Municipal Urban Audit
Application to the Balkans

World Bank-Austria Urban Partnership Program
World Bank Institute

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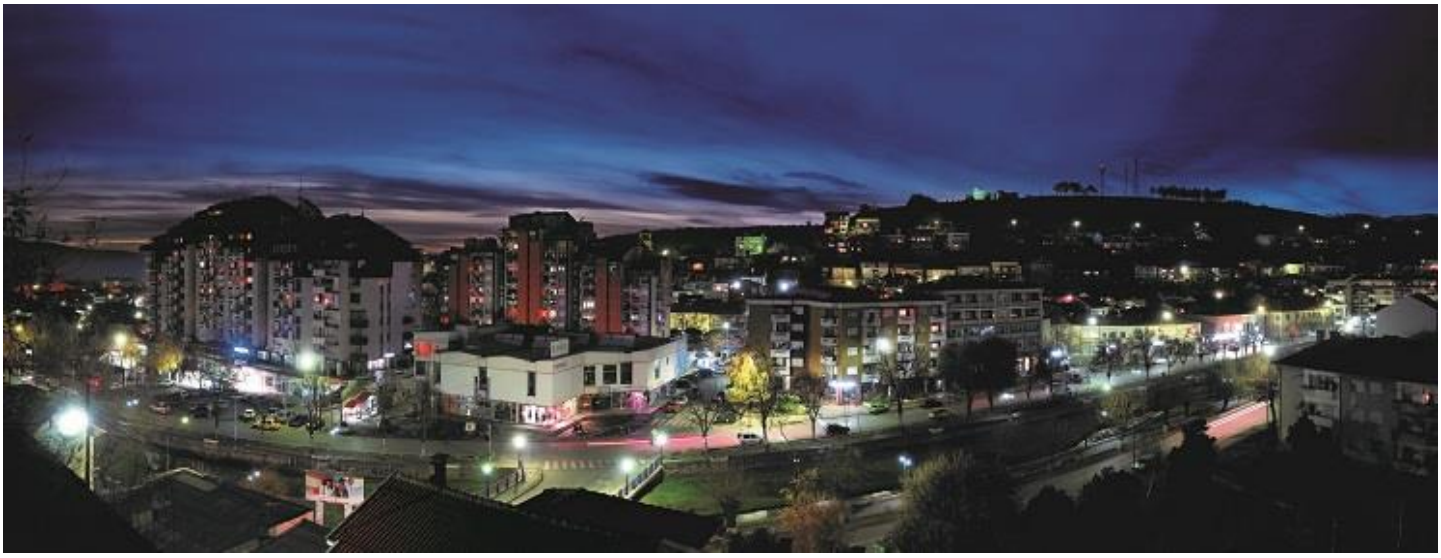
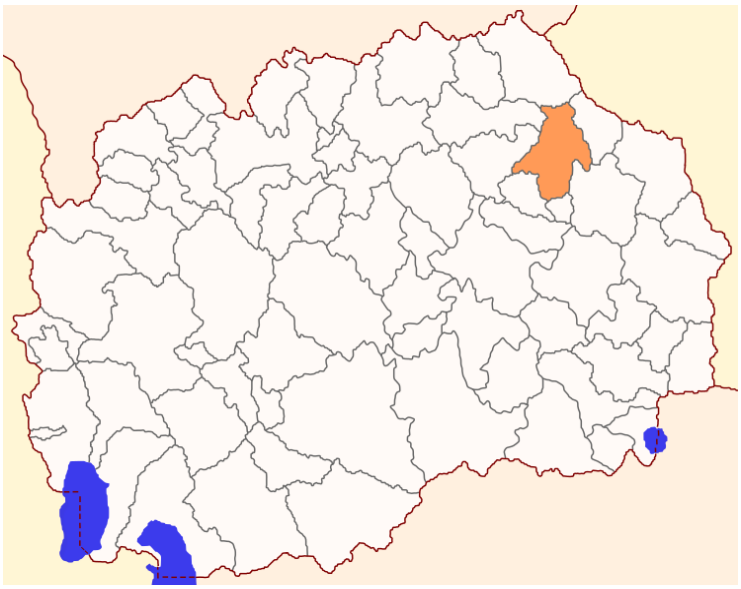
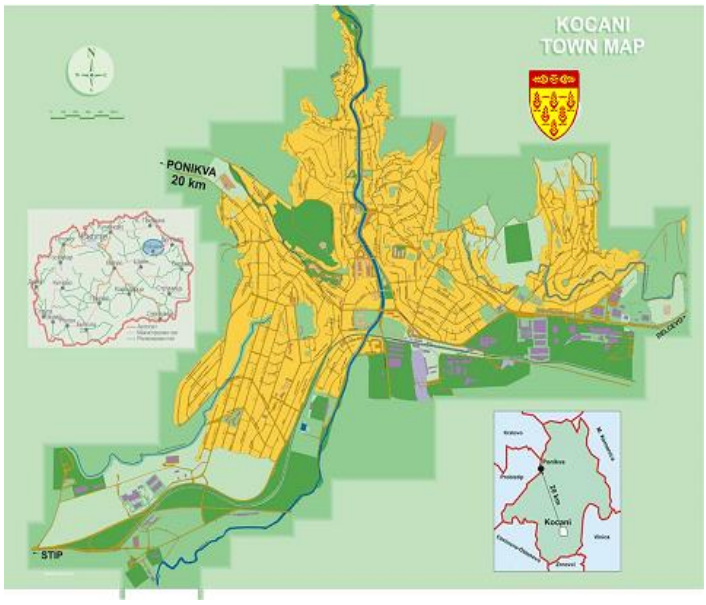






November, 2019

CONTENT

URBAN AUDIT KOCHANI

The ultimate goal of this Urban Audit is to:

(a) Assess infrastructure and services gaps in Kochani and to

(b) Ultimately prepare a Priority Investment Program-PIP with a focus to the development part of the budget matched to the financial absorptive capacity of the Municipality of Kochani-MoK.

1. REGIONAL CONTEXT

- Brief description of the region (major geographical features), distances to other major cities and major access routes:

According to the law for balanced regional development of Republic of Macedonia ("Official Gazette of the Republic of Macedonia" no. 63, 22.05.2007, article 5 of the law, according NTSU nomenclature of territorial statistic units) the territory of Republic of Macedonia is regionally organized in eight statistical regions: Skopje's region, Northeast region, East region, Southeast region, Southwest region, Vardar's region, Pelagonia's region, and Polog's region. In 2009 the Ministry for local – self government prepared strategy for balanced regional development of the RM for the period 2009 – 2019 (Official Gazette of RM no. 119/09).

Centre for development of the East planning region was established in accordance with the Law on Balanced regional development in May 2008. The Headquarter of the Centre is in the municipality with the greatest number of citizens – Shtip. Centre for development of the East planning region includes 11 municipalities: Berovo, Vinica, Delchevo, Zrnovci, Karbinci, Kochani, Makedonska Kamenica, Pehchevo, Probishtip, Cheshinovo-Obleshevo and Shtip, extends to the territory of 3537 square meters, i.e. spreads over 14% from the territory of Republic of Macedonia and has 181.858 inhabitants. The current President of the Council is Mr. Nikolco Ilijev, ongoing Mayor of the municipality of Kochani. More information about East planning region you can find at - www.eastregion.mk.

The municipality of Kochani is one of the 11 municipalities within the East planning region, founded on 02.06.2005 (in the current borders).The ongoing Mayor of the municipality is Nikolco Ilijev. Neighboring municipalities of the Kochani are: municipality of Kriva Palanka at north, municipality of Kratovo at northwest, municipality of Makedonska Kamenica at west, municipality of Vinica at south west, municipality of Zrnovci at south, municipality of Cesinovo-Obleshevo at southeast and municipality of Probishtip at west.

Kochani is situated in the heart of Eastern Macedonia, 120 km away from Skopje, in the middle of the river Bregalnica, between the Plackovica Mountains on south and the slopes of Osogovo on north. Municipality of Kochani covers area of 382 km² of which approximately 80% of the whole territory is in the highland area, while only 20% is in the lowland area which includes the town of Kochani. In the municipality of Kochani there are 38.000 inhabitants. There is a magisterial road passing through the town, and through it the town is connected with Shtip (30 km) and Veles (70 km), and then it enters on the expressway Skopje-Gevgelija which is the connection with the Central part of Macedonia. Kochani is a crossroad of many regional roads by which it is connected with the nearest towns on east: Vinica (10 km), Makedonska Kamenica (30 km), Delcevo (55 km), Berovo (60 km), The Bulgarian border (65 km), and on the west it is connected with Probishtip (36 km) and Kratovo (48 km). With the construction of the new Stip-Miladinovci highway, the travel time to Skopje has been shortened and citizens are reaching the capital city faster. The railway line is established in 1926, and it connects Kochani with Shtip – Veles -– Skopje.

Figure 1. Industrial zone in the municipality of Kochani

Regional economy and boundaries of the city's hinterland

Kochani lays on the biggest geothermal reservoir of the Balkan Peninsula. Kochani geothermal region or the Podlog-Banja bearing, is located on the Northeastern part of Republic of Macedonia, exactly among 41º 40' and 42º 00' north geographic amplitude and 22º 00' and 22º 30' east geographic longitude. On the basis of complete performed interdisciplinary explore works it is certifi cated as one of world' s biggest not magmatic springs of geothermal water, with total balanced static reserves from 150 million m³, with middle temperature of 75ºC. From chemical side of view this geothermal water is sodium bicarbonate, with pH value from 7, not aggressive in closed system. The presence of Selenium, Fluorine and other elements is in the permissible limits and gives special performances to water for its usage and drinking. Since February 2011, the geothermal water from the system Dolni Podlog-Kochani has been used and has been returned to the land again. The so called doublet system provides rational and ecological threat of the geothermal prospective.
With the modernization, its capacity was enlarged with new 50 liters hot water in sec or 350 thousand m³ water with temperature from 75º C, for a year. Cubic water like this energetically substitutes 4.2 kg of petroleum jelly. Now the geothermal energy is used for heating 20 ha glasshouses in Kochansko Pole, heating three schools, the Trial Court and the Sports hall. The first investigations of this source were in 1980, when the fi rst pump was dug out. In last three years there were made two pumps, with total capacity of 300 liters in second. According to the studies of the American company „Geotermaks " and the Austrian consortium ARGE GTM, the water in the Kochani geothermal reservoir owns exclusively favorable chemical characteristics. The researches on this source show that on dept of about 2000 m there are certain reserves of water with 114º C temperature that can make enough pressure for activation of turbines for electricity production with power between 3.2 and 5 megawatts or approximately as the electricity production of two small Macedonian hydro stations.
North of Kochani there are the Osogovo Mountains, a massive, second by area in Republic of Macedonia, with its highest peak Ruen, 2252 m. This mountain is reach with beech forest; subalpine grass pastures and bushes of juniper trees, with Mountain Rivers and streams and with flora and fauna. This mountain is identified in the indicative card of the Pan - European ecological network of South East Europe as an important ecological corridor for deer game, and it is acknowledged as an important vegetation area. Only 20 km north of Kochani, in the embrace of Osogovo Mountains, on 1580 m above the sea level high, the tourist locality Ponikva is situated. There are accommodation capacities and sport objects built. Ponikva is mostly visited during the winter. The funs of the white sports, have two ski-lifts on disposal. The monastery „St. Vasilij Veliki" was built on Ponikva. The most attractive part of the Osogovo mountains scope is the hunting reservoir rich with high

trophy deer: ordinary deer roebucks, mouflon deers and wild boars. The reservoir is spread on 1.300 ha and it is popular among the sport hunters.

The climate is mild-continental, influenced by altered Mediterranean climate which penetrates along the river Bregalnica. The average ambient temperature is +13C°. The minimum absolute annual temperature is -25.4C° and the maximum absolute annual temperature is +39.8C°.

According the 2002 census the municipality has 38.092 inhabitants and it is one of the largest within the East planning region. Demographic structure of Municipality of Kochani by ethnicity is: Macedonians 93.12%, Roma 5.12%, Turks 0.83%, Vlachs 0.51%, Serbs 0.18%, and other including Albanians and Bosnians 0.245%.Up to 20 years are 26.6 % of total population of MoK, up to 40 years are 29.5% of total population of MoK, up to 60 years are 28.9% of total population of MoK more than 60 years are 14.9.2% of total population of MoK.

