Solid Waste Management in Kosovo
Assessment of a Waste Bank Model in Dardania, Pristina

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Preface

Since the declaration of independence in 2008, Kosovo faces challenges of a land-locked country with limited economic growth opportunities and a lack of full recognition in the international political domain. European integration and the transformation into a market-oriented economy determine the political and economic agenda in the country and have a direct impact on urbanization and service delivery. The privatization process and restructuring of the public sector demand a system change with particular requirements for the institutions and individual actors.

As a consequence of decentralization and the rearrangement of mandates and responsibilities between the central government and local authorities, the latter are overburdened with developmental tasks. While local government structures are struggling to effectively deliver basic services in urban areas, they are expected to strengthen the local economy, fight poverty, and promote democracy at the same time.

Despite restrictive visa regulations by the European Union, there is a high rate of migration to Western Europe, especially by Roma, Ashkali, and Egyptian (RAE) communities. The main reason for this out-migration is poverty and the lack of opportunities for socio-economic integration.

There is a skills gap in the labour market, which requires urgent job creation measures for low-skilled workers in the short term and the provision of quality education in the long term. At the same time, Kosovo faces serious environmental challenges, in particular issues concerning waste and land management, which have negative impacts on public health.

The Sustainable Municipal Services (SMS) program of the German Cooperation (GIZ) supports local authorities in providing solid waste management services in an effective and citizen-centered way based on a coherent legal framework that complies with EU standards. GIZ is piloting a separation-at-source of recyclable materials in a densely built and central neighbourhood of the capital Pristina through a waste bank model, which involves both informal waste collectors and the private sector.

The pilot project intends to provide an economically efficient and environmentally sound waste management system, which demonstrates the complexity of participatory and decentralized local governance. It is linked to institutional, societal, and economic transition and integrates service delivery and development targets.

GIZ has engaged the Urban Management Program and the Chair of Circular Economy and Recycling Technology at the Technische Universität Berlin to review the concept and to develop a scaling-up strategy prior to the implementation of the proposed model.

The collaboration between GIZ and the Urban Management Program of TU Berlin builds on the technical expertise and different perspectives provided by academics with a wide range of professional background. In return, GIZ provides the young urban management professionals with real-life cases of project design, implementation, and management in urban areas. Since 2003 this collaboration has always been very productive, exciting, and stimulating for all participants.

In 2016, students of the master program had the opportunity to collaborate with GIZ Kosovo and the University of Pristina. They worked closely with their peers from Kosovo and engaged with national and local authorities, civil society organizations, and the communities in Dardania/Pristina, Gjilan, and Fushë Kosova including Roma, Ashkali, and Egyptian (RAE) minority groups. Twenty-three students of the Urban Management Program and ten students from the University of Pristina combined expertise from different professional backgrounds such as economy, geography, biology, public health, architecture, urban planning, business and public administration, international relations and development studies. Moreover, the Urban Management Program students contributed their cultural diversity and practical experience collected and development studies. Moreover, the Urban Management Program students contributed their cultural diversity and practical experience collected and development studies. Moreover, the Urban Management Program students contributed their cultural diversity and practical experience collected and development studies. Moreover, the Urban Management Program students contributed their cultural diversity and practical experience collected and development studies. Moreover, the Urban Management Program students contributed their cultural diversity and practical experience collected and development studies. Moreover, the Urban Management Program students contributed their cultural diversity and practical experience collected and development studies. Moreover, the Urban Management Program students contributed their cultural diversity and practical experience collected and development studies. Moreover, the Urban Management Program students contributed their cultural diversity and practical experience.

Their work focused on public budget implications, waste data collection and management systems, social and economic impacts of solid waste management models, awareness creation, design beautification and scaling-up of the waste bank model, all of which have been compiled in this publication. It is introduced by brief summaries of Kosovo’s development since gaining independence; the legal framework of the waste management sector; and the intervention areas of the SMS program. The main part provides more detailed insights into specific areas of research, such as the role of the informal sector in the recycling chain; organizational structures and the municipal budget; economic impacts of the Dardania waste bank project; implications for the livelihood of the informal sector; the collection, monitoring, and reporting of waste data; awareness raising; as well as design, beautification, and scaling-up.

