Steel poles through anchor plates are placed on a concrete footing with dimensions on the base $a/b=45/45\text{cm}$ and height of $h=30\text{cm}$. Massive walls around the

building are founded on strip-foundations with dimensions of the cross-section b/h=74/40cm. Roof on the market is the wooden construction that will be visible.

Roof on the sanitary facility in the first part where the waste containers are planned to be placed is open and pergolas are planned to be placed on a certain location, while in the second part one platoon roof with an angle of 17 degrees will be placed. The roof will be performed by wooden construction, steam dam, thermal insulation, GSN plates, roof foil, slats in one direction and coverage of the tiles. In the toilets facility the roof will be processed by Hunter Douglas set on appropriate substructure.

The floor in the market will be made by reinforced concrete plate treated to black gloss. Plateau of the market is with an area of 890m². The central part of the platform has fall less than 1%. The construction of the plateau will be performed in the following way:

- Reinforces concrete with CT30 and ribbed steel bars RS814cm
- Waterproofing HIDROMAL flex 3 layers
- Concrete base with CT20 5cm
- Crushed stone base layer 15cm

Final parts of the floors in the sanitary facility are designed in accordance of the purpose of the rooms. The first part where the waste containers will be located, an asphalt will be placed on the floor, while in the second part where the toilets will be located a ceramic tiles are planned to be used.

Reconstruction of the existing enclosed facility designed for sale of meat and dairy products include replacement of the roof construction, doors and windows. The whole facility will be divided with a wall in two parts. Insulation will be placed on the floor and walls to a height of 1.6m for moisture protection. After the insolation, tiles will be placed on the floor and walls. Electrical installation with 6 connection places and 2 lightening places will be placed in the bigger room, while 2 connection places and one lightening place will be placed in the smaller room of the facility.

The sanitary part of the market is designed as Reinforced Concrete (R.C.) construction with massive walls with thickness d=15cm and reinforced on one side with Q131 wire mesh. The figure below presents part of the street facade and part of the side facade of the market and the sanitary facility.

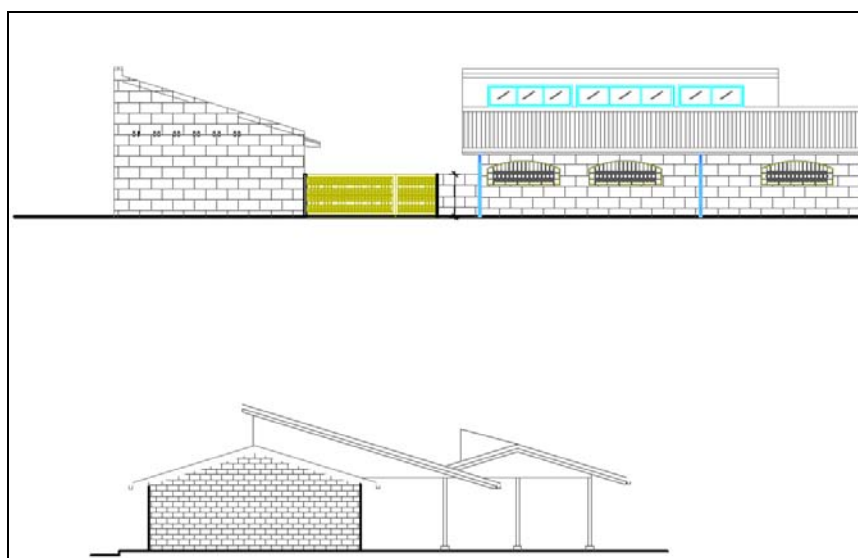


Figure 9 Part of street facade and side facade of the market and sanitary facility in Kratovo
Source: Technical design of the green market Kratovo with technical number 98/13

Outside walls of the market facility will be constructed with reinforced concrete covered with travertine on the outside of the street, while inside the wall will be constructed with Arbib, shown in figure 8. The market will be opened inside, and no internal walls are planned. All outside walls in the sanitary facility will be performed by sandwich wall with ceramic blocks 16/40/25cm. On the outside around the whole facility a part of travertine with

height 50cm will be placed. Inside walls will be constructed with different thickness 12cm, 20cm and 30cm. Walls in the toilets will be covered with ceramic tiles.