Municipality of Kochani is industrial, educational and communicational center. In MoK there are faculty of economy from the University of "Goce Delchev" Shtip", 5 elementary schools, 2 secondary schools, hospital, number of primary health care organizations, pharmacy, bank branches and post office.

Demography

Table 1. Basic demographic and economic data about Kochani

Demography			**Quality of life**	
Number of settlements	28		Infant mortality Kochani 2017 (within 24h)	1
Area in km^2	382		Number of births Kochani 2017	302
Population census 2002	38,092		Age dependency Kochani 2002	0.41
Population density Kochani	100		Infant mortality Macedonia 2017 (within 24h)	57
Population density Macedonia	82		Number of births Macedonia 2017	21,754
Number of dwellings	14,440		Age dependency Macedonia 2002	0.46
Number of households	11,981		**Economy**	
Average number per household	3.17		GDP per capita in US $ Kochani 2002	3,172
			GDP per capita in Euros East region 2017	4,124
			Unemployment rate in Eastern region 2017	12.9
			Unemployed persons in Kochani April 2019	2,484
Infrastructure			GDP PPP growth Kocani 2002/1998	-1.7
Total length of roads (of which asphalt) in km for 2018 Kocani	164 (56)		GDP per capita in US $ Macedonia 2017	4,421
Total length of roads (of which asphalt) in km for 2018 Macedo-nia	9,878 (5,373)		Unemployment rate in Macedonia 2017	22.4
			Unemployed persons in North Macedonia 2019	103.083
			GDP PPP growth Macedonia 2002/1998	5.2

Source: State statistical office-SSO

On average, the economy of Kochani was less than half the economy of Macedonia measured by the GDP per capita PPP in 2002 but as part of the Eastern statistical planning region it is almost the same. Compared to Macedonian average, the economic growth in Kocani was negative in the period 2002/1998 and the unemployment is decreasing both in Kochani and in Macedonia. The closed industrial capacities during transition were the reason for the weaker economy as measured also by the negative economic

growth of almost -2% in the period 1998-2002 while in the same period the economy in Macedonia was growing by 5% in GDP PPP terms. On the other hand, with the subsidized FDIs and the techno-industrial zones the unemployment is decreasing. The infant mortality within the first 24h in Kochani for 2017 is only one while total in Macedonia for 2017 is 57 and population density is higher in Kochani than the average population density for Macedonia for 2002 when the last census was conducted.

Table 2: Population, households and dwellings by settlements (Census 2002)

	SETTLEMENT	POPULATION	HOUSEHOLDS	DWELLINGS
1	Kochani	28,330	8,858	10,541
2	Beli	466	141	150
3	Gorni Podlog	704	191	207
4	Gorno Gradche	13	9	36
5	Grdovci	1,288	420	446
6	Dolni Podlog	476	151	161
7	Dolno Gradche			
8	Jastrebnik	48	23	34
9	Leshki	29	17	35
10	Mojanci	556	166	184
11	Nivichani	343	96	120
12	Pantelej	64	29	55
13	Pashidzakovo			27
14	Polaki	113	59	180
15	Pripor	1	1	10
16	Rajchani	33	17	17
17	Trkanje	1,225	389	440
18	Crvena Niva			11
19	Orizari	3,776	1,176	1,429
20	Bezikovo	8	4	13
21	Vranici	10	5	24
22	Glavovica	59	23	48
23	Kostin Dol	20	10	26
24	Nebojani	46	20	28
25	Novo Selo	15	4	16
26	Preseka	68	33	49
27	Pribachevo	388	131	150
28	Rechani	13	8	17
	Total	**38,092**	**11,981**	**14,464**

Source: Kochani municipality

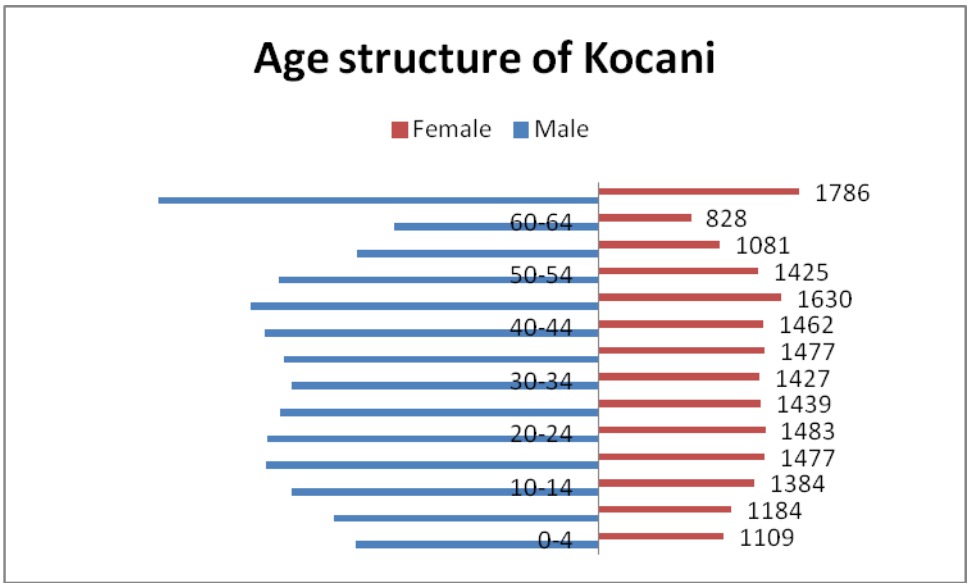


Figure 2. Age structure of Kochani

The age structure shows that 10.2% of the total Kocani population is more than 65 years old. This is lower than the Macedonian average (10.7%).

Table 3: Age distribution by gender

	Total	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-
Total	38092	2143	2338	2718	2941	2937	2817	2716	2780	2953	3079	2831	2133	1804	3902
Male	19192	1109	1184	1384	1477	1483	1439	1427	1477	1462	1630	1425	1081	828	1786
Female	18900	1034	1154	1334	1464	1454	1378	1289	1303	1491	1449	1406	1052	976	2116

Source: SSO 2002 census

Table 4: Urban/rural repartition

Urban/Rural	
Urban	Rural
74%	26%

Source: Municipality of Kochani, 2002 census

Table 5: Population by ethnic groups

	Macedonians	Turks	Roma	Vlachs	Serbs	Other
Number	35,471	316	1,950	194	69	95
%	93.12	0.83	5.12	0.51	0.18	0.25

Source: Municipality of Kochani, 2002 census

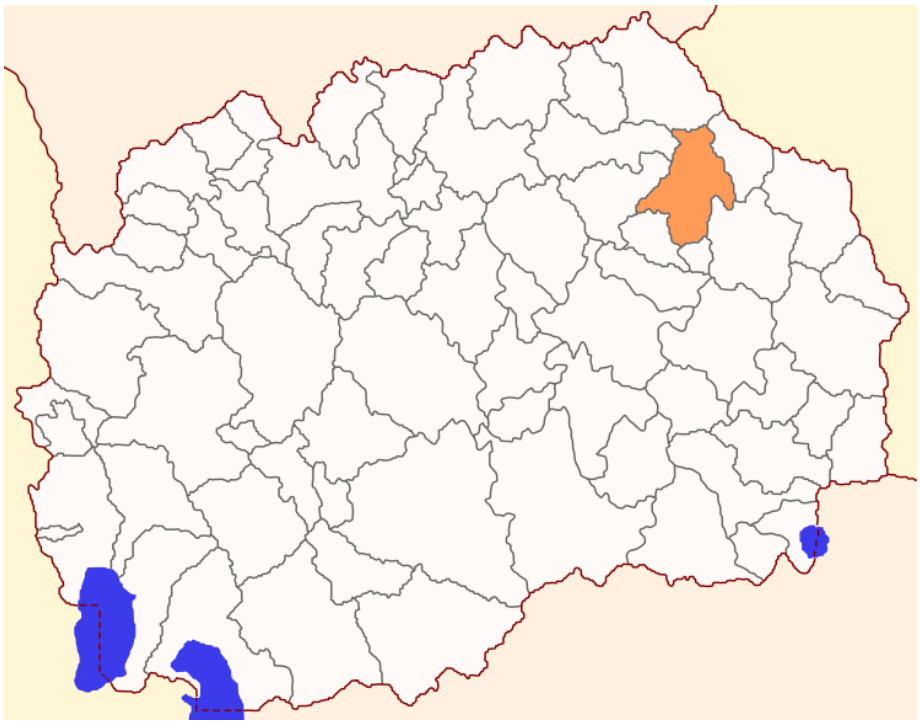


Figure 3. Location map of the Municipality of Kochani

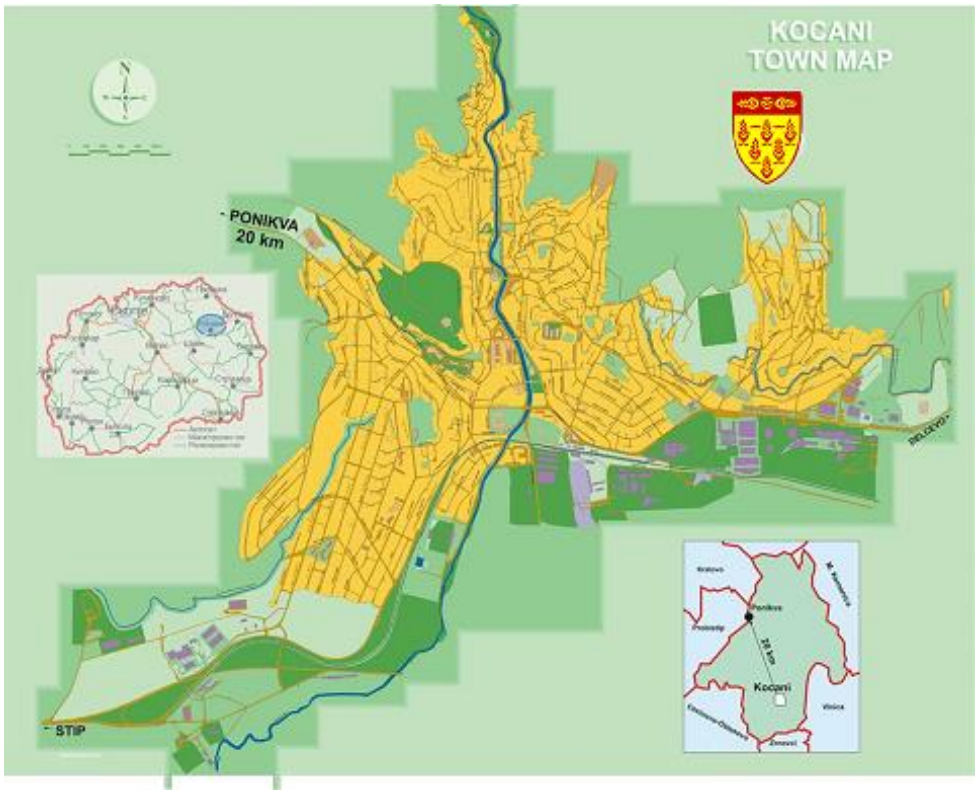
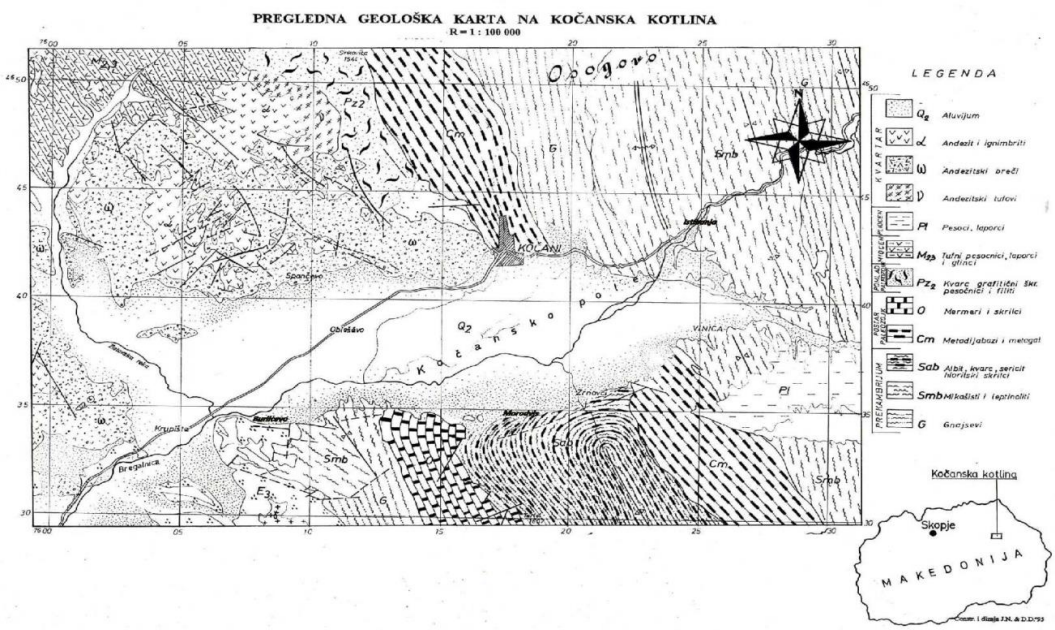


Figure 4. Kochani city map

More information about the Municipality of Kochani you can find at - www.kocani.gov.mk.