Each chapter includes an analysis of the existing situation, an assessment of the waste bank model and recommendations for monitoring and evaluation as well as further development of the Solid Waste Management concept.

We would like to express our deepest gratitude to all people who have supported this project. We would especially like to thank Mr. Kai Hofmann, Program Manager of Sustainable Municipal Services (SMS) at GIZ in Kosovo, who initiated and supported this very fruitful cooperation. For their tireless support and great collaboration, we also want to thank his team: Abetare Gashi, Adhetera Kelmendi, David Simsek, Ditra Bingaj, Driton Vatovci, Rudina Qerimi, Shkelqim Daci, Valdete Alija, and Vojača Limara-Xhoma. Many thanks to all the local partners, including the Municipality of Pristina, Municipality of Gjilan, KEPA (Kosovo Environment Protection Agency), KLMC (Kosovo Landfill Management Company), the private waste collection service Pastrimi, the private recycling companies Neptun, Ricklim, and Izolimi Plast, the Green Art Center Pristina and ECMI (the European Centre for Minority Issues), who have all dedicated their time to the project.

We also wish to express our gratitude to all the local residents and businesses in the Dardania neighborhood, RAE communities working in the recycling sector in Pristina and Fushë Kosova for their readiness to share information and their views. This allowed us to gain deeper insight into the topic.

A very special thanks goes to all the students of the Urban Management Program and the University of Pristina for their great commitment to this project and this stimulating product.

Dr.-Ing. Ulmut Kianast-Duyar Dipl.-Ing. Dipl.-Hydrol. Nathalie Korf Dipl.-Ing. Oliver Larsen
Kosovo’s eight years of independence have been politically, economically and socially challenging. It is a long way from a war-torn area to a functioning country on the path to the European Union. Kosovo works hard on this objective and has recently signed the EU Stabilization Association Agreement.

However, with rapid development come new challenges, especially at local level. Kosovo’s municipalities face great challenges in providing services. They are required to fight poverty, strengthen local economy, promote democracy, improve infrastructure, and provide water, electricity, waste and health services.

In regard to waste management the legal framework is of utmost importance. The Ministry of Environment and Spatial Planning (MESP) leads this development. It has amended the Waste Law (No. 2012/04-L-060) and drafted several policies guided by the objective to implement the waste hierarchy: reduce, reuse and recycle. Municipalities have also done their job and have drafted Local Waste Management plans and installed waste management units.

Pristina, Kosovo’s capital with roughly 300,000 inhabitants, is the administrative, economic and cultural center of the country. Its Mayor Shpend Ahmeti, known for its harsh criticism on the government, has embraced an ambitious agenda to clean-up the city. Notwithstanding numerous challenges he is now setting the foundation for a sustainable development of the capital’s waste sector, supported by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on behalf of the German Government.

Part of this agenda is a separate waste collection pilot project in the Dardania neighbourhood. The objective is to develop a replicable scheme to better services engaging the private and informal sector. The latter predominantly consist of often marginalized Roma, Ashkali and Egyptian minority groups.

The complexity of the project has put ambiguity on the project’s general viability. To review the project concept and developing the scaling-up approach, GIZ has engaged TU Berlin to conduct a research. The research focuses on public budget implication, waste data collection, social and economic impacts, awareness creation, design beautification and scaling up.

GIZ recognizes the professional and vital contributions of its partners in this endeavor; especially I would like to thank Pristina’s Public Utilities Directorate. I am also grateful to the professors of TU Berlin for their invaluable expertise and organization. Next, I would like to acknowledge Pristina University and its students to provide us with vital intercultural and language translation support. Last but not least, I would like to thank the Urban Management Master students for their research. Not only they have provided in-depth and valuable insights that are still changing the project, but with their enthusiasm and dedication they have made this research fun.