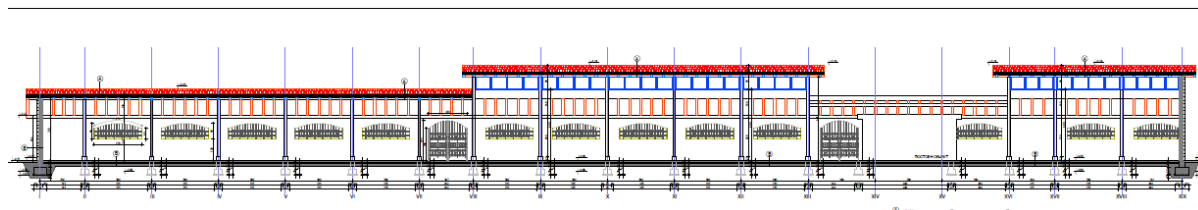


Figure 10 Design of the wall, outside doors and windows towards the street "Gjorgjija Kratovski

Source: Technical design of the city green market Kratovo with technical number 98/13

Outside windows of the market facility will be constructed by aluminum in brown color. Entrance doors of the market will be constructed with wrought iron in color and dimensions in accordance to the area, shown in figure 8. Outside windows in the sanitary facility will be constructed from PVC with thermal glass. The doors will be wooden and quality.

Lightening is designed with halogen and neon lights, properly deployed to provide 350Lux in the working rooms and 150-200Lux in the sanitary facility. Day light will be used through the sized openings and through the open side of the market, where it is possible. There is no heating designed for both facilities. Ventilation of all rooms is designed to be provided in natural way through windows that can be open.

The road planned for access to the green market is an existing collector street "Ss. Gjorgjija Kratovski" that will be used in both sides. In the future, this street is planned to be reconstructed. Delivery of the goods will be provided on the side of the cliff, i.e. on the existing track predicted for movement of small trucks with dimensions 6m/2.1m.

The parking place area is 514m² and is determined by the surface designed for parking of passenger vehicles, with parking place module with width 2.5m and length 5m and for small truck, with parking place module with width 3m and length 7m. 16 parking places are designed for passenger motor vehicles, one for person with special needs and two parking places for trucks that provide delivery of goods or in total 18 parking places. Construction of parking for trucks that provide delivery of goods with an area of 36m² will be performed by reinforced concrete with CT30 and ribbed steel bars $\Phi 8$ with width $d=20$ cm. The remaining parking area designed for customer's vehicles will be performed in the following way:

- Interlock concrete tiles 8cm
- Fine sand layer 7-10cm
- Crushed stone base layer 20cm

Sidewalk with L-153m and width 1m will be constructed in the following way:

- Interlock concrete tiles 8cm
- Fine sand layer 3-5cm
- Crushed stone base layer 20cm

Water supply and disposal of waste water for the green market in Kratovo is designed to be performed through newly designed water supply and sewerage system, and specially constructed system for storm water. Storm water of the facility will be drained by a control through a system of horizontal and vertical pipe gutters, from where it will be accepted in the designed manhole and will be connected to the city storm water system.

For construction of the water supply and sewerage system all materials that will be used while construction are planned to be from first class material ISO 9001 (quality) with fabric attests for control of the quality and guaranty that material satisfy the prescribed standards and regulations. Prior to incorporate any kind of material it is necessary the contractor to obtain written consent for its use by the Investor.

Supply of sanitary, firefighting and drinking water in the newly designed water supply system will be provided by connection pipe $\Phi 100\text{mm}$ from the city water supply system. The sanitary system is designed with polyethylene pipes with diameter $\Phi 25\text{mm}$. Planned is construction of one water meter manhole with dimensions $3 \times 1.5 \times 1.7$. The water supply system is planned to lead towards green areas. Water for fire protection of the facility will be delivered to two outside firefighting hydrants.

Sewerage system will accept waste water from the sanitary facility and will be led through sewerage PVC pipes that will connect the newly designed sewerage manhole. Total quantity of waste water that will be led outside the facility will be $Q=1.4\text{l/s}$. Sewerage collector pipes from the toilets are with slope of 2% and 1%. Location of the sewerage line is planned to be along the axis of the road and through the inspection manhole it will be connected to the existing sewerage system. Plastic sewerage pipes from hard PVC are used with $\Phi 150$ and $L=25\text{m}$; $\Phi 100$ and $L=36.4\text{m}$; $\Phi 70$ and $L=15.66\text{m}$ and $\Phi 50$ and $L=10\text{m}$. Two gutters with $\Phi 70$ will be installed in the sewerage system.

Storm water system leads storm water from the facility through horizontal gutters and vertical pipes to the existing storm water system. Connectors for storm water drainage of the area will be through plastic pipes from the location with appropriate fall and lattice through the street, that are separated in two sides, one to the nearest manhole and the other to the audit procedure manhole that is located 50m west. For drainage of the water from the market roof are designed vertical pipes with profile 10/10. Pipes are with $\Phi 200$ with length $L=265\text{m}$ and $\Phi 100$ with length $L=57\text{m}$. Also, grates with length $L=5\text{m}$ and width 30cm will be installed.

Electricity installation for satisfying the needs of expansion of consumers' power characteristics are in competence of EVN Kratovo. Total installed capacity in the facility will be 11.4kW with coefficient of $k=1.0$. The main cable for supply of low-voltage network is planned to be underground copper cable type PP-Y $5 \times 10\text{mm}^2$ (NYY – $5 \times 10\text{mm}^2$).

Grounding of the facility should be provided, where the whole electrical installation will be connected. Grounding will be provided on the foundation on each pole on the metal construction of the part of the market, and for the sanitary part as a strip grounding systems with steel galvanized strips with FeZn (25x4)mm at depth of at least 0.5m will be performed.

In the whole market, main lightening is planned with fluorescent lights placed hanging on plastic cables in height of 1.6m. Waterproof lights on the ceiling with protection IP54 that are regulated with switchers in the package placed outside the front door will be placed in the toilets. The switchers will be placed in a wall on a standard height.

As concerns market equipment it is planned procurement of 110 market stalls with dimensions 180/90/100 and 15 market stalls with dimensions 120/90/100 constructed of metal construction and covered with plasticized aluminum sheet.

5.3 Alternative sources

To receive most suitable technical solution, some alternative approaches were analyzed in detail. One of the solutions is partially solving the infrastructural network by gradual construction of the water supply system, storm water system, traffic and electrification. This solution is not suitable because there will be a need for digging the newly constructed floor of the market, because the overall infrastructure (necessary for functioning of the planned area of construction) is provided under the floor and sidewalks.

An alternative solution is analyzed for construction of the storm water system. Analyzed is the possibility of the storm water system to be constructed with open channels and natural catchment areas that will lead the storm water into the basin of Kratovska River. However, technical characteristics and configuration of the terrain do not allow construction of the open channels and natural catchment areas. This is the main reason why the engineers in the municipality and the designer team of the project confirm that there is no alternative solution for implementation of the storm water system in the area. The project is constructed in accordance with the valid standards, norms and regulations.

5.4 Conclusions and recommendations

The project is in accordance with the existing positive laws and regulations in the country. The project is part of the General Urban Plan (GUP) of municipality Kratovo and Local Urban Planning Documentation for the CP 983, CP 984/1, CP 984/2 and CP 984/3 for Urban Block 6 – municipality Kratovo, i.e. with LUPD with no.12-12/2 since 28.01.2014 released by municipality Kratovo. In preparation of the documentation is used survey layout in size R1:1000 for municipality Kratovo, analyzing the terrain and determining the spatial limitations of the location.

Estimates and technical documents that are valid in the Republic of Macedonia are used to determine the quantity and intensity of precipitation for dimensioning of the storm water system.

The technical solution is in line with the positive regulation, or any applicable laws, by-laws and standards for the construction and urban planning in the design of linear infrastructure systems in the area of design big trade unit – market (class of the facility B2) and infrastructural systems such as water supply line, storm water system, road infrastructure and public lightening. It is very important that municipality Kratovo proposed construction of this facility with all infrastructural systems as its highest priority on the basis of public hearings and various demands of residents. Other benefits from the project implementation are developed in the following sections of this appraisal.