2. URBAN SETTING AND ORGANIZATION OF THE CITY

(a) The geological screening of the Kochani valley shows that the aquifer is settled in the tectonic ditch in the valley, at the contact between both tectonic units Serbian-Macedonian massive from East and Vardarian zone from west, respectively on the edge of the Kratovo-Zletovo volcanic area. The aquifer from the aspect of regional geological belonging is on the line of anomaly zone Panon-Menderes which is evidently with higher heat flow. The bed is built from send-clay layers which successively are changing with tuffs and tuff rocks with approximate thickness from several hundred meters under which there is a volcanogenic sediment formation of Kratovo-Zletovo region. In the basis of these rocks especially in the western part of the valley are developed upper Eocene carbonate rocks which from the side go over flesh, and the basis is built from Paleozoic and Proterozoic carbonate schist.



The aquifer is an infiltration type with collector center from Paleozoic carbonate schists. In the genetic meaning, the aquifer is result of superposition entirety where through collector carbon formation with high heating conductivity from 3 W/mK is laying tuff material with relatively low heating conductivity of 1.5 W/mK, which practically one to the other setting behave as insulator through conductor, which means interruption of the conduction heating flow in the covering part of the aquifer.

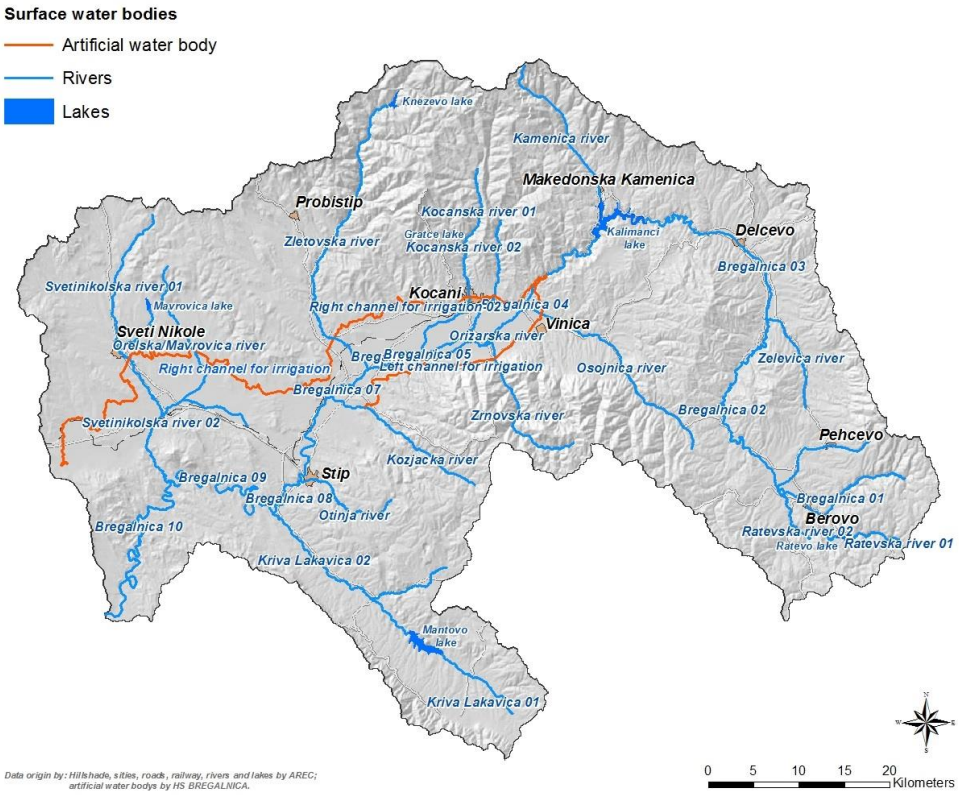
(b) Hydrology on the Kochani valley is abound with smaller and bigger rivers, streams and underground waters. The main ground river network creates Bregalnica river with its tributaries (River Kochanska and River Orizarska) which represent the administrative line between municipality of Kochani from one side and Vinica and Zrnovci municipalities from the other side.

The present water supply system in Kocani depends on groundwater from a well-field in Grdovsko Pole in the vicinity of the villages Grdovci and Pribačevo and close to the Bregalnica River. The groundwater is pumped to the treatment plant with the use of two subsequent pumping stations.

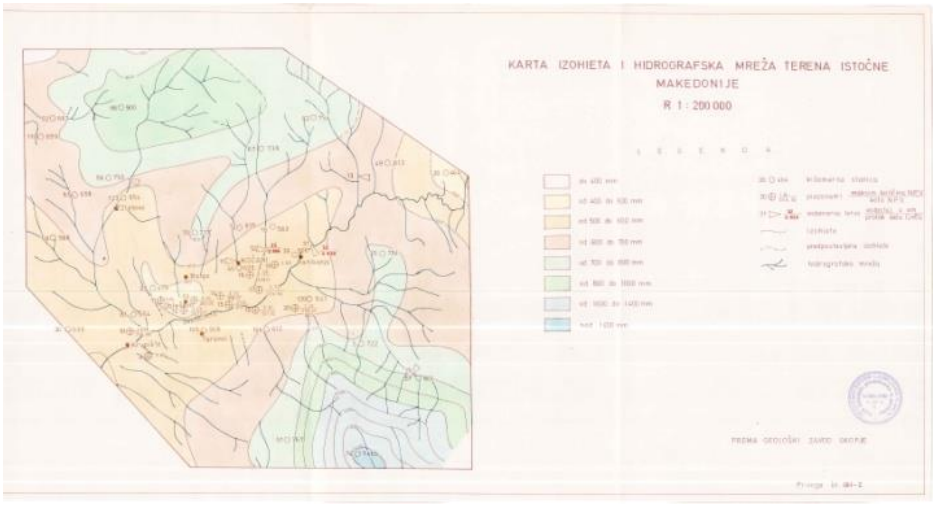
Wastewater from the city of Kochani and from the other neighboring villages is discharged without any treatment into local public river bodies (River Kochanska and River Orizarska), which finally flow into Bregalnica River. This leads to significant water and environmental pollution with unacceptable hygienic conditions.

The dam “Gradce” at the Kocanska River was constructed in the period 1958-1959. The dam is made of concrete and it is arch-gravity shaped and its basic assignation is to irrigate the area of 576 ha and supply with water the factory of cellulose and paper in Kocani. The height of the dam is 29.0 m. The total volume of the accumulation is 2 160 000 m³, of which 1 780 000 m³ is useful.

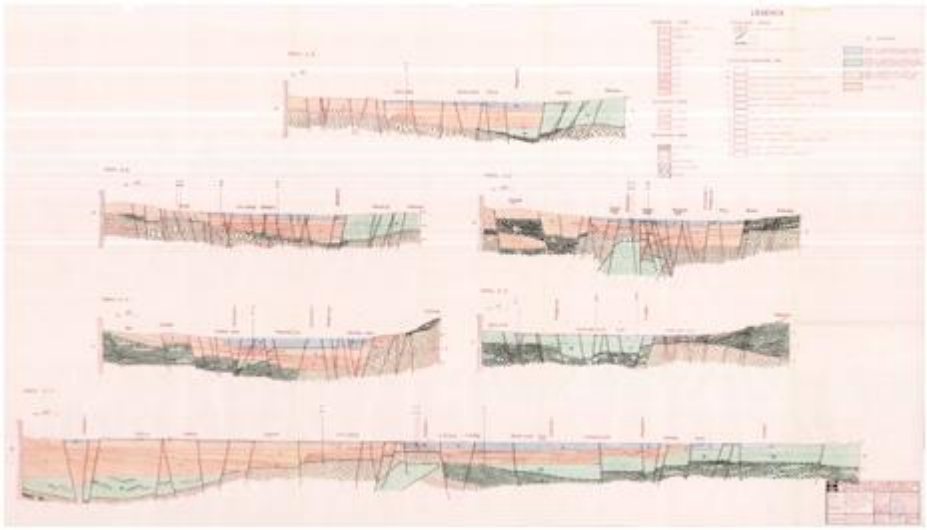
Utilization of the aquifer is organized through not completely constructed system Geoterma which represent technical-technological entirety of exploitation and reinjection system. The installed capacity is 300 l/sec geothermal water with average temperature from 75°C, by chemical structure the water is sodium-bicarbonate type with pH 7, non-aggressive in the closed system.

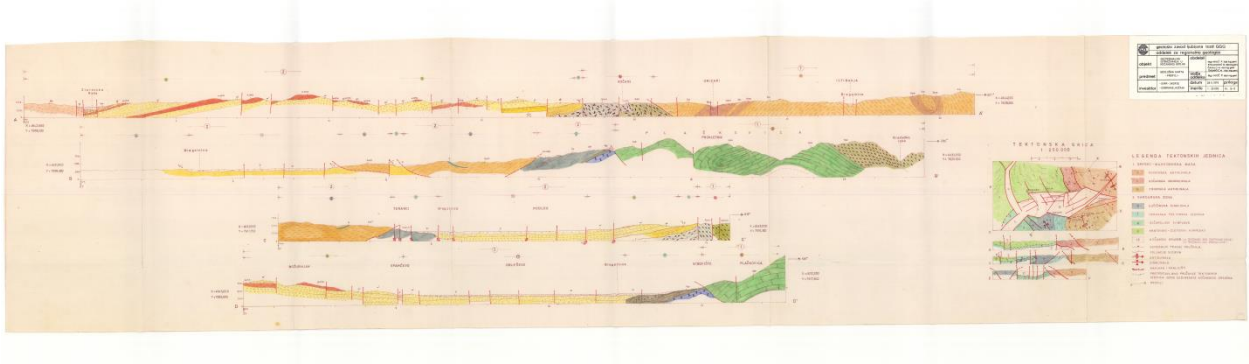


(c) Hydrogeology

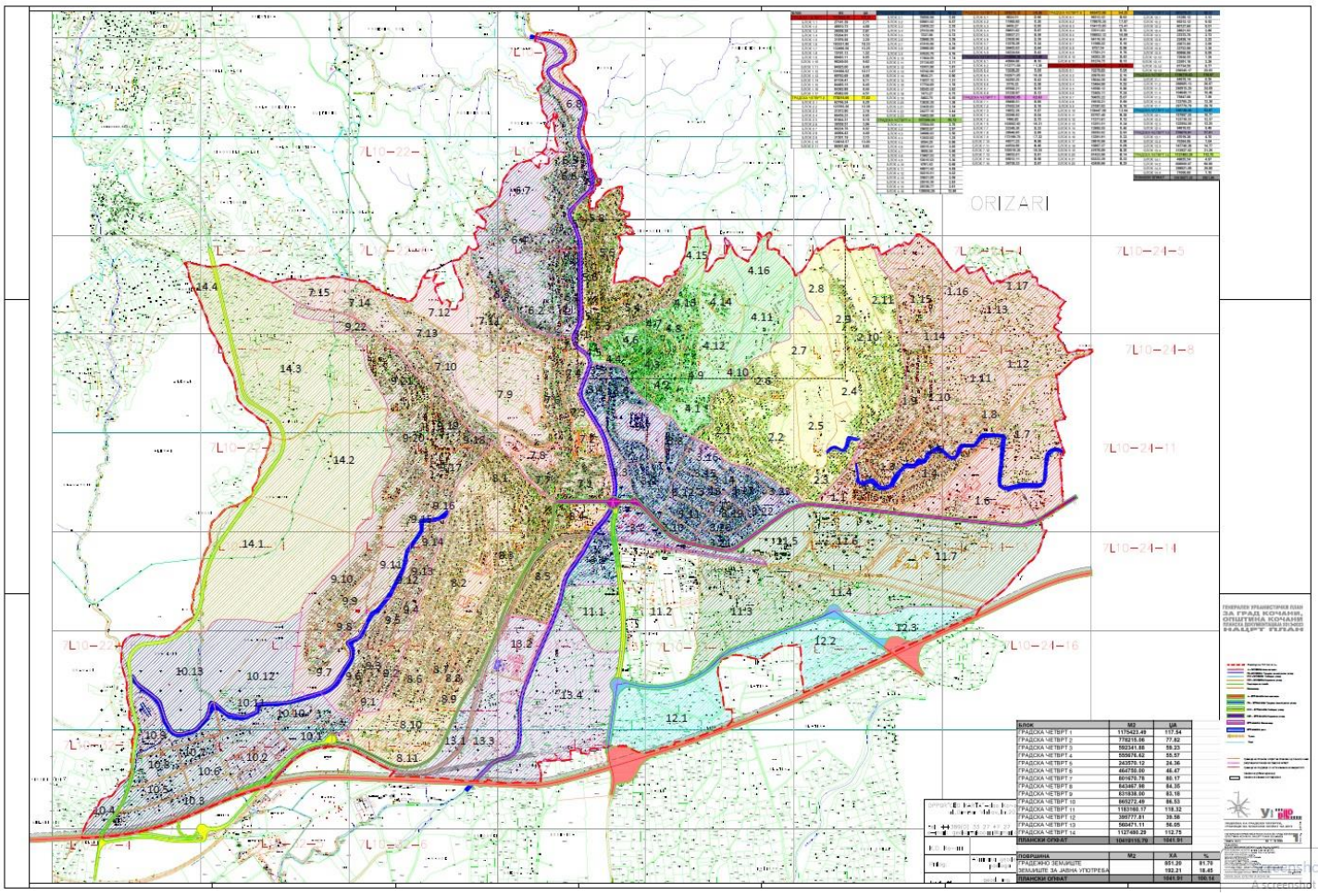


Aquifers – overview (age of the intercepted strata): Carbonate - metamorphic schist; Pz-Prz age





(d) Urban units of Kochani with summary numerical data



General urban plan Kocani - Summary numerical data

ГУП КОЧАНИ-ЗБИРНИ НУМЕРИЧКИ ПОКАЗАТЕЛИ																				
		А (ДОМУВАЊЕ)	Б (КОМЕРЦИЈАЛНИ И ДЕЛОВНИ НАМЕНИ)	В (ЈАВНИ ИНСТИТУЦИИ)	Г2, Г3, Г4 (ЛЕСНА ИНДУСТРИЈА, СЕРВИСИ И СТОВАРИШТА)	Г1 (ТЕШКА ИНДУСТРИЈА - ЗАГАДУВАЧКА)	Д1 (ПАРКОВСКО ЗЕЛЕНИЛО)	Д2 (ЗАШТИТНО ЗЕЛЕНИЛО)	Д3 (СПОРТ И РЕКРЕАЦИЈА)	Д4 (МЕМОРИЈАЛНИ ПРОСТОРИ)	Е1 (КОМУНАЛНА ИНФРАСТРУКТУРА) - ЈАВНИ ОТВОРЕНИ ПРОСТОРИ, УЛИЦИ И ЈАВНИ ПАРКИНЗИ	Е2 (КОМУНАЛНА СУПРАСТРУКТУРА)	МЕШАНА НАМЕНА	ПОВРШИНА ПОД СЕКУНДАРНА СООБРАЌАЈНА ИНФРАСТРУКТУРА	МИНИМАЛНИ ПОВРШИНИ ПОД ЈАВНО ЗЕЛЕНИЛО, ОДНОСНО ЈАВЕН ПРОСТОР	ПОВРШИНА ПОД ПРИМАРНА СООБРАЌАЈНА ИНФРАСТРУКТУРА	ПРОСЕЧНА БРУТО ИЗГРАДЕНА РАЗВИЕНА ПОВРШИНА ЗА ДОМУВАЊЕ М2	МАКСИМАЛНО ДОЗВОЛЕН БРОЈ НА ЖИТЕЛИ	ПРОСЕЧЕН БРОЈ НА СЕМЕЈСТВА	МАХ. ДОЗВОЛЕНА НЕТО ГУСТИНА НА НАСЕЛЕНОСТ Ж/ХА
ЧЕТВРТ. БРОЈ	ВКУПНА ПОВРШИНА	ХА	ХА	ХА	ХА	ХА	ХА	ХА	ХА	ХА	ХА	ХА	ХА	ХА	ХА	ХА	ХА	М²	ЖИТ.	СЕМЕЈСТВА	ЖИТ./ХА
01	117.54	83.03	0.00	4.73	9.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.63	1.18	1.46	302634	6725	1868	81
02	77.82	63.66	0.00	1.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.47	0.00	11.67	0.78	0.08	229171	5093	1415	80
03	59.23	32.68	0.62	4.24	0.00	0.00	1.83	0.27	0.65	0.00	1.10	2.37	2.18	8.89	0.59	3.84	132370	2942	817	90
04	55.57	43.94	0.00	0.67	0.00	0.00	0.00	0.00	1.16	0.00	0.85	0.00	0.00	8.34	0.56	0.06	148304	3296	915	75
05	24.36	16.40	0.00	0.24	0.00	0.00	0.00	0.00	2.16	0.00	0.00	0.00	0.00	3.65	0.24	1.70	52389	1164	323	71
06	46.47	34.75	0.00	0.71	0.00	0.00	0.00	0.00	2.42	0.00	0.00	0.00	0.00	6.97	0.46	1.37	107910	2398	666	69
07	80.17	48.94	0.00	3.99	0.61	0.00	9.80	0.00	0.00	0.99	0.33	0.00	1.63	12.03	0.80	1.24	187179	4160	1155	85
08	84.35	58.57	0.00	8.15	0.34	0.00	0.00	0.39	0.00	0.00	1.12	0.00	0.00	12.65	0.84	2.71	237211	5271	1464	90
09	83.18	69.28	0.00	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.48	0.83	0.00	233810	5196	1443	75
10	86.53	0.00	0.00	0.00	68.87	0.00	0.00	0.33	0.00	0.00	0.37	0.00	0.00	12.98	0.87	3.70	0	0	0	0
11	118.32	2.29	3.19	0.00	70.27	0.00	0.00	0.00	0.00	12.32	0.00	6.28	0.00	17.75	1.18	4.57	7224	161	45	70
12	39.58	0.00	4.40	0.00	26.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.94	0.40	12.25	0	0	0	0
13	56.05	12.26	11.64	0.00	1.44	0.00	0.00	3.44	10.78	0.00	0.00	2.05	0.00	8.41	0.56	5.87	38826	863	240	70
14	112.75	92.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.91	1.13	3.18	256784	5706	1585	62
Вкупно:	1041.91	557.83	19.85	24.33	177.36	0.00	11.63	4.42	17.33	13.32	3.78	11.17	3.81	156.29	10.42	42.04	3	42974	11937	77
Процент:	100	54%	2%	2%	17%	0%	1%	0%	2%	1%	0%	1%	0%	15%	1%	4%				

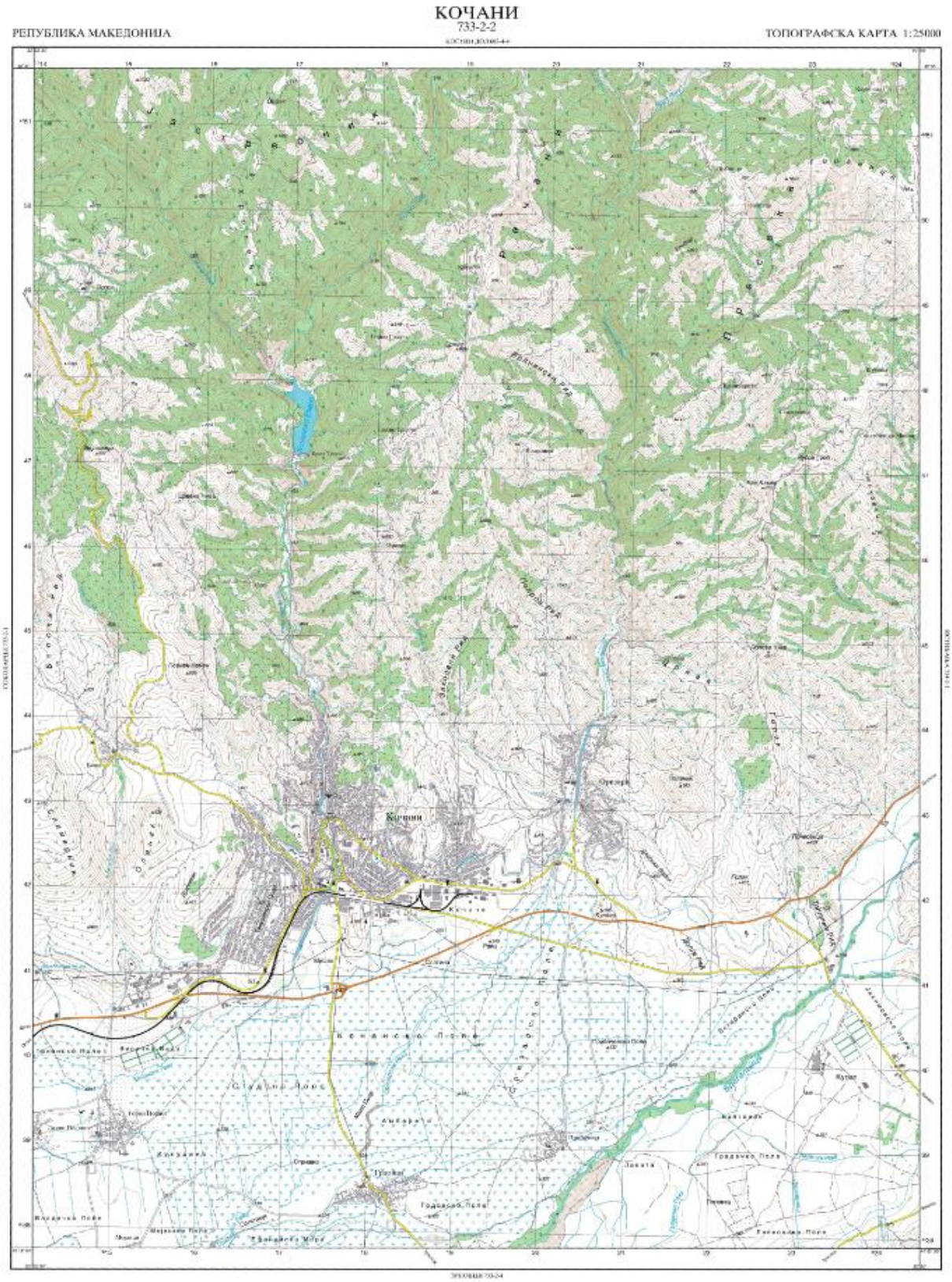


Figure 5. Topographic map of the MoK

(e) Total area of MoK is 38200 ha of which 80% is hilly and mountainous area, while 20% is field territory which includes the town of Kocani.

Hilly - mountainous area:

- Forest around 16250 ha
- Pastures around 7640 ha
- Farmland around 6670 ha

Field area:

- Farmland around 6500 ha
- Non-arable around 1140 (in non-arable area includes the land under the buildings).

From these data we can conclude that in Kochani is about 42% forest, 20% below the pasture, 35% is under arable land and 3% non-arable.

The relief structure of Kochani Municipality is consists of several forms of relief, including:

- Flat land
- Hilly land
- Mountainous part

Flat land relief constitutes terrain with altitude of 290-500 m despite Kochani fields spanning between Kocanska and Orizarska River it is consists with other smaller fields and places in areas of the field countryside. The bottom of the valley is relatively flat, with fertile soil and available hydrographic network allows crops especially rice exist in remarkable natural conditions and provides high development agriculture.

Hilly land stretches around flat-bottomed basin between 500 and 1000 m altitude and it is composed of several types of hilly terrain: volcanic, karst hills and serpentine. In this section, land is so fertile and commonly grown crops, and vast grasslands enable the development of animal husbandry.

Mountain area is located at an altitude of over 1000 meters and is an attractive relief structure composed of a large number of ridges and peaks. This section is rich in forests and pastures and is suitable for development of forestry and farming in the summer. There are conditions for growing rye, potatoes and berries (raspberry, blackberry, blueberry, etc.).

Climate, relief and hydrographic heterogeneity enabled in Kochani existing of more forest communities. At an altitude of 1000 meters forests is quite degraded and is represented by hazel, and hornbeam. Oak belt occupies the hilly terrains and mountainous areas of lower Plackovica and Osogovo to 1400 m mainly constitutes oak „gorun“. It is of poor quality timber and floristic composition changed quite a high degree of degeneracy.

Over the oak occurs the beech forests. It start from 1400 m and extend to 1650 meters above sea level. They occur as the lower and upper beech forest belt. Here is a typical mountain relief.

Coniferous occur in small areas. They are represented by black and white pine, fir and spruce. Planted artificially, and for Kohcani are particularly significant ones planted in the immediate environment of the city because of its influence local climate.

(f) The territory of MoK is abound with smaller and bigger rivers, streams and underground waters. River Bregalnica, which runs down the middle of the field is the main recipient in the Kochani Valley It receives all river flows of this area and there are ten of the left side from Osogovo and six rivers of the right side from Plackovica. Major river tributaries of Bregalnica are: from the right side Zletovska, Kochanska and Orizarska River and from the left side Osojnica and Zrnovska River. Apart from them in the Kochani valley there are lot of smaller rivers and streams.

Kochanska River rises from Osogovo in the locality Retki Buki at an altitude of 1630 meters, and flows in Bregalnica over village Chiflik at an altitude of 295 m. Into Bregalnica carries water from an area that is large 198 km². In mountainous part receives a greater number tributaries, such as Lopenska, Ramnobrdska and Mala River. There is quite a large drop (39.3‰), allowing in her bed near the village. D. Gradche to build a dam named "Gradche".

Orizarska River rises under Tsarev Peak on Osogovo at an altitude of 1510 meters, and in the Bregalnica flows over village Mojanci at an altitude of 320 m. It is 30 km long and it arises from two rivers Bela and Crna River which merge near the village Rechani. It covers an area of 133 km² and has a drop less than 39.5‰. To the village Orizari it is known as Orizarska River, then across the field to the lowland estuary flowing like a river under the name Masalnica.

General characteristic of all rivers is having the highest water level in April and May when the snow melts in high mountainous areas, and the lowest in July and August, when precipitation is minimal air temperature is high and evaporation big.

In Kocani, the mid-year temperature is above 13°C and middle monthly temperature is 23°C. This area is characterized with high absolute amplitudes and big number of hot days with a temperature above 30°C which are followed by a low percentage of humidity and drought. It can be said that the influence of the modified Mediterranean climate comes to here, which penetrates along the river Vardar and river Bregalnica. In Kocani, there are 277 days with a temperature higher than 5°C and 224 days with a temperature higher than 10°C and 100 days with a temperature above 20°C.

The average temperature and rain falls in the city of Kochani during 1981-2010

Year: 1981-2010	Monthly average minimum temperature (°C)	Monthly absolute minimum temperature (°C)	Monthly average maximum temperature (°C)	Monthly absolute maximum temperature (°C)	Monthly average temperature (°C)	Monthly average Precipitation/ Rainfall (mm)
January	-3	-20.5	6.4	19.0	2.2	29.3
February	-1.7	-19.2	9.3	22.0	4.4	33.1
March	2	-13.5	14.2	27.8	9.0	31.5
April	6	-14.0	19.2	32.2	13.6	46.2
May	10.6	-5.0	24.3	34.5	18.6	42.9
June	13.7	2.5	28.7	40.0	22.6	47.6
July	15.4	2.0	31.3	42.0	24.8	40.9
August	15.3	5.5	31.1	40.0	24.6	36.0
September	11.4	-0.5	26.7	37.0	20.1	34.3
October	7	-7.0	20.8	32.2	14.8	45.7
November	2.1	-11.2	13.1	27.0	8.2	55.1
December	-1.2	-21.2	7.4	21.2	3.5	50.2

Note: Total average sunny days per year in Kocani is 299.

(g) Municipality of Kocani has adopted the General Urban Development Plan for the city Kocani in 2016. The surface of the planning area is in Kocani Valley, east and west of the Kocani River. The General Urban Plan covers 1033 ha. and divide the city into nineteen separate urban areas which will be elaborated in Detail Urban Plans. The concept of GUP makes up the following system of purpose classes:

A- Housing
B- Commercial and Business Purposes
V- Public institutions
G- Production, distribution and services
D- Green areas and recreation
E-Infrastructure
and other surfaces intended for traffic

Within the planning area, 45.89 % of the space is occupied for basic purpose – Housing, 3.51% of the space is dedicated for Commercial and business purposes, 2.83% for Public Institutions, 19.45% for Production, distribution and services, 7.65 % - Green areas and recreation, 1.42 % for Infrastructure and the rest of surface for traffic.

For housing areas, the Detailed Urban Plans have to be developed, especially for the new city blocks in the western part. In this plans, a lot of construction parcels should be foreseen and planned, with possibility to be sold through public bidding, which is income of the MoK. This means home for every family and at the same time - development of construction activities. Once the MoK was authorized to dispose with the construction land in state ownership, 310 construction parcels have been sold in the urban city area.

In the new GUP, two industrial areas have been planned: in the western part of the city, partly built with existing Detail Urban Plans and part where DUP's should be prepared and adopted. The planning area covers about 30ha, it is owned by the state and predicted for light and unpolluted industries. In DUP's should be defined construction parcels with intended G-land use: production, distribution and services, and with their realization, MoK will provide revenue from sales of land and opportunity to build manufacturing facilities that means new investments and employment. The same land use is planning on the south part of the city, near the A3-motor way road.

Sport and recreation zones are predicted in GUP and they will represent wonderful places for entertainment of the entire population in MoK and surrounding towns. Zones modalities for sport and recreation are provided in northern part of the city in place called „Bavchaluk", where construction lots are foreseen to be located along the river „Kocani" and it represents a potential area for tourism development of the MoK. The second area for sport and recreation is situated in the southern part of the city SRC „ZORIK", which is partially built and where a pipe line of geothermal water passes by. A third planned location for sport and recreation is SRC „Ponikva" where already built infrastructure for winter tourism (two ski lifts) and accommodation facilities have been build. Now days the track for extreme sports Ski sports is building as well as highlighting the existing ski trails for night skiing. Up to day, 107 construction lots for weekend houses and 3 construction lots for hotels have been sold. This means that SRC „Ponikva" best known ski resort in eastern Macedonia.

The main road which connects Kocani on the east with R.of Bulgaria (60 km), Delcevo (55 km) and Stip (30 km), Veles (70 km), and then linked to Skopje-Gevgelija highway to the west, goes through the town. This represent the main link from R.of Bulgaria to Central Macedonia. Already has a contract for construction of an express motor way road from Kocani to Stip, which will offers access to Stip-Veles.

Currently, Municipality of Kocani is preparing a Detail Urban Plans for five from nineteen urban quarters.

- Detail Urban Plan for urban quarter "5" . This urban quarter is located in the northeast part of the city .The concept of the solution stems from the existing situation. The surface of the planning area is mainly built but it has a large area that is unfinished. The plan establishes building plots and building areas in accordance with the City's GUP and the situation on the field. The building parcels are planned with a group of classes of purpose: Housing, Public Institutions, Production, Distribution & Services, Green areas and recreation and infrastructure. The planning scope is defined in 34 blocks and consists of 1545 building parcels.
- Detail Urban Plan for urban quarter "6". The space defined for the development is located in the central part of Kocani.The building parcels are planned with a group of classes of purpose: housing, Commercial & Business Purposes, Public Institutions, Production, Distribution & Services, Green areas and recreation and E-infrastructure. Within the planning area are formed 1516 building parcels. This plan will generate development in the heart of the city. Existing houses will be replaced by residential and commercial buildings that means changing the city's silhouette and transforming into modern city center.
- Detail Urban Plan for urban quarter "14". The starting point in finding the conception of this detailed urban plan is the General Urban Plan for the City of Kocani and the created conditions of the space that is the subject of preparation of this urban documentation. The planning area is divided into 16 blocks. The

main aim of this plan is developing the sport and recreation area and utilizing the geothermal water. This area gives an exceptional opportunities for development of spa tourism.

- Detail Urban Plans for urban quarters “16 &17 “ - located in the eastern part of Kocani, in the zone of industry, according to the GUP. This area contains 180 building parcels.

With the development of the urban quarters, it will be approached with detailed planning of the entire city, where city quarters will be developed to a separate blocks and with this the secondary road network will be formed, the green area will be defined in each block, building plots intended for housing will be defined, for private houses and residential buildings, and the building plots in industrial area for G-production, distribution and services will also be defined. The existing primary and secondary schools, existing buildings with purpose of health care will be defined, and new facilities with the stated purposes will be planed. By making the DUP for all city quarters, will be incorporated facilities for which the Municipality had made decision for defining the legal status. All this means great opportunities for new investments.

The Municipality of Kocani will develop plans for urban villages, which will defined uses of land and buildings and primary and secondary road network. Currently, Municipality of Kochani is preparing Urban Plans for three villages (Orizari, Trkanje, Beli,) and already has adopted the plans for Dolni Podlog, Gorni Podlog, Mojanci, Grdovci and Pribachevo.

Municipality of Kocani has adopted Urban plan outside the resident area for sport - recreation center “Ponikva”, Municipality of Kochani. The area is 1570 m above sea level, 20 km from the city. This plan covers an area of 60 ha. including productive land (forests and pastures) and undeveloped construction land.The planning area consist twelve blocks and 254 building parcels. 233 parcels are intended for A4 temporary accommodation,
3 parcels are intended for B1-small commercial and business purposes, 1 parcel intended for B3-Large service units, 7 parcels are intended for B5- Hotel complexes, 2 parcels for D3 sport and recreation, 7 parcels intended for E2-communal substructure and 1 parcel for the purpose of E3-incompatible infrastructure. This plan means development of the local economy, intensive mountain tourism and development of the rural tourism.

3. POPULATION TRENDS AND PROJECTIONS

State Statistical Office each year publish population estimates and according to the last data (on 31.12.2018) population gender structure in the Municipality of Kochani is as follow:

Table 6. Population in the MoK (2018)

Total population	Male	Female
37.566	**18.792**	**18.774**
100%	**50**	**50**

Source: State statistical office

While according to specific age groups, the structure is as follows:

Table 7. Population in the MoK by specific age groups (2018)

Age	Total	Male	Female
Total	**37.566**	**18.792**	**18.744**
0	310	162	148
1 - 2	641	309	332
3 - 4	669	341	328
5 - 6	676	344	332
7 - 9	1071	554	517
10 - 14	1803	942	861
15 - 19	2070	1085	985
20 - 24	2304	1166	1138
25 - 27	1558	770	788
28 - 29	1089	552	546
30 - 34	2751	1421	1330
35 - 39	2835	1431	1404
40 - 44	2797	1444	1353
45 - 49	2644	1368	1276
50 - 54	2697	1420	1277
55 -59	2627	1271	1356
60 - 64	2716	1388	1328
65 - 69	2387	1132	1255
70 - 74	1779	847	932
75 - 79	1135	447	688
80 +	998	398	600

Source: State statistical office

According to the last population estimates (2018) structure for the population in the Municipality of Kochani for the next period will be as follows:

Table 8. Population estimates in the MoK

Year	1994	2002	2018	2023	2028	2033
Population MoK	36.775	38.092	37.566	37.047	36.535	36.030

Source: State statistical office

Because of increased level of migration and decreased birth rate, this is the same situation in the whole East planning region (according to census 2002 total population was 181.851, and estimated population in 2018 is 175.244).

4. URBAN ECONOMY

Industry was the primary driver of the local economy of Kochani before the transition, and was concentrated in the big industrial capacities. The income from industrial related jobs accounted for the majority of the households' income. However, industrial development in this area has slowed. Factories have aged and many closed. The transformation from public to private ownership has been very painful. Today and especially with the industrial zones and the subsidized FDIs, Kocani presents middle developed industrial town with declining unemployment in which many industrial capacities are located in industrial zone, in the east part of the town, along the road to Vinica.

The most important sectors in MoK are trade and textile manufactory. Recently in the last few years we had two foreign investments. One is a green field investment – Dutch company „Antura" with 500 employees and second is a brown field investment - American consortium „Amphenol" with 1000 employees. Also we can mention restarting of the factory for automotive parts „Ruen" with domestic capital from the company „Ting Inox" Kochani.

One of the specific characteristic of the MoK is its rural area (94% of the whole territory) where is concentrated mainly arable lands, so in the municipality of Kochani traditional industry branch is agriculture because of excellent natural and agro-technical conditions. The biggest part of the arable area is irrigated, and because of that accumulation objects and diverse channel network long 280 km were built. Rice is the most important crop with centuries-long tradition, good yields and excellent quality. In the past few years, in the region of Kochani 4.000 ha rice is insinuated, with contribution of about 6.000 kg/ha. The most common sorts are: „san andrea", „monticheli", „kochani pearl" and others. The rice quality was confirmed on the fair in Brussels, Eureka 2000", with the "Grant Prix –The best of Macedonia" acknowledgement, with trademark no.1-rice, the white gold of Kochani. Since 1992 Kochani Municipality organizes the economy-cultural manifestation "Kochani rice days" in order to promote the rice as a symbol of Kochani. Also early-grown vegetables are produced in greenhouses that are heated with geothermal water. In light industry prevails textile (textile production), wood processing industry, construction and most of the small and medium enterprises are engaged in commercial activities.

From the next table we can see that in MoK there are 1330 active business legal entities which are 1.839 % of the total active business legal entities in North Macedonia. It is obvious the domination of the micro businesses share of 67.5 % in North Macedonia and 69.3 % in MoK. Micro and small business legal entities in North Macedonia are 98.1 % of the total active business legal entities or 98.8 % of the total active business legal entities in MoK.

Table 9. Active business legal entities in MoK and North Macedonia

2018	Total	Micro	Small	Medium	Large
North Macedonia	72.315	48.778	22.138	840	559
Kocani	1.330	922	392	11	5

Source: State statistical office

In the next table we can see that most of the business legal entities in MoK and in North Macedonia are in the sector of trade wholesale and retail and repairing of motor vehicles and motorbikes repair (31.7% in North Macedonia and 34.5% in MoK). Next sector is the manufacturing (11.% in North Macedonia and 15.7% in MoK). Other sectors is under the 10 %.

Table 10. Economic activities: Structure of active business legal entities in MoK and North Macedonia by sectors

TYPE OF INDUSTRY	North Macedonia		Kochani		Location
	%	Num.	%	Num.	
Total	100.0	72,315	100.0	1,330	urban and rural area
Agriculture, forestry and fishery	3.5	2,546	4.6	61	rural area

Mining and quarrying	0.3	205	0.3	4	rural area
Manufacturing	11.1	8,033	15.7	209	urban and rural area
Electricity, gas and steam supply	0.3	186	0.2	3	urban area
Water supply; sewage, waste management, envi-ronment rehabilitation	0.3	250	0.6	8	urban and rural area
Construction	6.8	4,938	4.2	56	urban and rural area
Wholesale, retail, motor vehicles and motorbikes repair	31.7	22,950	34.5	459	urban and rural area
Transport and warehousing	7.8	5,667	5.9	78	urban and rural area
Accommodation and bever-ages services	6.4	4,597	5.0	66	urban and rural area
ICT	2.6	1,856	1.0	13	urban area
Finance and insurance	0.6	448	0.5	6	urban area
Real estate activities	0.8	575	0.9	12	urban area
Professional, scientific and technical activities	10.0	7,261	9.2	122	urban area
Administrative and support services	2.4	1,752	1.0	13	urban area
Public sector and defense; mandatory social insurance	0.4	264	0.2	3	urban area
Education	1.7	1,222	2.0	26	urban and rural area
Health and social protection	4.6	3,357	5.3	71	urban and rural area
Art, entertainment and rec-reation	1.9	1,404	1.6	21	urban area
Other services	6.6	4,804	7.4	99	urban and rural area

Source: State statistical office

Kocani as well as Macedonia is facing a long-run unemployment challenge as a legacy of the transition. It can easily be seen that 62% of the unemployed in Macedonia are more than 40 years old. The situation with Kocani is even worse with 68% as Kocani was one of the industrial centers in Macedonia where the collapse of industry form the planned economy took its tool. The youth unemployment (age 15-24) over total unemployment (age 15-24) in Macedonia is 11% but the female share is a bit higher e.g. 12%. The situation for Kocani is: youth unemployment (age 15-24) over total unemployment (age 15-24) in Kocani is 9% but the female share is a bit higher e.g. 11%.

Table 11: Unemployment by age and by gender in Kocani and in Macedonia on 30th of April 2019

Kocani	Total	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	More than 60
Total	2484	49	176	198	204	171	202	209	244	466	565
Female	1014	27	82	116	99	94	90	95	100	172	139
Macedonia	Total	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	More than 60
Total	103083	2304	8910	10290	9096	8909	9923	10771	11945	16699	14236
Female	48252	1084	4618	5498	4785	4755	5179	5308	5684	7139	4202

Source: Employment agency of North Macedonia

5. URBAN SERVICES. ASSETS. MAINTENANCE

Urban services and level of neighborhood access

As we can see from the table 12 below, there is a huge discrepancy in many indicators and scores between urban and rural areas in the MoK. We can underline the following issues:

1. In a segment of access to the infrastructure we could notice that situation is different in urban and rural settlements population access to local roads, water, electricity and environmental sanitation. The average access to infrastructure for the city of Kochani and settlements in the field area is 77%, but the average access to infrastructure for the settlements in the hilly - mountainous area is 20%, so we can tell that the average access to infrastructure for all settlements is around 40%.
2. In a segment of access to the superstructure facilities, urban settlements (city of Kochani and settlements in the field area) have 90 – 100% access to superstructure facilities or average of 70% in all urban settlements. On the other side, we have the rural settlements in the hilly - mountainous area which have an access to the superstructure facilities in a range of 0% - 70%, or average of 3,7% for whole rural settlements. The average access to superstructure facilities for all settlements is 22,5**%.**
3. Scores for the emphasized indicators in the ISPI table shows the following:
    a. Density and housing is bigger in urban settlements with the average score of 3,0 compared to 1,05 in the rural settlements. But in general the average density for the all settlements is 1,8 or with other words very low density mainly because of the density in the rural settlements.
    b. The situation with score for the roads as an indicator is also different in the urban and rural settlements, the average score in urban settlements is 2.8 and the average score in rural settlements is 0,4 so the average score in both (urban and rural areas) is score ”1.3”.
    c. Also more dramatic is situation with the score for the environmental sanitation. In the urban settlements the score is 2,5 against 0 in the rural settlements.
    d. The facilities as an indicator gives the following results: 1,4 score for urban settlements and 0 for the rural settlements. Even the situation is better in urban areas than in rural; the average score of “0,6” tell us that we need more improvement and investments in rural areas, as well as in the urban areas.
4. The final scores truly and exactly show the real situation in the MoK. It is the fact of huge discrepancy between the urban and rural settlements as well as the investment priorities which are mainly in the segment of access to infrastructure (environmental sanitation) and access to superstructure facilities (schools, kindergartens, and commercial facilities, health care). As a whole, the urban part seems to have very good infrastructure, but the division into 4 parts also shows disadvantages in the city of Kochni ecpecialy in the setlements „Trajanovo trlo“ and „Bavcaluk“

Table 12 – Infrastructure and Services Programming Inventory (ISPI) in the Municipality of Kochani

Table 9 – Infrastructure and Services Programming Inventory (ISPI) in the MoK																																
	Kochani Centre	Tekesinski lozja	Trajanovo trlo	Bavcaluk	Orizari	Grdovci	Trkanje	Gorni Podlog	Dolnii Podlog	Mojanci	Pribacevo	Beli	Polaki	Nivicani	Pantelej	Pasadzikovo	Preseka	Jastrebnik	Gorno Gratce	Leski	Glavovica	Nebojani	Kostin Dol	Novo Selo	Recani	Rajcani	Bezikovo	Vraninci	Crvena Niva	Pripor	Dolno Gratce	**Total**
1. INVENTORY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	31
POPULATION	12130	7500	5200	3500	3776	1288	1225	704	476	556	388	466	113	343	64	0	68	48	13	29	59	46	20	15	13	33	8	10	0	1	0	38092
LAND OCCUPANCY in ha	1000	22,5	10,7	7,5	178	42	77	51	36	26,5	25,9	40	20	16,4	8,7	8	9	12	8	9,3	13	8	7	6	10	16	7	7	5	5	0	1692,5
ACCESS TO INFRASTRUCTURE	1	1	**0,533**	**0,533**	**0,767**	**0,800**	**0,667**	**0,800**	**0,800**	**0,833**	**0,800**	**0,733**	**0,233**	**0,500**	**0,200**	**0,200**	**0,167**	**0,367**	**0,267**	**0,200**	**0,100**	**0,100**	**0,100**	**0,133**	**0,133**	**0,200**	**0,067**	**0,067**	**0,067**	**0,067**	**0,000**	0,40
local roads	1	1	0,5	0,5	0,6	0,6	0,5	0,5	0,5	0,6	0,7	0,7	0,2	0,5	0,2	0,2	0,2	0,3	0	0,2	0	0	0	0	0	0,2	0	0	0	0	0	0,31
water and electricity	1	1	0,6	0,6	1	1	1	1	1	1	1	1	0,5	0,5	0,4	0,4	0,3	0,8	0,8	0,4	0,3	0,3	0,3	0,4	0,4	0,4	0,2	0,2	0,2	0,2	0	0,59
environmental saniitation	1	1	0,5	0,5	0,7	0,8	0,5	0,9	0,9	0,9	0,7	0,5	0	0,5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,30
ACCESS TO SUPERSTRUCTURE FACILITIES	**1**	**1**	**0,77**	**0,77**	**0,69**	**0,61**	**0,61**	**0,66**	**0,66**	**0,50**	**0,47**	**0,47**	**0,00**	**0,14**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0,27
primary education	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,42
kindergartens	1	1	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,23
health care	1	1	0,8	0,8	1	0,5	0,5	0,8	0,8	0,5	0,5	0,5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,28
commercial facilities	1	1	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,3	0,3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,21
sports and youth activities	1	1	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,5	0,5	0,5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,32
culture and recreation	1	1	0,7	0,7	0,9	0,9	0,9	0,9	0,9	0,5	0,5	0,5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,30
public administration	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,13
2.INDICATORS																																
Density and housing	12,13	333,33	486,0	466,7	21,2	30,7	15,9	13,8	13,2	21,0	15,0	11,7	5,7	20,9	7,4	0,0	7,6	4,0	1,6	3,1	4,5	5,8	2,9	2,5	1,3	2,1	1,1	1,4	0,0	0,0	0,0	48,8
roads	12130	7500	2600	1750	2265,6	772,8	612,5	352	238	333,6	271,6	326,2	22,6	171,5	12,8	0	13,6	14,4	0	5,8	0	0	0	0	0	6,6	0	0	0	0	0	948,4
environmental saniitation	12130	7500	2600	1750	2643	1030	613	634	428	500	272	233	0	172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	984,0
Facilities	12130	7500	4011	2700	2589	791	753	463	313	278	183	220	0	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1031,6
3. SCORES																																
Density and housing	4	4	3	3	3	3	3	3	3	3	3	3	2	2	2	0	2	2	1	1	1	1	1	1	1	1	1	0	0	0	0	1,8
roads	4	4	3	3	3	3	3	2	2	2	2	2	1	1	1	0	1	1	1	1	0	0	0	0	0	1	0	0	0	0	0	1,3
environmental saniitation	4	4	3	3	3	3	2	2	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,0
Facilities	4	4	2	2	2	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,6
FINAL SCORE	16	16	11	11	11	10	9	8	7	7	7	8	4	4	3	0	3	3	2	2	1	1	1	1	1	2	1	0	0	0	0	4,8

Methodological explanation

1. The numbers from 0 to 1 in the ISPI Table represent grades where zero (0) means the lowest or no infrastructure or utilities, while one (1) means the highest or most populated place has full utilities.

2. The Density and Housing Indicator is obtained as a result of the division between the number of inhabitants in a settlement by land occupation, and means the space or occupancy of the space in which the inhabitants live in the settlements, that is, it expresses the population density per hectare and how much they use municipal services, while the values of the other indicators are obtained by multiplying the number of inhabitants of the settlement by the assessment of roads, environmental sanitation and facilities.

3. Based on the Census and Indicators, the results are the final evaluations of the services provided by the citizens in the settlements. The end result is the sum of the final results of the indicators: Density and housing, roads, environmental sanitation and facilities.

Scores given as results represent values where zero (0) means the lowest or 10% have access to a service, while 1 (one) means up to 30% of the population use the service, 2 (two) mean 50% of the population use the service, 3 (three) means 70% use service, while 4 (four) means 100% use indicator service

Analysis of the results of the methodological approach

During the preparation of the SIPU the table used opinions of the local residents and data from the municipal administration and the GIS system of the Real Estate Cadaster Agency of the Republic of North Macedonia.

From the table of ISPI can determine the value of the indicators:

• Density and housing with an indicator value from the lowest 0 to the highest 12.13 indicates the population ratio and the number of evidences in relation to the occupancy of the land in the settlement;

• The value of the road indicator shows us the value from the lowest 0 to the highest 12130 rating of the local road network and streets in the settlement in terms of the number of inhabitants in the settlement and the occupancy of the land;

• Environmental sanitation indicator also gives data for all settlements with data from the lowest 0 to the highest 12130 in terms of the number of inhabitants in the settlement, indicator of the existence of sewage, waste collection and treatment and other sanitation services.

• Facilities value is from the lowest 0, up to the highest 12130.

As a result of the ISPI indicators, the following results were obtained that give an assessment and ranking of settlements. Outcome values score 0 (zero) means the lowest value of the indicator, while score 4 (four) gives the highest value of the indicator.
Settlements that result from 0 to 4 are settlements with the lowest values or living conditions of citizens in terms of density and housing, roads, environmental sanitation and facilities in settlements.

The data in the table creates a new Table 13 to rank the settlements by priority with the final results where exactly the settlements are ranked by priority:

Table 13 – Priority ranking of the neighbourhoods (settlements) by the final scores in the Infrastructure and Services Programming Inventory (ISPI) in the Municipality of Kochani

	SETTLEMENTS - URBAN AND RURAL	**FINAL SCORE**
1	Pasadzikovo	0
2	Crvena Niva	0
3	Pripor	0
4	Dolno Gratce	0
5	Vraninci	0
6	Kostin Dol	1
7	Novo Selo	1
8	Glavovica	1
9	Nebojani	1
10	Recani	1
11	Bezikovo	1
12	Gorno Gratce	2
13	Rajcani	2
14	Leski	2
15	Jastrebnik	3
16	Preseka	3
17	Pantelej	3
18	Polaki	4
19	Nivicani	4
20	Pribacevo	7
21	Dolni Podlog	7
22	Mojanci	7
23	Gornii Podlog	8
24	Beli	8
25	Trkanje	9
26	Grdovci	10
27	Orizari	11
28	Bavcaluk	11
29	Trajanovo trlo	11
30	Tekesinski lozja	16
31	Kochani central area	16

According to the final results obtained from the ISPI table, all settlements are ranked and scores are given from 0 to 16. In the methodological approach of assessment, we have settlements where the score is from 0 to 4. This small index is due to the fact that in In the last few decades, due to the low living conditions and development of these settlements, a large number of the population has migrated to the city, so although according to the 2002 census where the data are derived, there are still registered residents in most of the aforementioned areas only a few inhabitants of a high age structure remained. For this reason, any investment in these populations is unjustified given the number of users.

The table with final scores truly ranking by priority the settlements in MoK, where rural settlements in the hilly - mountainous area takes the first places, but all these settlements (Pasadzikovo, Crvena Niva, Pripor, Dolno Gratce, Vraninci, Kostin Dol, Novo selo, Glavovoca, Nebojani, Recani, and Bezikovo) is with very low density and housing indicator (0-1) and places (Gorno Gratce, Rajcani, Jastrebnik, Leski, Preseka, Pantelej, Polaki

and Nivicani) without urban planning documentation and low density (2-4), then the places with score 7-10 are villages (Crdovci, Trkanje, Beli, Gorni and Dolni Podlog, Mojanci, and Pribacevo) where in the last 5 years we have invested in local communal infrastructure with financial support from AFSARR and BRR for rural infrastructure and Swiss government for construction of treatment plant.

Therefore, in the preparation of this document, the Municipality of Kochani will not takes into consideration these settlements when preparing the ranking list, as a priority to direct these grant funds, so we think that our priority should be focused in settlements with score 11 in urban area (Trajanovo trlo and Bavcaluk) and settlement in the rural field area (v.Orizari).

Municipal assets

We still don't make an assessment of the value of MoK property by certified assessors. And for the majority of the old buildings we don't possess the technical documentation as a proof of the date of their built.

Table 14 - Municipal and regional assets in the MoK

Description	Unit	Size
Developed land	**ha**	**1693**
school's buildings	m²	24347
school's sport halls	m²	4533
Kindergartens	m²	4789
culture centers	m²	2904
municipality barracks	m²	151
municipal remote urban and rural logistic barracks	m²	1625
buildings for commercial purpose in municipal ownership	m²	896
municipal football fields	m²	22737
municipal sport hall	m²	1746
Undeveloped land	**ha**	**34036**
Infrastructure	km	
Asphalt local roads	km	54.6
Dirt local roads	km	99.2
Asphalt streets	km	65
Concreted streets	km	5.3
Dirt streets	km	1.8

Public works maintenance

Table 15 – Public works maintenance in the MoK

		type of work	2015	2016	2017	2018	2019	location	method of execution
1	482930	reconstruction of buildings	0	0	0	1.419.966	630.000	urban area	municipal budget
2	425940	demolition of buildings	483.238	207.455	0	0	200.000	urban and rural area	municipal budget
3	424390	Maintenance of other buildings public lighting	927.046	1.478.017	1.360.429	1.194.589	2.794.190	urban and rural area	municipal budget -
4	424590	maintenance of other green areas public cleanliness	1968968	3.257.000	2.671.084	3.469.084	6.709.742	urban and rural area	municipal budget
5	425990	other contractual services	2.845.327	1.139.699	1.053.060	871.932	1.380.000	urban and rural area	municipal budget
6	424320	maintenance od streets and roads_ Maintenance and protection of local roads	5.209.150	6.552.216	6.327.377	8.043.667	11.100.000	urban and rural area	municipal budget
7	482130	reconstruction of streets, roads and highways_ Construction and reconstruction of local roads	4.304.921	653.113	1.768.112	6.158.474	2.500.000	urban and rural area	municipal budget
8	424	Recovery and current maintenance of kindergartens	446.510	435.589	1.029.533	760.831	3.154.000	urban areas	municipal budget
9	424	Recovery and maintenance of primary and high schools buildings	5.932.628	843.332	1.054.799	1.609.394	6.878.000	urban and rural area	municipal budget
TOTAL (in denars)			**22.117.788**	**14.566.421**	**15.264.394**	**23.527.937**	**35.345.932**		

5. DEFICIENCIES AND NEEDS

From the deficiencies and needs identified during the analysis and implementation of the ISPI we detect the following most priority settlements:

- Settlement called “Trajanovo trlo” is the periphery settlement in the northeastern hilly part of Kochani with 7500 inhabitants (2000 from which are Roma). There a lot of problems in this settlement such as: DUP for this settlement, preparation of technical documentation for construction of streets, water-supply system and sewerage system. Also it is need of regulation of the riverbed of the downpour in “Trajanovo trlo” which passes through the town Kochani and with overflowing of its banks causing great material damage. Cause of the spill and the damages are intense rainfall or flooding and unregulated bed of the downpour. The floods in 2010 caused great material damage through the urban part of the city. It is refers to the solution of the problem that have inhabitants in irregular housing (this settlement is with the most irregular buildings) and flood protection to about 4000 residents of the settlement “Trajanovo trlo”. Also there is a need of construction of objects for temporally collectively inhabitation of citizens from poor Roma ethnic community that live in Old barracks – this project refers to the 42 Roma families which years ago, used to illegally settle without any elementary conditions for living in the ruined object of Old barracks that is locate in the central city. Momently situation in which live these families didn’t fulfilled minimal conditions for a civilized life because Old Barracks which is old more than one century is in very bad condition. From security reasons also there is a great possibility for collapse of floor construction because from its existence it wasn’t significant rehabilitation. There aren’t sanitary nodes inside the old barrack, so families are forced to perform their physiological needs outside in improper lavatories, what is a big problem for the citizens which lived near the old barrack. For solving of the problem described above, Local self-government has determinate location with Detail Urban plan, on state property land, for building of houses in which will be moved these 42 families from Roma nationality. There is a need of construction of communal infrastructure (local roads, secondary sewerage and water supply systems and etc.) to this location.
- Settlement called “Bavcaluk” the periphery settlement in the northern part of Kochani with 5200 inhabitants. Through this settlement pass road to Dum Gratche and part of unregulated Kochanska River. The total length of the river through the urban area of town Kocani is ~ 3.3 km. The river that passes through the center of Kocani is mainly regulated. In order to protect the area from flooding and to solve the problems permanently that occur on the unregulated part, Municipality of Kocani in 2014 made technical and investment documentation, “Main project for regulation of Kocanska river from the last traffic bridge to the north with a length of 451 meters”, in order to find the most worthwhile technical solution for regulation of Kocanska river. The regulation will provide high water permeability and sediment transport, following the existing flow of Kocanska riverbed. The economic performance of construction and easy maintenance of the basin is an economic justification for the implementation of regulation. The aesthetic formation of the riverbed, pedestrian paths along the quay and landscaping successfully fit into the urban environment of the town Kocani, which provides complete and continually regulation of the riverbed through the central area. The regulation will provide high water permeability and sediment transport, following the existing flow of Kocanska riverbed. Also there is a problem with soil erosion and overflow of the river from the riverbed during torrential rains and flooding the surrounding houses.
- Village Orizari is the biggest village in the municipality of Kochani with 3776 inhabitants according to Census 2002 with very bad local communal infrastructure (local roads, secondary sewerage and water supply systems and etc.). One of the most priority issue is to connect with the city of Kochani with the local road called „Pazarski pat “ to „Engelsova“ street in Kochani and it continue to Secondary School „Goso Vikentiev“. It pass over open irrigation channel and there is a need of construction of a new bridge. There is a need of improvement of pedestrian and traffic safety and life conditions of the citizens in this village and improvement of conditions for local economy development.

6. URBAN DEVELOPMENT PROJECTS, RECENT AND FUTURE PROJECTS

We have already mentioned that MoK is a specific municipality as a combination of urban and rural settlements. That of course makes a lot of obstacles because of the nature of different trends we have to face and implement in urban and rural settlements. For example, the urban trends are mainly focused to the more sophisticated urban context which is consisted of energy efficient buildings, schools, kindergartens and public street lighting, wider and functional roads, streets, better and more efficient public cleanliness of the urban areas, reconstruction of already too old pipelines for sewerage and water supply with bigger capacity of the pipelines for the future residential and business development of the urban areas.
Also we need the territorial regeneration of the old industrial zones with new spatial plans which will correspond to the new needs of the businesses. Even we are thinking about some long term measures (mainly with the tax policies) for dislocation of the current industrial zones to the periphery of the municipality, opening the quality land for the residential zones and accompanying superstructure facilities.
Construction of the infrastructure (local roads, secondary sewerage and water supply systems, electrification, gasification, and etc.) is predicted with the new DUP's. We're planning to realize this infrastructure projects step by step. Last year, we are have opened a new kindergarten in the village Orizari which offers a better conditions for the preschool children of the inhabitants in that area, and now we start with realization of new kindergarten in the city of Kochani.

On the other side, in rural settlements, mainly the trend of growth is focused on the undeveloped land which is mainly located there. In that direction, trend of growth in the rural areas is focusing in few direction: (1) development of basic road infrastructure, (2) development of primary and secondary sewerage collectors and networks with treatment plants for each rural settlements for more economic and financial feasibility, (3) development of superstructure facilities in order to increase the quality of life and to keep people to live in these areas, reinforcing the economic activities and interest of investors to investing in these rural areas, (4) And the most important, to implement contemporary spatial planning in all these rural settlements, where the most of the individual housing was built without construction permit. Of course, this process of legalization until its finalization will slow down the process of implementation of new spatial plans for the rural settlements.

As a part of GIS portal of the East Planning Region, MoK took a part in the first phase implementation of GIS system which should provide fast and easy approach to all the employees in the administration to all relevant alphanumeric and spatial data necessary for accomplishing all the working commitments. This portal should allow rapid and easy approach to database for external users and the citizens and help in promoting the possibilities and the potentials of MoK for attracting home and foreign investors. In future the portal will be upgraded with new applications, according to the determined priorities, like for example managing with the property of the municipalities, control of the illegal buildings, payment of the communal duties, inventory of the traffic infrastructure, protection of the life environment, support of the strategic planning, landfill management and similar.

The next phase of the project will be related to obligation of the municipalities to acquire public infrastructure data according to the Macedonian legislation which prescribes recording the data of all public infrastructure and their input to the central register by the end of 2020. This includes making an inventory list of the current state, to acquire the missing data, and to create a digital register of public infrastructure in the areas falling under jurisdiction of the participating municipalities, and to create methodology for continuous data maintenance of public infrastructure registers. For the purpose of this project the following public infrastructure of municipalities' interest is included: water distribution network, sewage system network, public lightning, heating network and cable network.

Table 16 – Recent, ongoing and scheduled projects in the MoK

	Description	Year	Location	Amount in €	Financing
Recent					
	Rehabilitation of several local roads	2014/15	rural area	828.926	EBRD & WB
	Separation of faecal sewerage from storm drains	2014	urban area	1.123.640	European Investment Bank
	Construction of local infrastructure in several vilages	2015/16	rural area	669.908	Agency for Financial Support of the Agriculture and the Rural Development
	We grown up with eco resources	2015/16	urban area	96.530	Erazmus + Programme
	Reconstruction of kindergarten for energy efficiancy	2015	urban area	12.000	Swiss Development Agency
	Replacement of street lighting with enrgy efficincy LED lamps	2016	urban / rural area	845.500	Municipal budget
	Sanation of sewerage colector in v.Orizari	2015	rural area	40.650	Swiss Development Agency
	Construction of several streets in Kochani and Orizari	2015/16	urban / rural area	1.000.000	World Bank
	Rehabilitation of branch primary school “St. Kiril and Metodij” in the village Gorni Podlog	2016	rural area	70.742	GGP grants from Embassy of Japan
	Construction of wastewater treatmant plant in v.Mojanci	2016/19	rural area	17.400.000	Swiss State Secretariat for Economic Affairs
	Reconstruction and energy efficiency in the municipal admin-istration building	2017/18	urban area	200.000	Intereg IPA CBC BG-MK
	Reconstruction and equipment of TIC Ponikva	2017/18	rural area	95.000	Swiss Development Agency
	Construction of local road "Goce Delcev" in v.Orizari	2017/18	rural area	259.000	EU IPA grant for rural infrastructure

	Reconstruction of several streets in Roma settlement	2018	urban area	105.00	Roma decade
	Reconstruction of the Cultural Centre „Beli mugri“	2018/19	urban area	226.600	Ministry of Culture
	Reconstruction of the regional road to Ponikva	2018/19	urban / rural area	1.658.000	Agency for national roads
Ongoing					
	Construction of local infrastructure in several vilages	2019/20	rural area	970.000	Agency for Financial Support of the Agriculture and the Rural Development
	Construction of local road to v.Polaki	2019	rural area	48.780	Biro for regional development
	Reconstruction of the Todosija Paunov street – right carriageway	2019	urban area	50.000	Grant from MSIP 2 and World Bank
	Reconstruction of the Multicultural Centre	2019/20	urban area	300.000	Intereg IPA CBC BG-MK
	Mount bike paradise	2019/20	rural area	428.000	Local and Regional Competitiveness Project
	Empowering Municipal Councils	2019/20	urban area	50.000	UNDP
	Construction of 11 local roads	2019/20	urban / rural area	714.428	MSIP 2 and World Bank
Projected in urban planning documents					
	Construction of new regional eldery home	2020/21	urban area	3.300.000	PPP
	Construction of dam "Rechani" on Orizarska river	2016/21	rural area		Government of the RoNM
	Construction of strets and parking area on Ponikva	2020/21	rural area	2.961.911	
	Construction of small reservoirs in the area "Aramiska Cesma"	2020/21	rural area		

Scheduled					
	Reconstruction of the ski lifts on Ponikva	2020	rural area	78.000	Swiss government by CDIPR
	Kocani Roma inclusion	2020	urban area	10.000	ROMACTED
	Construction of the new kindergarten	2019/20	urban area	1.000.000	Ministry of labor and social politic
	Technical documentation for new bridge on Kochanska River	2020	urban area	20.000	UNDP
	Construction of houses for dislocation of Roma families from the Old Barracks	2020	urban area	350.000	Government of the RoNM

8. PROPOSED PROJECTS. SELECTION. CONSULTATION.

One of the main problems within the municipality of Kochani is existing of sector's working barriers, which do not allow integrated and relevant strategic approaches of the management in determination of the priorities in the Priority Investment Program. Of course, one of the obstacles in that process was absence of the credible databases integrated by many elements: strategic documents, life environment, spatial plans, land administration, infrastructure, facilities, finance, budget, and etc. With the "urban audit" we have got the integrated data about all aspects related to the municipal territory and appropriate spatial plans for all urban and rural settlements, the current economic, environmental situation as well as the access to infrastructure and superstructure facilities of the urban and rural population in MoK. We could exactly determine the priorities within the whole territory of the MoK by ranking settlements on the basis of defined indicators and relevant scores acquired for every indicator.
This gives us better vision and perception about whole our territory (urban and rural areas), the deficiencies and needs, and what priority when to implement according to our development objectives and goals, and of course our financial and fiscal capacities.

Respecting the above said, we have approached to the defining of Priority Investment Program, and have selected the below mentioned projects, taking into account the below mentioned priority criteria and project eligibility.

Project eligibility and priority criteria

At the outset, the program defined objectives, beneficiaries, duration and terms of intervention, as well as funding envelopes. This information serves as the basis for the initial selection criteria for project "eligibility." The criteria define the different investment categories that will receive program financing. A second set of criteria should then be established to set "priorities" among eligible projects. As examples of such criteria, the project should:

- Fit into one of the "eligible" project categories
- Be included in the budget allocation
- Be executable within the expected timeframe
- Come under municipal authority
- Not be redundant with other projects planned under other programs
- Respond to the needs identified in the urban analysis and/or the demands articulated during consultation

- Be scheduled in the “educational or health care letter” for educational and health care facilities
- Meet the requirement for immediate startup upon completion of the work (availability of staff to run the facility, connection to utility networks, etc.)
- Give priority consideration to underserviced neighborhoods with high population density
- Be free of land ownership concerns
- Not cause any major displacement of population or users; but in the event of displacement, a solution should be found within the parameters of the project.

9. PIP: ALLOCATION AND SCHEDULE OF INVESTMENTS

Table 17 - PIP – Priority Investment Program in the MoK

	Type of investment	Order of priority	Estimated amount in Euros		
			New work	Rehabilitation	Total
1	Infrastructure				
	Arrangement of the settlement called “Trajanovo trlo”	high	Yes	No	200.000
	Arrangement of the settlement called “Bavcaluk”	high	Yes	No	200.000
	Construction of the local infrastructure in the settlement Orizari	high	Yes	No	200.000
	Total				**600.000**

Table 18 - PIP implementation schedule

	Type of investment	Year 1	Year 2	Year 3	Total in Euros
1	Infrastructure				
	Arrangement of the settlement called “Trajanovo trlo”	50.000	75.000	75.000	**200.000**
	Arrangement of the settlement called “Bavcaluk	50.000	75.000	75.000	**200.000**
	Construction of the local infrastructure in the settlement Orizari	50.000	75.000	75.000	**200.000**
	Total	**100.000**	**225.000**	**225.000**	**600.000**

Table 19 -– Project fact sheet No. 1

Title of project: Arrangement of the settlement called "Bavcaluk

No.	Name
I	**Project type and eligibility**
1.1 1.2 1.3 1.4	Investment category: ▪ Location: In the northeastern part of the MoK. ▪ Beneficiaries: the inhabitants of the settlement called "Bavcaluk" or around 5.200 inhabitants at the moment. Special conditions and eligibility ▪ Eligibility: This settlement need as soon as possible regulation of Kocanska River from the last traffic bridge to the north with a length of 451 m. ▪ Agreement reached: Yes ▪ Assumption of responsibility for maintenance: Public communal enterprise "Vodovod"- Kochani
II	**Justification**
2.1 2.2 2.3 2.4	▪ Priority level: first level ▪ Social impact: positive acceptance from all inhabitants, better quality of life, less floods ▪ Financial/economic analysis: with the current price for the taxes we will return the investment for 5-6 years, but will have multifunctional impact to the local development of the area. ▪ Environmental impact: protecting life environment with regulation of the riv-erbed of Kochanska river, as well as flood protection
III	**Description of project**
3.1	Number of buildings and/or m² to be built: regulation of the riverbed of Kochanska river in length of 451 m Construction of fences: No Development of access roads: No
3.2	Project preparation status ▪ Availability of technical documents: Yes ▪ Cost basis: 200.000 EUR ▪ Dates of meetings with beneficiaries: in a lot of meetings during the past 10 years.
3.3	Constraints related to implementation ▪ Land ownership status: state land ▪ Deed of land ownership or assignment: ▪ Slum clearance: No ▪ Utilities to be relocated: No ▪ Easements:
3.4	Practical terms of startup: 2020
3.5	Execution deadlines ▪ Studies: No study for this project ▪ Work: 'till 2021
3.6	Site drawing Implementation plan
3.7	Other graphics:
IV	**Costs**
4.1	Cost of work: 200.000 EUR

10. FINDINGS AND CHALLENGES AT MoK

Findings:

1. Average access to infrastructure in MoK is 40%, but only 30% have access to environmental sanitation mainly because of absence of that infrastructure in rural settlements.
2. Average access to superstructure infrastructure is 27%, with needs for kindergartens and health care facilities as well as facilities for culture and recreation (mainly needs in rural settlements).
3. Indicators show that in MoK: average density and housing is 48.8, 11808 inhabitants have access to roads (31%), 11427 inhabitants have access to environmental sanitation (30%), and 10284 inhabitants have access to facilities of superstructure (27%).
4. Final scores indicate that: in rural settlements needs are the largest in a segment of construction of roads and new environmental sanitation and facilities with great potential for projecting new residential zones in some urban and rural areas.
5. The final scores exactly differentiate the rural settlements in the topic places in the table of ranking the priorities by the territory segments.
6. We still miss the credible and integrated databases which will produce more effective and efficient spatial planning as well implementation of the plans.
7. The industry is mainly located in the urban areas.
8. We still don't have clear situation with our municipal capital assets about their quality and market price. Some because of legal procedures to make legal ownership of those assets by the municipality, the other one because of missing the technical documentation about buildings and facilities. Because of all of that we still didn't make assessment of our capital assets by the authorized assessors. Therefore we can't estimate the market price of our municipal assets.
9. But we have great potential in regard of municipal assets in the developed land and especially in undeveloped land as a large asset in shaping our future development.
10. There is a trend of increase in expenditures for maintenance of public works, especially in maintenance of public street lighting.

Challenges

1. To prepare the integrated database with the implementation of the GIS.
2. To integrate the MFSA and URBAN AUDIT in the process of preparing the Priorities of Investment Program as a procedure for the management of the municipality adopted at the Council of the MoK. Nowadays we don't have that practice of systematic approach in prioritizing the PIP.
3. To finalize the process of legalization as soon as possible because without finalized legalization we can't approach to process of regeneration of the rural settlements with new digital urban documentation for all rural settlements and urban documentation for outside rural settlements.
4. To start the process of adjusting the existing detail urban development plans with preparation of the new district plans with new zoning planning within the new city's GUP.
5. To expand the tax base in collecting all taxes related to MoK by more integrated databases with implementation of GIS.
6. To make a pressure for increasing the current percentage level of taxes entering to the local governments.
7. To resolve more faster property and legal rights in processing of new urban development plans in order of increase the construction land fee by attracting more domestic and foreign investors (if we take into account the very beneficial government's measures for foreign and domestic investors in few areas – manufacturing, hotels, farms, and individual housing).
8. To prepare prefeasibility and feasibility studies for large capital investment projects as a way to detect all alternative solutions in social and economic – financial sustainability of projects in wider context.

9. To find capital from domestic and foreign financial institutions as well as strengthening partnership with government of Republic of Macedonia and public – private partnership with the business community in implementing large capital investment projects.
10. To keep the financial stability and liquidity of the MoK, without jeopardizing its strategic development goals and objectives, and by using MFSA and URBAN AUDIT by the management of MoK.