Kai Hofmann
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GIZ Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
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List of Abbreviations

BMZ  Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung (German Federal Ministry for Economic Cooperation and Development)
ECMI  European Centre for Minority Issues
EC  European Commission
EU  European Union
CD  Capacity Development
CER  Clean Environment Race
FWS  Formal Waste Sector
GAC  Green Art Center Pristina
GDP  Gross Domestic Product
GIZ  Deutsche Gesellschaft für Internationale Zusammenarbeit (German Development Cooperation through GIZ)
HDPE  High Density Polyethylene
ISWM  Integrated Sustainable Waste Management Framework
IWS  Informal Waste Sector
KEPA  Kosovo Environment Protection Agency
KFW  Kreditanstalt für Wiederaufbau (German Development Bank)
KLMC  Kosovo Landfill Management Company
LDPE  Low Density Polyethylene
MESP  Ministry of Environment and Spatial Planning
MSW  Municipal Solid Waste
NGO  Non-governmental organisation
PET  Polyethylene Terephthalate
PPP  Public-Private-Partnership
PVC  Polyvinyl Chloride
RAE  Roma, Ashkali and Egyptian
SAA  Stabilization and Association Agreement
SE  Social Enterprise
SMS  Sustainable Municipal Services
SWM  Solid waste management
USD  United States Dollar
WB  World Bank
Part I: Introduction
1 Kosovo’s Development since Gaining Independence

Positioned in the Western Balkans, Kosovo is a landlocked territory bordering Serbia, Macedonia, Montenegro and Albania, the latter two providing access to the Adriatic Sea. The Republic of Kosovo unilaterally declared independence from Serbia on 17 February 2008 and is presently recognized by 109 UN member countries (out of 193). Kosovo’s disputed territory (10,908 km²) is comparable in size to Lebanon or Jamaica; its population (1.82 million) is comparable to that of Slovenia or Latvia.1

Besides Serbia, which still considers Kosovo an integral part of its territory,2 there are five countries in the European Union (EU) – Spain, Slovakia, Cyprus, Romania and Greece – that do not recognize Kosovo as an independent country.3 Kosovo’s non-membership of the UN also remains a key obstacle to political integration and socio-economic development (2/3 of member states in favor are required).

1 The diaspora of Kosovar Albanians – mainly in Switzerland, Germany, Austria, Scandinavia, Britain and the United States – is estimated to amount to an additional half a million people.
2 Kosovo – in medieval times part of Stara Srbija (Old Serbia) – is called the cradle of Serbian civilization because of an important battle with the Ottoman Empire that took place on Kosovo territory in 1389 (Battle of Kosovo).
These challenges notwithstanding, the Kosovo authorities have demonstrated the capacity to coordinate their European integration agenda. Kosovo is a potential candidate for EU membership (and, interestingly, the only country in Europe that does not share a border with an EU state).

At the same time, however, Kosovo is also the only country in south-eastern Europe whose citizens are not able to travel visa-free within the Schengen Area (26 European states without internal border control). In the framework of ongoing talks with the European Commission (EC) about visa liberalization, the EC proposed visa-free travel for the people of Kosovo on 4 May 2016. The Council of the EU and the European Parliament have yet to take a decision on the matter.

In accordance with the EU pre-accession negotiations process,4 the EU signed a Stabilization and Association Agreement (SAA) with Kosovo on 27 October 2015. This step constitutes a significant milestone in Kosovo’s path towards a European future as it is the first contractual relationship between the EU and Kosovo5 and completes the map of SAs with all Western Balkan countries. The SAA provides a comprehensive framework for closer political dialogue and economic relations between Kosovo and the EU, including opening EU markets to Kosovan products.

In recent years, Kosovo has made limited progress on its path to become a functioning market economy. Although a persistent trade deficit reflects a weak production base and lack of international competitiveness, the government’s strategic documents show a strengthened commitment to pursuing economic reforms. This should be translated into determined policy implementation and an avoidance of ad hoc decision making in economic policy. In addition, an ad hoc approach to fiscal policy constitutes significant fiscal risks. Nevertheless, Kosovo was also one of only four countries in Europe that recorded positive growth rates in every year of the post-crisis period, with an average of 3.4% between 2009 and 2013. (WB, 2016: 2)

Some progress has been made on facilitating business creation, but Kosovo also needs to speed up privatization and the restructuring of public enterprises which are – not only in the solid waste sector, but also in the transport, energy and waste/water sectors – operating inefficiently (partly as a result of their ‘spoil-staffing policy’) and therefore need to be subsidized. Although some improvements have been carried out with regard to the functioning of the legal system and financial sector stability, a very weak institutional capacity for legal enforcement combined with widespread corruption continues to hinder the business environment.

Reliance on remittances and the widespread informal economy decrease employment incentives and contribute to already low labor market participation (especially among women) and high unemployment rates (in particular among young and unskilled workers). Total labor market participation was 41.6% in 2014; for women, the figure was even lower at 21%. Between 2013 and 2014, the youth unemployment rate rose from 35.5% to 36.5% and the figure recently surpassed 60%. This is partly due to the fact that Kosovo has the youngest population in Europe, with 53% of the population being under 25 years of age. (EC, 2015: 5, 44).

Although remittances (12.6% of GDP in 2014) tradi- tionally offset Kosovo’s high trade deficit (31.6% of GDP in 2014) (EC, 2015: 32), by being a continuous and rather stable source of income they create incentives for recipients to remain outside the labor market. In Kosovo, the share of households receiving remittances is higher among female-headed households (31% compared to 24% of male-headed households) (UNDP, 2012: 33). Therefore, it is not only persistent violence against women and women’s limited access to property ownership which hamper the full exercise of their rights, but also theirs to some extent voluntary, exclusion from the labor market.

In order to close the skills gap in the labor market, Kosovo needs to make significant progress in improving the quality of education. Education is one of the four priority areas of the Strategy for the Inclusion of Roma, Ashkali and Egyptian Communities 2016-2020 that is currently being drafted.6 The problem is not only limited access to education and high drop-out rates, but also a lack of employ- ment opportunities for (high school) graduates of male (98% of electrical, mechanical, Roma, Ashkali and Egyptian (RAE) origin. Internship opportunities in the public and private sectors would improve their unfavorable position in the job market. This would also help achieve the stated target of the Law on the Civil Service in the Republic of Kosovo by which 10% of all positions in the public sector (on the national level) should be filled by members of minorities.

In the light of the above-mentioned challenges, it is less surprising that in its Kosovo 2015 Report (a document of close to 70 pages published in November 2015) the European Commission deals with the entire waste sector in Kosovo – including recycling – in a single paragraph:

5 Kosovan Development since Gaining IndependenceSolid Waste Management in Kosovo

4 "On waste management, the Ministry of Environment and Spatial Planning should step up efforts to finalise a master plan for waste management and increase opportunities for investment in this sector. Basic waste management definitions and concepts such as waste disposal, recycling and recovery of different waste streams are not sufficiently supported by current legislation, limiting opportunities for private sector involvement. Investment funding and the capacity of municipalities and operators to implement the 2012 law on waste remain very low. The high number of illegal landfills needs to be addressed urgently." (EC, 2015: 49).

Although relatively little attention is paid to these issues by either national or international actors, Kosovo is facing very serious environmental challenges in a broad sense, particularly where waste and land management are concerned. The situation is markedly difficult in urban areas due to changes in demographics and the pressure of migration from rural areas. This is reflected in unplanned construction, a poorly managed urban environment and inefficient public services, such as waste collection and wastewater treatment. Pollution from electric power plants (98% of electricity comes from two 27- and 40-year-old lignite-fired power plants) and mining activities are adding to an already difficult situation and pose a serious threat to the health of citizens.7

Kosovo’s Development since Gaining Independence


8 Among other things, Kosovo needs to prepare more actively to decommission the Kosovo A power plant in Obiliç (currently expected by 2017) and replace it with a new thermal power plant. Also see Study for Decommissioning of Kosovo A Power Plant (available at https://europa.eu/legislation/kosovo/documents/press_corret_documents/decolum-_stuy_kosovo_a_power_plant_en.pdf last accessed 12 August 2016)
The lack of interest in the environment and climate change has become a serious issue for public health and the quality of life in Kosovo.

In many countries, the financial resources for implementing policy reforms are scarce. Environmental policy is only one of many state sectoral policies and is usually a low priority within the overall policy agenda of developing countries. As the experience of new EU member states shows, one of the biggest challenges of compliance lies in the implementation of the environmental acquis, especially for key EU investment heavy directives. Environmental investment is often investment in infrastructure, which proves very costly. It is assumed that the infrastructure should serve for at least two generations, with the environmental benefits also serving future generations.

Compliance with the EU environmental acquis is also relevant for the private sector and industry, because they will have to face strict environmental regulations in the future.

In 2014, Kosovo’s political agenda was dominated by local and general elections and their aftermath. The new political representation failed to constitute the new legislature in a smooth and timely manner, which caused political deadlock for about six months. The new coalition government that was formed by the two major (Albanian) political parties (but also including representatives of the Serb and Turk minorities) needs to launch a range of comprehensive reforms, in particular electoral reform and public administration reform. Kosovo citizens expect to have access to free media and to be assured that they will not face discrimination on grounds of faith or ethnicity. To succeed, Kosovo needs a government which is not only reform oriented, but which will also support the dialogue with Serbia and the implementation of the agreements reached to date, not only for the sake of Kosovo and Serbia, but for the sake of the whole Western Balkans region.
Legal Regulation of the Waste Management Sector

The Law on Waste No. 04-L060 of 2012 (henceforth “waste law”) is the legal act that stipulates the overall rules and establishes the legal basis for the adoption of secondary legislation for waste management, mainly adopted by the Ministry of Environment and Spatial Planning (MESP).

The objectives that the waste law sets out with regard to 3R (reduce, reuse and recycle) are very ambitious ones. There is a clear indication that the government of Kosovo is aware of the economic benefits and savings potential for the state budget that are to be gained through the development of the recycling sector.

Article 31, par. 1, states that waste, where possible, should be recycled with the aim of using it as a source of secondary materials. Article 31, par. 5, states that waste that can be reused and processed cannot be incinerated or disposed of without the permission of the Ministry (i.e. the MESP), except where there is an economic justification and no risk to human health and the environment. Article 34, par. 7, states that it is the responsibility of the municipalities to regulate the collection system, including separation, processing and recycling. Article 33, par. 6, states that households and other municipal waste producers are obliged to separate their waste according to types defined by the competent authority for the purpose of treating and recycling it.
Articles 9 and 10 of the waste law set out the roles and objectives of the waste management plans and strategies. The two documents are designed to provide a direction for waste management in Kosovo that is in line with European standards and best practices. Article 10, par. 6.10, for example, states that the plan should include proposals of appropriate techniques for reuse and recycling of various components of municipal waste. Par. 6.13 of the same Article states that the plan should include programs for raising public awareness and providing education regarding waste management.

Similarly to the waste law, the Strategy on Waste Management 2013-2022 also sets out ambitious objectives. Although municipal waste collection is expected to increase between 2010 and 2020 by between 50% and 90%, it states that the amount of waste used for landfill should be cut from 90% to 60%. Achieving this goal would require an increase in the amount of separated municipal waste from 0% to 50%, accompanied by an increase in the amount of treated waste from 10% to 40% (Strategy, 2013: 38).

These targets should be taken with a grain of salt since there is no complete and reliable baseline data for the amounts of waste being generated, collected and treated. With regard to waste generated, the Kosovo Environmental Protection Agency (KEPA) – the government agency responsible for the management of databases and environmental information systems – estimates that it keeps track of about 60% of solid waste generated. (A particularly problematic issue is that construction waste is often mixed with immovable property tax as well as an array of municipal fees (business license fees, motor vehicle fees, municipal administrative fees, fees for construction and demolition of buildings and some other minor ones). However, considering the financial situation of municipalities in general, it is considered that none has so far reported an operational surplus. Neither water, sewage nor waste fees currently cover the operating and maintenance costs of the related environmental infrastructure.

In the light of the above-mentioned challenges, it is not surprising that there is a lack both of effective mechanisms for encouraging waste separation and projects for waste recycling. In accordance with the waste law, Kosovo municipalities are obliged to develop appropriate measures for waste minimization and recycling. However, there is a lack of support and incentives – mainly financial ones – for them to reuse the materials or recycle. The concepts of waste reduction, reuse and recycling are still to be introduced among the public and institutions in Kosovo. As a result, a very low number of municipalities have approved municipal regulations on waste management that contain provisions related to recycling.

Private and public waste collection companies also face operational problems resulting from an insufficient infrastructure. A substantial increase in the overall funding of environment related projects is needed, both from government and international financial institution sources, specifically for infrastructure improvements related to the water (and also wastewater) sectors.
In its current phase (04/2014 - 12/2016), the Sustainable Municipal Services (SMS) program of the German Development Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit – GIZ) in Kosovo has the potential to provide in the medium term basic public services in the waste management sector for 70% of the population. Such an achievement would be to a large extent dependent on the success and development of an incentive-based competition in 17 selected municipalities (out of a total of 38), which was set up by the MESP in cooperation with the German Development Bank (Kreditanstalt für Wiederaufbau – KfW). Responsible municipal bodies get access to investments provided that they implement reforms for performance development and make improvements in selected performance indicators. The latter aims at a financially sustainable expansion of services.

In the long term, the population of Kosovo will profit through the preparation and dissemination of experiences and models of the initial five core partner municipalities (Drenas/Glogovac, Gjilan/Gnjilane, Mitrovicë e Jugut/Južna Kosovska Mitrovica, Pejë/Peć, Prishtinë/Priština). Political decision makers and local administration officers in the five municipalities are the immediate addressees of the development measures. Also, the employees of relevant institutions at the national level, such as the Kosovo Environment Protection Agency (KEPA), the Kosovo Institute for Public Administration (KIPA), the Civil Society Association Kosovo (CiviKos) are being
advised by the SMS program and further educated to take on and disseminate experiences and models.

Furthermore, with the support of two development partnerships with the private sector, the SMS program has piloted the separation of household waste with the inclusion of the informal sector in two municipalities (Gjilan/Gnjilane, Pristina/Pristina). The aim is to demonstrate the financial and organizational feasibility of a separation system in the Kosovar context and to collect essential data for a future nationwide separation system. Because no municipality in Kosovo has implemented a comprehensive system for separate collection of recyclables, awareness information and education campaigns for the collection of separated waste are integral parts of SMS program interventions.

Although the ethnic majority in Kosovo are Albanians (92.9%, according to a 2011 census), the societal structure in Kosovo is marked by the existence of minorities. Among the most marginalized minority groups are the Roma, Ashkali and Egyptian communities (2.1%, 2011 census) which are often excluded from basic areas of care such as health, education and housing, and also employment. The Roma in particular are engaged in the informal collection of waste containing reusable material which they recycle to earn a living. Structural improvements in waste management affect their income management.

Therefore, the objectives of the SMS program – based on the guidelines and priorities of the German Federal Ministry for Economic Cooperation and Development (Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung – BMZ) and the interim country strategy of Kosovo for asylum in Germany – its citizens no longer leave to escape war, but rather unemployment and poverty. Especially among RAE communities, the economic situation has deteriorated over past years due to the fall in the price of oil. Since their only source of income (besides social benefits) is individual collection of recyclable plastic materials (naphtha can make over 50% of production costs), they would greatly benefit from the development of the recycling infrastructure, including an improved collection system. It is estimated that out of the 60,000 tonnes that the capital Pristina/Pristina generates annually, 30% is recyclable materials.

The creation of incentives for foreign direct investment and technology transfer – such as technical and cost-benefit analysis or demonstration projects in the separation and recycling industry – could increase trust and lower the risk for investors financing projects. The recently conducted gas-to-electricity analysis, pilot projects for separation at source in Gjilan/Gnjilane and Pristina/Pristina (financed by private investors) and the planned use of Orenza’s transfer station for material recovery are examples of initiatives that could trigger trust in the dependability of the policy approach.

SMS program activities such as providing advice on legislation and related institution building for labor in the recycling industry – in particular, the RAE communities – the program aims to contribute towards combating the causes of migration and flight from Kosovo. Although Kosovar citizens do not qualify for refugee status (this would be a hurdle in Kosovo’s EU integration efforts), Kosovo is the third most frequent country of origin for people applying for asylum in Germany. Its citizens no longer leave to escape war, but rather unemployment and poverty.

The Serb minority (1.5% of the total population, 2011 census) are predominately concentrated in certain municipalities where they make up a majority. Politically tense situations hinder the complete integration of these municipalities into the Kosovar state and societal structures.

Extended Producer Responsibility (EPR), landfill taxes, packaging services and an environmental fund will facilitate the development of basic principles for material recycling management (the so-called “circular economy”). These measures need to be accompanied by additional policy instruments such as environmental awareness and education. In cooperation with the private sector and/or civil society, the SMS program is making use of corporate social responsibility (CSR), such as the “Ecofriend” or “Pristina Recycles” projects, both revenues from separated waste are channeled into awareness raising projects in schools.

1 The Serb minority (1.5% of the total population, 2011 census) are predominately concentrated in certain municipalities where they make up a majority. Politically tense situations hinder the complete integration of these municipalities into the Kosovar state and societal structures.

2 For current asylum affairs statistics see the German Federal Office for Migration and Refugees at http://www.bamf.de/DE/Infothek/Statistiken/Asylzahlen/asylzahlen-node.html

3 Glass has lower value because of energy-intensive processing (USAID support in northern Kosovo). Paper collection is on the hands of the formal/private sector.

4 The rationale of an EPR is to shift the responsibility and hence the costs of a good’s disposal from the producer of the good to the distributor. In effect, an EPR demands that the producer internalize disposal costs into the good’s market price, usually in the range of below €0.001 per product.
The Role of the Informal Sector in the Recycling Chain

In most developing countries, including Kosovo, the formal sector primarily works in service provision (waste collection and disposal) and in the treatment and sale of recyclables. To a limited extent formal companies also collect recyclables (in Kosovo these are predominantly private companies), primarily from institutions and businesses. Generally speaking, formal waste collection service providers involved in recovery provide a more regular and reliable collection service than their informal counterparts (due to their economic interest in waste). But as the case of Kosovo shows, the collection of recyclables is largely the domain of the informal waste sector (IWS).

In principle, similar effects could be achieved by engaging the IWS in the provision of basic waste collection services, though it needs to be pointed out that this option is usually a very long and burdensome process (compared to the other option). However, in either case, the elimination of boundaries between the formal and informal sectors would not only improve service provision but also have a positive effect on the informal sector, whose members tend to make up the most vulnerable part of society.

In Kosovo, the IWS is greatly dominated by members of the RAE communities. However, (exact) statistical data is missing (as is the case in many countries around the world with regard to informal sector activity).
The protection of persons with disabilities and persons belonging to minorities, in particular within communities, needs to be significantly strengthened. The SMS program makes every effort to analyse the impacts of its pilot projects and activities in these groups on the basis of different development scenarios (e.g. within the framework of Do No Harm analyses), taking into account various internal and external factors.

As mentioned in the previous chapter, in its current phase the SMS program is operating two pilot projects in two Kosovar cities – Gjilan/Gnjilane and Pristina/Prishtina – that target the reduction of poverty in marginalized groups. In cooperation with the NGO European Centre for Minority Issues (ECMI) Kosovo, they provide informal waste collectors with better access not only to infrastructure but also to training (especially in health and work security issues) and to a savings and credit program. Also, based on data and evidence collected from the pilot projects, the SMS follow-up project (during the next program phase, 2017 – 2020) will be designed with a view to improving the socio-economic status of the marginalized groups.

The two largest ethnic groups in Kosovo are the Albanians and the Serbs and, all SMS program publications intended for the purpose of knowledge transfer are translated into both languages. Socially and ethnically respectful enlargement of the SMS program is closely monitored to ensure that no part of the population or of the country is left behind or marginalized. An example of ethical inclusiveness is the incorporation of a Serbian majority municipality into project activities such as the Clean Environment Race (CER).

Local NGOs working with RAE communities act as facilitators for the development of more formal organizational structures in order to reduce the risk of IW sector workers becoming dependent on powerful collaborators to earn their income. (In addition, local NGOs may also contribute to the provision of their means of transport, uniforms and safety gear.) For health and security reasons, the SMS program supports the Kosovo Landfill Management Company (KLMC) policy of banning the informal sector from landfill areas. In order to safeguard sources of income, the SMS program facilitates the introduction of separation at source, meaning that fewer recyclable materials end up in landfills. This is done by:

- Approaching those waste pickers affected and ensuring their integration into the recyclable collection system by making recyclables accessible before the waste collection or by creating sorting facilities before the waste is dumped at the landfill.

Reducing the transaction costs of the IWS. This could include material provision of 1) Transportation means; 2) Storage capacities (collection points); 3) Tools & equipment.

Working with KLMC towards the possibility of employing qualified waste pickers in the official chain at landfills and transfer stations.

The SMS pilot projects dealing with the IWS should contribute towards the institution of the IWS as a partner in the solid waste management (SWM) sector as well as an official recognition of their activities as business activities. The plan is to provide the IWS with training that will allow longer-term development and aid them in starting their own private waste enterprises. This will provide a diversion from crime and corruption activities and participants will pay commercial, income and other types of tax. By this means, the IWS will also join the social security scheme, which will provide a safety net in times of low demand for raw materials.

The SMS program is cooperating with the private sector in the pilot project in Pristina/Prishtina-Dardania, where the selected service provider for the collection of recyclable materials will under-take investment in the recycling infrastructure and employ additional local staff (mainly from marginalized RAE groups), either as full-time or part-time employees or on a contractual basis. Due to low entry barriers and the labor intensive nature of the sector, jobs with long-term prospects are relatively easily created.

As a starting point, the SMS program strives to ensure that physical investments are sufficiently legally secured and that a communication channel between all parties – the formal waste sector (FWS) and the IWS – has been set up and maintained.

In the future, competition / cooperation will be open based on the lessons learned and experience garnered from the pilot project in the Dardania area of Prishtina/Prishtina and will be reflected in future tender requirements.

All actors and stakeholders have sufficient information about the pilot project and scaling-up plans, so facilitating their long-term interest in remaining part of the system.

The goal of the SMS pilot projects is to reduce the amount of waste going to landfills, mainly by introducing separation at source measures (Gjilan/Gnjilane, Pristina/Prishtina). Some projects aim to extend formal waste services, which in turn puts an end to illegal dumps and the burning of garbage. Landfill management reform and the conversion of landfill gas into energy will contribute directly to environmental protection and the reduction of greenhouse gases. