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# *Situation Analysis*

**Inclusion of informal waste collectors**



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## **Situation Analysis**

### **Inclusion of informal waste collectors**

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## **I. Situation Assessment**

### Purpose of Assignment

1. Background
2. Executive Summary
3. Summary recommendations - Organizing for empowerment of waste collectors
4. Government/ Sectoral Policy
5. The main findings in regards to legislative
6. Potential risks that are related to collection of secondary waste materials(Packaging waste) from IWCs
7. Basic Data on city of Skopje
8. Activities for formalization of the Informal waste collectors
9. Collection of Paper/ Cardboard
10. Collection of PET and other types of plastic
11. City of Skopje and IWC's
12. Public Utility Company Komunalna Higijena, Skopje
13. Pakomak
14. Final recyclers market
15. Social Mobilization of IWC's
16. Number of IWC's in Skopje
17. Government subsidies for self employment
18. Basic data on Municipality of Kochani
19. Basic data on Municipality of Strumica

## LIST OF ABBREVIATIONS

EE	Electric and electronic waste
EU	European Union
EIDHR	European Instrument for Democracy and Human Rights
PUC	Public Utility company
HDPE	High Density Polyethylene
IWC	Informal Waste Collectors
LDPE	Low Density Polyethylene
MESP	Ministry of Environment and Spatial Planning
MLSA	Ministry of Labor and Social Affairs
OSCE	Organization for Security and Cooperation in Europe
PET	Polyethylene teraphthalate
PP	Polypropylene
PUC	Public Utility Company
PVC	Polyvinyl Chloride
SWOT	Strengths, Weaknesses, Opportunities, Threats

## Purpose of Assignment

The **EIDHR supported project on Inclusion of informal Roma waste collectors in formal waste schemes in the country** seeks to enhance healthy livelihoods through the creation of sustainable employment for the Informal Waste Collectors (IWC) and providing support for accessing health, education and social services. This is being performed by a planning process involving all stakeholders in the three municipalities, Skopje, Kocani and Strumica, in order to organize the IWC's into a self-managed social entity which is able to collect, sort and/or (pre-) treat waste on a larger scale. This enables higher volumes and revenue margins, thereby offering the basis for a more sustainable and formal employment and indirectly enabling better access to public and social services (health education, social welfare), and integration into civil society in general.

In May 2013, MDC TI Net Implementer of the EIDHR financed project for **Inclusion of informal Roma waste collectors in formal waste schemes** hired a team of consultants lead by Ms. Anne Scheinberg to Conduct a Situation assessment, a literature review which will detail the Skopje, Kochani and Strumica data, statistics, reports and information available on informal waste collection and recyclables markets in general in the country which will feed into the development of three action plans for inclusion of Informal waste collectors in the city of Skopje and Municipalities of Strumica and Kochani.

For purposes of EIDHR for **Inclusion of informal Roma waste collectors in formal waste schemes** the team of consultants lead by Ms. Anne Scheinberg conducted thorough investigation of packaging recycling sector in order to determine the potential for a development of three action plans in the above mentioned municipalities with focus on establishing a business entity owned by informal waste collectors.

The overall consultant team responsibilities included:

1. Conduct survey on Government Policies/ municipal policies
2. Desk Research, data analysis,
3. Field visits
4. Design of a questionnaire
5. Direct contacts and visits with the packaging waste generating companies, PUC, Municipalities, Ministries, Agencies, IWC's, Landfill visits
6. Write-up of the final report

## **1. Background**

The issue of informal waste collectors (IWC) of engaging in secondary waste materials has been present for as long as the system of organized collection and transport of communal waste. Entire families are living from informal collection of secondary raw materials which is mainly based on illegal and semi-legal waste flows. Such waste flows always end up at recycling centres and recycling facilities through buy back of secondary waste materials from private persons and with very minimalistic inventories of the origins of the waste and the means of collection. The issue is considerable and it is coming from both the IWC and also the recycling companies. Such an approach to waste collection cannot be considered as organized, efficient and sustainable, particularly as the quality and quantity of the daily collected secondary waste materials cannot be guaranteed to either of the parties (IWC and the recycling companies) in the recycling chain and also as the lack of stability and sustainability is considerable under these circumstances and it should be the first issue that is considered for the provision of a long term solution.

Taking into consideration the Waste Management Legislation in place in the country, the current IWC method of waste collection is highly questionable from a legislative point of view. Additionally a question is also raised regarding the capability of existing waste management system to rapidly and efficiently adapt to this new legislation.

## 2. EXECUTIVE SUMMARY

### **Presenting findings of the Situation Analysis performed within the EIDHR funded project “Inclusion of informal Roma waste collectors into the formal waste schemes in the country”**

The overall project objective is creating sustainable model for inclusion of Roma informal waste collectors in the formal waste management scheme at local government level therefore enabling them and their families to exercise their basic human rights: employment, education and social and health welfare.

The growth of the recycling industry has contributed towards increased need of employments in this sector. All parties concerned, especially industry and the Public Utility Companies have shown great interest in participating in the processes that would lead towards creation of local action planes for inclusion of waste collectors.



During period of April - May 2013, Situation Analysis have been conducted in the City of Skopje, Municipalities of Kochani and Strumica. The situation analysis is providing information on municipal level that could serve as basis for developing strategies and action planes for inclusion of informal waste collectors. It is based on data analysis (especially existing policies), interviews with municipal staff, representatives of Public Utility Companies, recycling industry and results that are provided from a parallel process taking place: creation of data base of informal collectors, based on information provided by recyclers and their families.

Over 3000 informal waste pickers and their families are living in over 20 locations in Skopje, 3 locations in Kocani and 5 locations in Strumica, mostly illegal and sub urban settlements with no utilities. However, their priority is to have secure place to live not far away from the locations they are working and the waste is generated.

Below are some of the findings:

1. The sector is competent, hard working, and conservative, with adequate knowledge of its traditional business. The sector does not know how to initiate change. The sector can react to other initiatives, but does not know show either ability or a readiness to enter new markets or to shift their point of market entry to higher in the supply chain
2. The sector lacks social and institutional knowledge and capital and has few if any tools for problem solving, negotiation, or analysis
3. Because Roma do not have much schooling, they don't know about many basic social facts, their own individual and family civil rights, how to register persons or businesses, how to get children into school, how to communicate their needs to the municipality. This as well is linked to the lack of knowledge of the basic traffic rules that is endangering their lives and lives of their children.

4. The main opportunities and new economic niches are from the modernization of waste management: the enabling environment and from the globalization of the market.
5. The main threats to the functioning of the traditional recycling activities are from the enabling environment and the market, from the institutional and organizational weakness of this sector, and from its general reactivity in the face of change.
6. The threats from the enabling environment, of which Roma informal waste collectors are generally aware, relate primarily to modernization of the waste sector and the growing interest in recycling.
7. The institutional and organizational weakness of the sector relates to the fact that it does not create horizontal institutions.
8. **IWCs – Authorities** - number of causal relationships have been identified with regards to problems that IWCs, as immediate target group are facing, indicating a clear need for coordinated action in solving the identified problems. Skopje is a rare city where municipal authorities and politicians are convinced to move from their traditional policies of repression and neglect of, or collusion with, the IWC's to one of positive engagements, support and cooperation.
9. Financial institutions are willing to discuss financial assistance to Roma informal waste collectors, however, they are of the opinion that they are interested to participate in a guarantee scheme along the lines of the guarantee of the packaging waste operator in the country or within the lines of crediting a social enterprise.
10. Completing the entire process of sustainable formalization of informal waste collectors by inclusion of them into the system, waste management as well as social/health care systems. The circle would be complete if the current IWC organization receives a legal form and becomes a legal entity with provision of all the necessary health care and pension insurances benefits to its members/employees.
11. The City of Skopje and the PUC Komunalna Higijena see the Roma IWC's and the informal sector as related to their modernization process: they are seen as part of the solution of the problem.
12. The recent creation of a parallel structure for collecting and sorting PET bottles in Skopje in the landfill Drisla on one side and the construction of the new recycling yards by PUC Komunalna Higijena suggests that recycling supply chain companies and the landfill management will bypass the option to integrate the informal sector if they can. Once they are in the recycling business, the landfill company can be expected to offer increased competition and further marginalize the IW collectors.

### 3. Summary recommendations - Organizing for empowerment of waste collectors

By getting organized, waste collectors can strengthen their bargaining position with the industry and the relevant institutions, become actors in the development process, and overcome poverty through grassroots development. Working together, they can gain stability, higher income and legalization of their activities. Organized, they can enter into contracts with the industry or grant agreements with donors. One of the main benefits of formalization is the possibility of entering into agreements or contracts with local authorities for primary waste selection. By taking their work out of the dumpsites, it also greatly reduces health risks from contact with waste.

- Organize waste collectors into legal entity, following best practices from other countries. Three models for organizing waste collectors have proven to be successful: microenterprises, cooperatives and public-private partnerships;
- Capacity building for further professionalization of the informal waste collectors (business skills development);
- Develop and implement actions to encourage IWC's to enter new partnership and new niches with relevant institutions (local self governance, public utility companies, waste management entities);
- Further develop and adopt municipal waste management policies and practices to enable inclusive environment for the Roma informal waste collectors( Municipal Local Waste Management Plan, Local Environmental Action Plan);
- Facilitate access to finance for the IWC's(Micro finance assistance to IWC's, Capital financing for the IWC's and municipalities through Public Private Partnership);
- Support leaders in the Roma community and the civil society in understanding and working with the informal waste collectors and the enabling environment;
- Pilot small informal waste collectors` integration projects on local level;
- Enable ownership and institutional capital to the organization/enterprise of informal waste collectors.

#### 4. GOVERNMENT/SECTORAL POLICY

Environmental Legislation and standards applied  
**Ministry of Environment and Spatial Planning**

MESP is responsible for environmental policy, the application of laws and supervision of activities for Environmental Protection and Spatial Planning. This includes water, air, soil and biodiversity.

In the sector of waste administration, according to the waste law, the Ministry of Environment and Spatial Planning carries out the following activities:

- Compiles the Strategic Plan for Waste Management;
- Issues licenses for waste management and keep records and registers;
- Approves the Environmental Impact Assessment;
- Approves local plans for waste management;
- Implements international agreements for waste management;
- Approves schemes for recovery of administrative costs associated with waste Management.

##### **The Law on Waste Management, October 2004**

This Law is an EU standard waste management legislative act which includes the “polluter pays” principle and therefore foresees a waste management system where each waste generator is obligated to properly dispose of its recyclable waste materials. It requires waste operators to be licensed for operations of collection, transport, treatment, processing, storage and disposal of waste. Such licensed operators are the only companies who are able to collect waste materials from waste generators with obligatory issuing of the Document on Waste Collection from operator to waste generator. This document is justifying waste generators fulfillment of prescribed legal obligation of waste recycling. In accordance with the Law, the social enterprise owned by the IWC’s Centre/social enterprise can be licensed as waste management operator for collection/transport/processing/treatment of waste. With such a license it will be able to provide a legitimate and documented service of waste collection and transport for companies and households and to further to process/treat the secondary waste materials in order to add value and achieve higher sales prices. The following definitions will be applied:

**“Hazardous waste”** shall mean any waste that has one or more hazardous properties such as: explosive, reactive (oxidizing), flammable, irritant, corrosive, toxic, infectious, carcinogenic, mutagenic, toxic to reproduction, eco-toxic, and properties of toxic gasses release when getting in contact with water, air or acid, specified in accordance with this

Law or other regulation, and listed and specifically designated as hazardous in the List of Wastes, including any waste that is mixed with hazardous waste;

**“Non-hazardous waste”** shall mean any waste which does not possess the properties of a hazardous waste.

**“Commercial waste”** shall mean any other waste generated by legal entities and individuals while performing commercial, industrial, trade, service, administrative and similar activities, which is similar to the waste from households in nature or composition.

**“Used batteries and accumulators”** shall mean any battery and accumulator that cannot be used again and that is intended for processing or disposal.

**“Waste electric and electronic device”** shall mean any electric and electronic device which the generator and/or holder is discarding, intends to discard or is required to discard, including all parts and components which are integral parts of the device at the time of discarding.

**“Packaging”** shall mean all products made of any material that are used for storage, protection, handling, delivery and presentation of goods, from the producer to the user or the consumer, regardless of whether the goods are raw materials or processed goods.

**“Packaging waste”** shall mean any packaging or packaging material that the generator or holder is discarding, intends to discard or is required to discard, except for the residues from the production.

**“Generator”** shall mean any legal entity or individual whose operations or activities generate waste (original generator), and/or any person conducting operations of treatment, mixing or other operations resulting in a change in the nature or in the composition of the generated waste (secondary generator).

**“Waste handling”** shall mean collection, selection, transportation, treatment, processing, storage and disposal of waste, including the supervision of these operations, as well as the measures for protection of the environment and of human life and health during the operation of the facilities and installations for waste disposal, and the care taken after the termination of their operations.

**“Waste processing”** shall include the operations specified by this Law intended for utilization of the usable substances and components of waste, including the procedures for reuse, recycling and use of waste as energy source, with the exception of waste burning for definite disposal of waste.

**“Waste Processor”** shall mean any legal entity or individual processing waste, regardless of whether it had generated the waste itself or is processing it for third parties.

**“Waste treatment”** shall mean the mechanical, physical, thermal, chemical or biological processes, including sorting, that result in change in the properties of the waste, with a view to reducing the volume or hazardous nature thereof, facilitating the handling or making it more suitable for processing.

**“Waste collection”** shall mean a set of organized activities including procedures that prepare the waste for transportation.

**“Storage”** shall mean any organized activity for storing the generated waste in facilities that fulfill the prescribed requirements for this purpose, for a period of less than 3 years if the stored waste is intended for treatment and processing, or for a period of less than 1 year if the waste is intended for disposal.

**“Individual service provider”** shall mean any individual providing service of public interest of local importance as profession, handles waste and is enrolled in the relevant court registry for the activity performance, and complies with the conditions specified by this Law.

- **The Law on Environment, June 2005**

In accordance with this Law, all entities in the field of waste management will be obligated to complete an Environmental Impact Assessment (EIA) Study for treatment/processing of hazardous waste materials.

- **Waste Management Strategy (2008 – 2020), March 2008**

This strategy provides the mainframe for preparation of regional/local waste management plans. As per the Law on Waste Management, implementation is delegated to local self government units (city or municipality) where each unit is obligated to prepare Local Waste Management Plans.

- **National Waste Management Plan (2009 - 2015), October 2008**

Provides set goals for recovery/recycling of recyclable waste materials. Packaging waste goals are set for target of 50% of recovery from which 25% should be recycled. This target is expected to be reached by 2018.

- **Law on Packaging and Packaging Waste Management, December 2009 (amendment April, 2011)**

In accordance with this Law each packaging producer/filler/distributor is obligated to recover/recycle packaging that is placed on market utilizing the approach of the principle of the “polluter pays”. Specialized agencies, licensed packaging waste operators, are foreseen. These companies are accepting the fulfillment of legal requirements in the name of its clients, i.e. waste generators as prescribed in the National Waste Management Plan.

- **The Law on Cooperatives, July 2002**

This Law provides the mainframe for the establishment of a legal entity, with a sustainable ownership and management structure in place. The cooperative mechanism will allow for the empowerment of the former IWC and provide an organizational structure that can guarantee proper management of business operations and usage of provided equipment. In accordance with this Law, the establishment of a cooperative is possible with 3 founding members. The Cooperative management bodies described in the law include the cooperative assembly which consists of all voting cooperative members, the management board which is a body of delegated cooperative members selected by the assembly and the supervisory board of delegated cooperative members by cooperative assembly. The main statutory act for the establishment of the cooperative is the Cooperative Rules, where all the required definitions and restrictions can be applied in accordance with Law on Cooperatives. This Law provides provisions for primary cooperatives only.

- **Law on Concessions and other types of Public Private Partnership, July 2008**

This Law is relevant in the further development of business operations of a social enterprise and establishment of a reliable partnership with the City of Skopje and PUC Komunalna Higijena Skopje with aim of successfully and sustainably developing a system of recyclables collection/transport/treatment. By entering into a public private partnership between social enterprise, City of Skopje and PUC, it would complete the entire circle of all relevant parties involved in the current collection mechanism applied in The City of Skopje without creating any socio-economic disturbances among IWC and wider.

## **Relevant local policies of City of Skopje**

### **Local Governments – Municipalities**

According to the waste management Law, the municipalities as local government mechanisms, in the sector of Waste management have the following tasks and responsibilities:

- Compile local plans for waste management;
- Compile six month reports on waste management and submit them to the Ministry, on the first quarter of the following year;
- Regulate, implement and organize municipality waste management in their territory;
- Take part in issuing municipal decisions for building waste management facilities;
- Determine tariffs for services of municipality waste collection and disposal for enterprises for waste management.
- Waste Management Plan for The City of Skopje (2010 – 2015), January 2010

Operations wise, this is the most important document for realization of a system for inclusion of the IWC in Skopje. It gives the exact plans for the establishment of a recycling system in each of the local self government units (in this case the City of Skopje) with data on available waste quantities, waste composition and projections of growth. Alignment with the envisaged plans from this document can be considered as essential for the development of sustainable operations of the informal waste collectors in Skopje. The waste management plan has foreseen the development of additional two recycling yards in Skopje which will enable additional informal waste collectors to be included in the existing partnership framework between the IWC's, PUC Komunalna Higijena and PAKOMAK.

- Local Environmental Action Plan of City of Skopje, (LEAP 2) March 2011

The Local Environmental Action Plan is a strategic document of City of Skopje that provides the strategic priorities, both short and long term in all aspects of environmental protection and management. The new LEAP of City of Skopje acknowledges the contribution of the informal waste collectors into collection of

waste, particularly PET, in Skopje municipalities. The document itself sees positively of the efforts for organizing and formalization of the work of the informal waste collectors.

- Program of activities in the area of environmental protection of City of Skopje, 2013

The main goal of this program is to improve the overall situation in the area of environment in the city. In the part of institutional strengthening of the waste management the program defines: *"Inclusion of the individual waste collectors into the formal management system on organized manner"*, thus providing institutional setting in the local self governance for inclusion of the IWC.

## **5. The main findings in regards to legislative**

The City of Skopje has a formal Waste Management Plan, as required by Law on Waste Management which foresees the development of a recycling system in the City of Skopje which to great extent corresponds with the activities of the IWC's envisaged. It is our opinion that the involvement of IWC's as part of the implementation of Waste Management Plan for The City of Skopje is possible, even at early stages of social enterprise establishment and it will support the Government to achieve its goals, priorities and targets. The waste management plan has foreseen the development of additional two recycling yards in Skopje which will enable additional informal waste collectors to be included in the existing partnership framework between the IWC's, PUC KomunalnaHigiiena and PAKOMAK.

- The Ministry of Environment and Spatial Planning or other local authorities (city or municipality being defined as local self-governance units) are allowed to issue a collection/transport/storage/treatment of waste permit. The ministry responsible for issuing permits for IWC's but no procedure for issuing has been developed. Social enterprises are also subject to obtaining licenses for the collection/storage/transport and trade with non-hazardous waste.
- The social enterprise/ cooperative must be licensed as a waste management operator for collection/transport and treatment/storage of waste, including activities in collection/storage of hazardous waste materials (EE waste and batteries).
- In relation to the Law on Packaging, the IWC's and their entity can establish cooperation with the licensed Packaging Waste Operator - PAKOMAK. This operator is one of five agencies for the packaging industry (produces, fillers, retailers) with the obligation of fulfilling the national recycling goals for packaging waste on behalf of its clients who has a signed agreement for cooperation with the city of Skopje. Collection of specific packaging waste materials, such as glass packaging or multilayer cardboard packaging (like Tetra pack) is not profitable if it is solely market based, therefore with the support from PAKOMAK, in form of collection equipment support and payment of collection fees for certain types of packaging waste, it is possible to widen the scope of collected waste materials and to establish a reliable partnership with the packaging industry.
- The IWC's organized in a business entity can operate a buy back station and provide several points for buy back in the established collection points, providing informal waste collectors a close location to sell their collected materials, reliable payment for brought quantities and access to Cooperative membership and potential employment. Buy back stations function as regulated trade by issuing buy back list and payment of. Buy back prices will be set up on daily basis, connecting to daily quotation of secondary waste materials on international stock exchange and in close relation to Skopje secondary waste material market. Benefits for IWC's:

For IWCs:

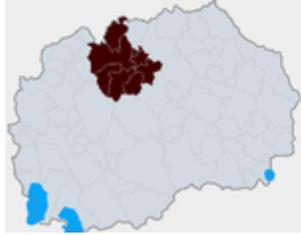
- Obtaining of better profit margins than just selling to usual junk shops.
- Obtaining valid license for operating as waste management operator and providing his/hers clients with valid documents on waste take over.
- Having access to proper health and safety training and equipment.
- Having access to advisory by social enterprise regarding improvement of working conditions and expansion of collection capacities.
- Access to IDs and health care system.

For the social enterprise:

- Rapid expansion of collection capacities.
- Expansion of supplier network.
- Improving living conditions of community.
- Formalizing informal collectors.
- Reaching marginalized groups.

**6. Potential risks that are related to collection of secondary waste materials(Packaging waste) from IWCs**

- Quality assurance – this will present necessity of constant quality control mechanism in order to assure needed level of quality of collected materials. Such quality controls will also consist of quantity controls on scales based in Recycling Centre/s and/or collection points.
- Continuous supply with secondary waste materials collected by IWCs – inconstant supply is creating instability for Recycling Centre and further with buyers of recyclables. Such issue can be resolved with guaranteed buy back prices and incentives system for collected quantities in certain period of time. Fulfilling of such milestone, higher prices can be obtained.
- Cash handling – issue is mainly of security nature that can be resolved by scheduling exact intervals when payout will be possible, in order to raise cash from bank account and immediately pay out IWCs. Also, cash handling must be done by one authorized person in order to avoid possibility of misuse of funds.



## 7. Basic Data on city of Skopje

The City of Skopje is largest city in the country, with a population of cca 507,000 (data from 2006 census). The City of Skopje is the administrative, economic, cultural and educational centre of the country. The local self government structure of the City has 10 municipalities of: Saraj, Gjorce Petrov, Karposh, Centar, Kisela Voda, Aerodrom, Gazi Baba, Chair, Butel and Shuto Orizari. The City covers an area of 1818 square km, 23 km in length and 9 km in wide. The Municipality of Shuto Orizari is the location where the majority of IWC have residence, but they operate/collect from the entire territory of the City. Based on the available census 2002 data, the Municipality of Shuto Orizari has a population of 18,907 of which 79.10% are Roma. There is also data that the Municipality is host of 2,814 Kosovo Roma refugees.

Based on 2008 data available, the City of Skopje has 162,910 mt per year of mixed waste from which 147,448 mt comes from urban settlements and 15,462 mt comes from the rural settlements of Skopje. The Skopje landfill of "Drisla" receives a quantity of 139,147 mt per year of waste. It is estimated that cca 8,000 mt per year of waste ends up at illegal landfills. The composition of waste on territory of Skopje is estimated as follows:

Table 1 – Generated and Collected QTY per Type of Waste Material in City of Skopje (source Waste Management Plan for City of Skopje)

	<i>Type of recyclable waste</i>	<i>Generated qty mt/year</i>	<i>Collected qty mt/year</i>	<i>Recycling/recovery rate %</i>
<i>Market value recyclable materials</i>	<i>Paper/Cardboard</i>	19,386	15,500	80%
	<i>Plastics</i>	15,639	2,500	16%
	<i>Metals</i>	4,236	100	2%
<i>Packaging waste for cooperation with packaging waste operator</i>	<i>Glass</i>	5,702	n/a*	n/a*
	<i>Wood</i>	4,399	n/a*	n/a*
	<i>Mix packaging materials</i>	3,584	n/a*	n/a*
<i>Non sufficient data available</i>	<i>Hazardous waste</i>	326	n/a*	n/a*
<i>Non recyclable</i>	<i>Biodegradable</i>	42,357	n/a	n/a
	<i>Textile</i>	4,724	n/a	n/a

	<b>Other materials</b>	12,218	n/a	n/a
	<b>Mixed fine particles (&lt;10 mm)</b>	50,339	n/a	n/a
		<b>162,910</b>	<b>18,100</b>	

#### **Data on collected waste in 2012, Annual Report Public Utility Company**

The general impression is that the collection system of recyclables, as well as the recyclables market in the country and in Skopje is still in a transitional/development. The significantly high percentage of recycling of paper/cardboard is a strong indication that the market is in a major part based on the IWC collection mechanism. Traditionally the IWCs collection is based on cardboard and PET, with a strong reluctance to accept any changes in the market and new demands for the collection of different types of secondary waste materials. The Skopje IWC show a significantly larger interest in the collection of plastic packaging (mainly PET bottles), which has been confirmed by representatives of PUC Komunalna Hgiena Skopje, Greentech, PAKOMAK, IWC's and junk shops.

Table 2, Collected waste in 2012, PET, cardboard, canes (Annual report Public Utility Company, Komunalna Higijena, 2012)

Month 2012	PUC Komunalna Higijena			Informal waste collectors			Total		
	PET (kg)	Cardboards (kg)	Canes (kg)	PET (kg)	Cardboards (kg)	Canes (kg)	PET (kg)	Cardboards (kg)	Canes (kg)
January	50	3.500	0	5.513	31.991	11	5.563	35.491	11
February	50	3.500	0	5.862	26.011	0	5.912	29.511	0
March	200	4.000	0	6.285	12.077	19	6.485	16.077	19
April	400	3.500	0	3.475	12.535	13	3.875	16.035	13
Maj	400	1.000	0	4.141	9.744	56	4.541	10.744	56
June	50	1.000	0	5.368	10.220	21	5.418	11.220	21
July	50	500	0	5.131	7.516	131	5.181	8.016	131
August	50	350	215	6.447	5.021	37	6.497	5.371	252
September	620	2.500	0	6.890	4.436	88	7.510	6.936	88
October	650	5.000	0	8.776	3.488	67	9.426	8.488	67
November	630	5.500	0	9.648	7.074	36	10.278	12.574	36
December	0	2.310	0	5.754	1.299	0	5.754	3.609	0
<b>Total-2012.</b>	<b>3.150</b>	<b>32.660</b>	<b>215</b>	<b>73.290</b>	<b>131.412</b>	<b>479</b>	<b>76.440</b>	<b>164.072</b>	<b>694</b>
<b>Total-2011.</b>	<b>10.100</b>	<b>20.900</b>	<b>0</b>	<b>51.008</b>	<b>185.860</b>	<b>382,8</b>	<b>61.108</b>	<b>206.760</b>	<b>382,8</b>
<b>Difference</b>	<b>-6.950</b>	<b>11.760</b>	<b>215</b>	<b>22.282</b>	<b>-54.448</b>	<b>96,2</b>	<b>15.332</b>	<b>-42.688</b>	<b>311,2</b>

## 8. Activities for formalization of the Informal waste collectors

Since 2005, USAID through the Plastic Recycling Project, provided support to the establishment and growth of the plastic recycling industry in the country:

- Established infrastructure for primary selection of plastic PET waste by promoting public – private partnerships in partnership with 27 municipalities and public/ private utility companies
- Established Association of plastic collectors and recyclers, PETRA
- Established Association of Informal waste collectors, ZNS
- Provided technical support to the Ministry of Environment and Physical planning in drafting and adopting the Law on packaging and packaging waste
- Subsidized collection of plastic, through grants for initiating collection of PET waste and increasing processing capacity of PET waste
- Through a range of support provided, indirectly engaged 3000 to 5000 individuals in the informal collection and processing of plastic (most of these individuals are socially deprived persons with no education and skills whilst collection of plastic being their only income)
- Increased collection of PET plastic waste from 350 tons in 2005 to 6000 tons in 2009

Key objectives of the third phase of the USAID Plastic Recycling Project which was completed in January 2012 was:

- Integration of informal waste collectors into the formal waste management system
- Strengthening local capacities for establishing Municipal PET collection program

In summer 2011, 19 informal waste collectors started their process of entering into the formal waste collection system. The USAID Plastic Recycling Project and the PUC Komunalna Higijena supplied IWC with protective clothes. PUC Komunalna Higijena assigned the collectors containers for regular servicing, as well as containers' keys. Operational regions were distributed to them within 3 municipalities (Centar, Karposh and Gjorche Petrov). In total 133 containers were assigned to IWC's for regular servicing providing cca 60 mt per month of collected paper/cardboard and cca 16 mt per month of collected PET. In accordance with data from Waste Management Plan for the City of Skopje, activities of this project contributed with 0.65% of recovery/recycling rate for plastics and 0.30% for paper/cardboard. Collectors also received ID cards and legal acknowledgment for their activities in form of license by PUC Komunalna Higijena for servicing assigned containers. USAID plastic recycling project along with PUC and PAKOMAK (first authorized company for management of packaging waste) participated in the signing of contracts with the collectors where PUC and PAKOMAK formed a buy back price for all collected and delivered materials to the recycling centre of PUC. Currently 38 IWCs are servicing 19 districts (in 3 municipalities) where each district has 2 IWCs servicing 5-6 containers. As a continuation of the project, the PUC is planning the establishment of 3 more recycling centres in Skopje covering the rest of the 7 municipalities and the investment in an additional 600 containers to be serviced by IWCs.

In close cooperation with PUC further waste management system involving IWCs can be continued and developed in order to achieve full formalization of IWCs and to provide complete waste management service for citizens and businesses in Skopje.

Current recycling market in Skopje is left uncovered in greater extent and provides enough secondary waste materials quantities for collection. Also, current PUC activities are mainly focused on household collection, meaning set up of primary separation recycling bins in residential areas to be serviced by licensed IWCs, which leaves waste generators such as legal entities (SMEs, retails and organized residential buildings) without provided waste management service with issuing of needed document on waste transition.

PUC Komunalna Higijena has established a recycling centre equipped with two balers, one vertical double chamber for cardboard/paper and one horizontal for PET and UBC. In the recycling centre a drive on scale has been installed where each quantity delivered by licensed IWCs is measured, noted and immediately paid in cash based on a set price list for buy back. This price is mainly dictated by local final

recyclers and the PUC is an interim player between the final recyclers and collectors. The processing of secondary waste materials (paper/cardboard) is very simple. After weighing, the materials are sorted into metal wire boxes directly on the floor under the shed roof. Balers are then fed the materials manually and the completed bales are stored in the open space of recycling centre. Workers from the PUC Komunalna Higiena are working in the positions of supervisor, quality/quantity control and sorting/baling/storage procedures. IWCs are not involved in the operations of the recycling centre. The centre is located in the north-west part of Skopje, at the PUC's equipment maintenance and storage area.



## **9. Collection of Paper/ Cardboard**

An organized collection of cardboard is performed by AD Komuna, paper/cardboard factory based in Skopje. This company is the only recycler of paper in the country and it is supplied by various sources including traders. 90% of paper recyclables is received by this company. AD Komuna is part of the Belisce Group, which is a Croatian corporation that has numerous paper producing factories on the territory of the Former Yugoslavia (including Serbia, Inospapirservis). AD Komuna is involved in the direct collection of paper and card board through the following system:

- Business – carton containers with a capacity of about 20 kg.
- Civil containers with a capacity of 1,8 m3
- Industrial containers with a capacity of 3 m3, 5 m3 and 18 m3.

AD Komuna, according to data available in Waste Management Plan for the City of Skopje, consumes all collected quantities of paper/cardboard on territory of the City and is in a position to monopolize the secondary waste paper/cardboard market in Skopje. Therefore, the current prices of this type of secondary waste materials may be considered to be on a lower level if compared with prices on exchange markets in Europe.

Aside from the organized collection by AD Komuna and other licensed waste management companies, the majority of collected quantities on territory of Skopje are still coming from the IWC activities.

## **10. Collection of PET and other types of plastic**

The organized collection of PET, as mentioned above, is reflected throughout the activities of the Plastic Recycling Project. As part of the achievements of this project, Greentech plastics recycling company have invested in a recycling facility in Skopje in 2008. Greentech is a company with recycling facilities in Romania, Serbia and the Former Yugoslav Republic of Macedonia. In Romania it is in the position of no. 1 plastics recycler and the main supplier to Dacia. Another three plastic recycling plants are operating in the country; their presence in the country guarantees a steady market with a constant demand as well as a reliable partner for further development of the activities of the IWC's.

PET waste is recycled to PET flake, approximately 12000 tones of PET are collected recycled and exported (export markets are Romania, Turkey, Germany, China, Switzerland). Major PET recyclers are: Greentech, Pavor Veles, EKO start, Simsek Yun sanayi and other smaller plants.

Approximately 10000 tones of LDPE and HDPE is recycled into a regranulate, the material is used by domestic plastic production industry, Producers of irrigation pipes, agricultural foil, garbage foil and etc.. Major LDPE and HDPE recycling companies are: Greentech, Agropal, Fenix, Radovis.

## **11. City of Skopje and IWC's**

Departments of Environment and Communal Affairs are members of the project working group, where they can provide important inputs to the process. Departments have taken an active role during the action planning process. The City of Skopje has a direct interest in supporting IWC's since it can partially resolve multiple issues of both a communal and socio-economic nature. Through identification of recycling yard/centre sites as foreseen in the strategy, the IWC's can perform the collection of recyclable waste as part of and in harmony with the City and PUC. This mechanism will ensure a mutually beneficial environment where targets can be achieved, vulnerable populations receive formal work and where environmental protection is improved. Considering the lessons learned and the acquired experience

during the operations of the recycling centre in the previously implemented Plastic recycling project, it is expected that in case the IWC;s organize themselves in a social enterprise , at the beginning minimum of 50 informal waste collectors (IWCs) on the territory of City of Skopje will be able to obtain long term employment and to be entitled to healthcare and pension insurance. With such a system, it is expected that approximately 150 families will have regular incomes provided by legal means of collection of secondary waste materials, which would represent approximately 600 -750 people able to provide livelihood with such activities, and support to access health and social services, education and personal identification. Also, it would eliminate the current need for entire families to work together on waste collection.

The aim is for the establishment of a sustainable cooperation between the City of Skopje and the IWC's that is mutually beneficial and will provide the possibility of a sustainable business expansion and development for the organized social enterprise while contributing to the objectives and targets set by the City of Skopje waste management strategy/action plan. Such an approach would represent inclusion of IWC's in implementation of the Plan and continue the process of experience acquisition and creation of a knowledge data base that would represent a great asset to all parties involved.

## **12. Public Utility Company Komunalna Higiena, Skopje**

Performs waste collection services in the City of Skopje area. Current problems of PUC are collection of waste from legal entities as per Law on Waste Management and collection of waste in rural areas and surrounding settlements. Lack of collection equipment and system of waste separation, aside to already mentioned recycling centre is evident and explained in Waste Management Plan for The City of Skopje. Cooperation with PUC can be considered as natural continuation of already existing excellent cooperation between PUC and IWCs. PUC Komunalna Higiena of Skopje already has significant results in attempts to formalize IWCs and to include them in organized collection mechanism.

## **13. Pakomak**

Pakomak is a nonprofit company, whose main activity is management of packaging waste. According to the new Law on management of packaging and packaging waste, since January 10, 2011 Pakomak is the first company in the country, licensed by the Ministry of environment for selection and processing of packaging waste.

Eleven leading manufacturing companies in the country are founders of the company: Pivara Skopje(CCHBC) AD Skopje, Prilepska Pivarnica AD Prilep; Vitaminka AD Prilep; Pelisterka DOO Skopje; Magroni DOO (Ladna, Dobra Voda); KodingDooelKavadarci (GorskaVoda) Kozhufchanka DOO Kavadarci; Vivaks Dooel Skopje; Blagoj Gjorev AD Veles; VV Tikvesh AD.; VV Stobi AD. PAKOMAK encompasses approximately 40000 tons per year. The company collects 20 Euro per generated ton of packaging waste; they have signed an agreement with the city of Skopje in order to set 500 containers for collection of Plastic and paper

The National Waste Strategy has set recovery/recycling rates expected to be achieved by 2018, where the rate for packaging waste is 50% of the recovery rate and 25% of the recycling rate. Cooperation with PAKOMAK can mainly develop for collection of the main packaging materials (paper/cardboard, plastic and metal) where PAKOMAK can be seen as a partner in the establishment and expansion of a collection network and as a financial supporter by providing subvention/incentive fees for collection of packaging materials. Also, PAKOMAK as currently the only packaging waste operator which has signed agreement with the city of Skopje also has the responsibilities the activity of raising the awareness of the population and education on recycling. This in the future can be implemented IWC's and their social enterprise. Pakomak and PUC Komunalna Higiena of Skopje already have significant results in attempts to formalize IWCs and to include them in organized collection mechanism.

## 14. Final recyclers market

### *Greentech*

The representatives of Greentech being members of the project WG, a strong interest in the implementation of project was expressed as the main issue that Greentech and the rest of the final recyclers are facing is a larger demand than supply of the secondary waste materials. A second issue they have is of similar nature and it relates to the inconsistent supply, both in regard to the quality and quantity of the collected and delivered materials as the informal collection mechanisms in place are unable to apply a constant and continuous level of deliveries. As a company with a CSR strategy, Greentech is willing to support IWC efforts in the same manner as it has supported and supports the efforts of Plastic Recycling Project. From a business side of things, Greentech is seeking a reliable partnership and sees the IWC formalization as the best possible solution in order to successfully convey existing systems into a formal and sustainable mainframe, with benefits for all the parties involved.

### *AD Komuna*

As the largest paper recycler in the country, AD Komuna is seen as a natural business partner of the informal waste collectors. There are significant resemblances with the plastic recycling companies where the position of AD Komuna can be compared with Greentech on plastic recycling. Taking into consideration that Komuna has long term cooperation with IWC, it is envisaged that the same/similar method of cooperation can be transferred to the microenterprise established by the IWC's. Komuna at the moment has outsourced collection of waste paper from their micro-locations to Local middle man, where IWC's is servicing only the established network of smaller retail clients (mainly small/midsized businesses) and does not charge any service fee for collection. IWC's is supplying Komuna with collection cardboard boxes.

### *Makstil*

Ferrous and non ferrous metals recycler. In accordance with data from the Waste Management Plan for the City of Skopje, it is operating as member of Association of The country Collectors which consists of 80 companies that are collecting and recycling metal waste/scrap. Since ferrous and non ferrous metals are not the primary target materials for collection of IWC's partnership with this company/association can be reconsidered in the future period and development stages in light of business expansion.

### *Problematic Materials*

Glass is not collected at all, due to the fact that there is no market value for the same, the Pakomak is trying to set a system for collection of glass; however they are facing difficulty in shipping the waste glass to the closest glass manufacturer in one of the neighboring countries.

Informal waste collectors, collect over 90% of the materials recycled in the country, the collection of materials is from waste containers set by the Public Utility companies and sorting and collection done manually in land fields. Over 5000 Informal waste collectors are active in the country, their number depend on the market prices, their numbers grow when the market price of the materials collected go up. The IWC's sell their collected materials to Junk Shops or scrap yards, the IWC are in the lowest chain of recycling thus despite the fact that they are key to recycling their earnings are the smallest in the chain. 187 licensed scrap yards operate in the country, at least another 100 scrap yards operate without a license.

## E-waste

The Law on management of electrical and electronic equipment and waste electrical and electronic equipment was adopted on 11/01/2012; no operator has been licensed yet. The IWC are the ones who collect buy and sell the electrical and electronic appliances in the second hand markets organized by IWC in abandoned places once a week in the city of Skopje.

### **15. Social Mobilization of IWC's**

As experiences of PRP can confirm, approaching the IWCs presents a major challenge as there is a reluctance to accept and change habits. Informal collection of waste has been present for decades and it has been present among the IWC population for generations. A major aspect that has to be reconsidered when approaching IWCs is that they are usually very reluctant to accept regular, daily obligations and work hours. Also, the benefits of accessing health care and pension insurance is often not so clearly understood or believed in. The second aspect is the lack of awareness that informal waste collection is illegal and that there is legislation in place that is not being fully applied at the moment but once it is there will be no possibility to find any secondary waste materials to collect informally. Upcoming industrialization and commercialization of the waste management and recycling sector will suppress and eliminate any possibility for informal collection as it is currently. Taking all the above mentioned into consideration, these issues will be tackled with more success if a clear awareness raising campaign with the IWCs takes place with the aim of elaborating the new situation in waste collection and the necessity of changing old habits in order to survive. When performing the interviews with selected IWC in Pod Kale area, consultant was not able to identify visible impacts of existing governmental/sector policies to improvement of living/work conditions of the vulnerable group of poorest informal waste collectors in all area visited. Whilst understanding the strategic importance of such policies for the wellbeing of target community, the consultant is inclined to put the immediate priority to the practical aspects of life/work of IWCs, through series of incremental, small improvements in the way of performing their waste collection activities, to be based on observing the daily operations and living routine of IWCs, once organized through initial stage of cooperative or a social enterprise.

While fully understanding the need and importance of development/enforcement of relevant policies and legal framework for the long term well-being of target communities, consultant is of opinion that performing the robust, simple action of establishing and running the small, growth-oriented organization – social enterprise would generate swiftly the visible effects to the target community and generate valuable information for streamlining the future operations/development strategy. Positive perception by IWCs of incremental steps made is considered as key to their mobilization and future commitment to a small business operations and objectives. This does not necessarily require a strong focus to policy/institutional issues during the early stages of social enterprise operations, simply given the fact that the entire almost all IWC community apart from the 19 already formalized, is currently performing the waste management activities completely outside the existing legal framework. This also applies, in substantial extent, also to other waste operators doing their business in the market, whereas even the well-established waste management operators may have questionable legal compliance status.

## **16. Number of IWC's in Skopje**

At the moment there are over 20 IWC settlements in Skopje consisting of about 1000 families, reported to be a total of 6000 persons; with seven or eight children per family, this means that about half of the total are children. We were told that they some of them have no documents, no security, and the children are not admitted in school because. The focus of the community is clearly waste picking. Their priority is a secure place to live, close to the centre of the city, because they need to be close to parks, containers, and litter baskets which are the source of their livelihoods. In and around the settlements high number of jumbo sacks of primarily PET bottles for recycling can be seen, but there were also some other miscellaneous plastics and small pieces of metal. Both women and men collectors use tricycles, bicycles with trailers, or hand carts to collect. On various occasions the community at Kale area would sent a petition to the Ministry of Social Affairs and the city of Skopje asking for a secure place to live close to the centre of the city. According to residents from the kale settlement, they have not received an answer nor even an acknowledgement of the communication. The situation was not really conducive – on first acquaintance – for a full consultation, but the conversation and visit lasted about 45 minutes, in which

time residents made it clear that working and living are together their priority. They don't want to be far from the working and the waste generated. Enumeration is not interesting to them, they are afraid to give the local authorities exact information about who lives there, because they are afraid that this will lead to more effective attempts to break up their living group and maybe to removing their children.

### Data from the field visits in Skopje

99 % of informal waste collectors by nationality are Roma. In Skopje there all 10 municipalities locations where the IWC's have settled can and all over city of Skopje in all ten municipalities.

Informal waste collector's settlements in the city of Skopje:

1. Centar (1.1. Kale, 1.2. Dame Gruev, 1.3. Topaana)
2. Kisela Voda (2.1.Sapunara (one location) and 2.2. the road by Railway (three locations), 2.3. Drachevo on several locations)
3. Aerodrom (1.1. Kej –Aerodrom (Vladimir komarov –two locations), 1.2. PIOM (two locations), 1.3. Gazela Factory (two locations), Novo Lisice - 1.4. BulevarAsnom /Kej; 1.5. Lisice)
4. Saraj
5. Gazi baba (5.1.Madzari, 5.2. Cento (Avtopoligon)
6. Cair
7. ShutoOrizari (7.1. Brsjacka Buna bb, 7.2. Nov Zivot )
8. Butel
9. GjorcePetrov
10. Karposh



Due to the fact that informal waste collectors have no constant living place they are often subject of knocking down their temporary housing by authorities, as a result of the development of the new urban planning.

To the question of what kind of materials they collect, their most frequent answer was plastic, cardboard, metal and alum-cans, from the waste bins.

There are two groups of informal waste collectors: First group of informal waste collectors are those who collect waste through all year and second group of IWC's those who collect on seasonal basis – during summer period. The first group of IWC's collecting packaging waste is there primary work and income from collection represents their main means of income for their family. The second group of informal waste collectors are collecting only in the summer due to larger quantities of plastic waste generated. Some of the IWC's collect old clothes for re use.

They collect waste in various areas in Skopje, mostly along the River, Vardar and from waste bins all over the city. Most of the IWC's collect packaging waste in the area near where they. The most preferred areas for collecting packaging waste is the center of the City of Skopje, Karposh, Aerodrom and Kisela Voda due to huge concentration of people. During the summer Skopje attracts IWC's from the other small towns who are coming to Skopje and settle themselves in abandoned factories like Sapunara in Kisela Voda and Gazela. They mostly come from: Strumica, Kumanovo, Veles and Vinica. They construct their mobile cardboard houses and move from location to location aiming to find the location providing the necessary conditions for their work.

IWC's don't have relations with the Public Utility Companies. Only the 19 IWC's mentioned in the Plastic Recycling Project have a cooperation agreement signed with the PUC Komunalna Higijena and possess ID cards from "Komunalna Higijena" and have gained the right to service packaging waste containers. The rest of the IWC's who do not possess ID cards often face problems with the police. They are also subject to police harassment and fines. The Law for Waste Management adopted in 2004, later updated in 2007 (Official Gazette 68/2004 1n3 107/07) forbids informal collection and fines are in the amount of 50 euro. Almost 50 % of the informal waste collectors have 30- 40 fines by person which they throw away because they cannot afford to pay it.

Over 60 % of informal waste collectors from the interviewed 20 sites consider collecting packaging waste as their main work and main source of income. The IWC's have stated that they are rejected by the society due to the work they are doing, most of the members of family rely on waste picking. The average number of informal waste collectors in Skopje is about five hundred to one thousand families with each family consisting of at least six members. Most of the families are working together father, mother and children. On days when they cannot collect sufficient packaging waste for selling they collect food waste from containers to feed themselves. Frequently the family is hungry and not fed sufficiently. Even when they collect sufficient materials their income from sales of the same, are not enough for taking care of the family. Almost all of the the informal waste collectors in Skopje are of Roma origin, and know each other and the area they work in. In general informal waste collector don't co-operate between them. There is a high competitive environment because of the large number of informal waste collectors concentrated on the same area.

In most IWC communities there is one of the IWC's who is buying the packaging waste and reselling it to intermediaries or otherwise intermediary companies sent their trucks and buys all the materials. In most of the cases the relationship with the intermediaries is based on best price offer, thus business relationship is not very reliable.

### **17. Government subsidies for self employment**

Subventions through National Employment program are available for Informal waste collectors under the following programs:

- Subvention for establishing formal enterprise, in the amount of maximum 300000 MKD for working capital and equipment, however no IWC' until now has used funds from this program.  
Eligibility criteria
- Being younger than 30 years
- Registered unemployed

- Being a Informal waste collector
- Willing to establish a formal enterprise
- Giving up social benefits in the next 5 years

Program for Public works, with payments for covering the following costs: salaries and taxes, transportation costs for going to/from work, equipment for occupational health and safety and other costs related to performance of public works.



## 18. Municipality of Kochani

The Municipality of Kochani is located 120 km from Skopje, in particular situated in the north side of Kochani valley and occupies space on both sides of the valley, where it leaves Osogovo and extends into its valley. The city is on the southern part of Osogovski Mountains (2252 m). 8 km on south the fertile Kochani valley is closed with Plachkovica Mountain (1754 m) and the altitude of the city ground is 450 m. Kochani municipality covers an area of 382 km<sup>2</sup> with 38,092 inhabitants and 28 villages (according to the census of 2002) and raised into third regional center in the eastern part of the country. The population in Kochani, in current development shows different dynamics as compared to the total movement, as well as in the structural changes and spacious arrangement. There are several factors that have influenced on this condition, especially the socio-economic conditions, the changes in the ethnic structure, natural-geographical specificities, migration movements etc.

The waste materials arising from households, settlements, industry and other objects are drained of epidemiological and esthetic reasons. The collection of the communal waste is performed by CPE "Vodovod", Kochani, while the village areas are not covered with organized collection of the communal waste. Mostly around these areas created are numerous so-called illegal dumpsites.

Terms such as selection, recycling and waste processing are far from reality. Waste disposal is done on a city dump about 6 kilometers away from the city. It is situated along the regional road P-519 (road to RC "Ponikva")

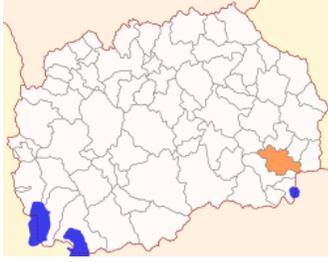
Urban area	Distance from town in km	Amount of disposal of wastes comply (m <sup>3</sup> /per day)	Industrial waste (m <sup>3</sup> /per day)	Estimated time of usage (years)	Used capacity of the landfill	Total waste of the landfill (m <sup>3</sup> )
Kochani	6	120	80	27	small	1 566 000

Source: National ecological action plan (NEAP)

### **Communal Public Enterprise “Vodovod”, Kochani**

Performs waste collection services in the area of Municipality of Kochani. Current problems of the CPE are collection of waste from legal entities as per Law on Waste Management and collection of waste in rural areas and surrounding settlements. Lack of collection equipment and system of waste separation, aside to already mentioned recycling centre is evident and explained in Waste Management Plan for the Municipality of Kochani. Cooperation with the CPE can be considered as natural continuation of already existing excellent cooperation between the CPE and IWCs. CPE “Vodovod”, Kochani has already significant results in attempts to formalize IWCs and to include them in organized collection mechanism.

**EKO PAK HIT** from Kochani is a Company for packaging management and packaging waste. It is a non-profit company whose action is aimed towards management of packaging waste, according to the Law on management of packaging and packaging waste. The mission of ECO-PAKHIT is to provide cleaner and safe living environment for the citizens through effective management system for collecting and utilizing- recycling of packaging waste. The goal of ECO-PAKHIT Kochani is primarily to educate the citizens to protect and care for the environment and be direct and active participants in the process of recycling that has multiple values. Also, one of the goals of the company is to build long lasting and strong relationships with its customers and the state in accordance with European regulations – to minimize the impact of packaging waste on the environment, to promote responsible behavior of companies towards packaging waste, providing bigger life quality.



## 19. Municipality of Strumica

Municipality of Strumica is the largest and carrier municipality in the southeastern region of the country. It is located in the southeast of the country, next to the junction of the borders with Bulgaria and Greece, which are the only two neighbors of the country that are members of the European Union and NATO. In Strumica Municipality, which includes the City of Strumica and another 24 settlements, live 54.676 inhabitants, of which 92% Macedonians, Turks 6.9%, 0.34% Serbs, Roma 0.27%, 0.005% Albanians and Vlachs and 0.6% other inhabitants. In total 27 % of the population of the municipality is under 20 years of age, 57% of the working population is between 20 and 60 years, and 14% of the old population is over the age of 60. Most of the population in the municipality, i.e. 38% have secondary education, 27% with primary education, 4% with higher education and 7% have a university degree; 19% have incomplete primary education and 5% of the general population is without any education.

In the Strumica region there are 14.793 employees and 3.064 who are individual farmers, i.e. in total 17.857 individuals earn income from work. The municipality has 21,587 unemployed, i.e. 17% more unemployed than the people who realize income from work. The unemployment rate in the region is 40.5%. Of the unemployed 60% have low qualifications, 18% have high school education, 14% of the unemployed are qualified, and only 3% have a college education.

In Strumica Municipality there are two landfills: landfill Shapkar for communal solid and inert waste of temporary character near village Trkajna covering an area of 2.38ha and landfill for sanitary and industrial waste in Village Dobrashinci covering an area of 3.4ha. The overall amounts that are deposited – discharged daily are 62.3 tones of which at the temporary landfill 26.6 tones or 42.6% and at the landfill for the industrial waste 35.7 tones or 57.3%. The daily production of communal waste per inhabitant, according to the data is 0.538 kg/day.

For waste management (collecting, transportation and disposal) in the Municipality is formed Public Communal Enterprise “Komunalec”, Strumica. The communal enterprise is formed separately, by check points and their number is 3.817 in which is disposed 35.000kg waste per day. In the municipality are registered several illegal dumpsites where is disposed an inert waste. These illegal dumpsites are on the transit way with an area of 3.000m<sup>2</sup> and waste amount of 309.600kg. On the way to Banica there is dumpsite with an area of 1.400m<sup>2</sup> and waste amount of 81.500kg. The uncontrolled disposal of the waste is a serious problem for environmental protection and quality of life of the population.

The total amount of waste produced by year is around 22.380 tons of which 12.260 is communal and other non-dangerous waste or 54.7%, 7.060 tons of industrial non-dangerous waste or 31.5%, 1.500 tons inert waste or 6.7%, 780 tons dangerous waste or 3.4% and 780 tons medical waste or 3.4%.

### **Public Communal Enterprise “Komunalec”, Strumica**

Performs waste collection services in the area of Municipality of Strumica. Current problems of the PCE are collection of waste from legal entities as per Law on Waste Management and collection of waste in rural areas and surrounding settlements. Lack of collection equipment and system of waste separation, aside to already mentioned recycling centre is evident and explained in Waste Management Plan for the Municipality of Strumica. Cooperation with the PCE can be considered as natural continuation of already existing excellent cooperation between the PCE and IWCs. PCE “Komunalec”, Strumica has already significant results in attempts to formalize IWCs and to include them in organized collection mechanism.

The EIDHR Project “Inclusion of informal waste collectors into the formal waste schemes in the country” is implemented by MDC-TI.Net.

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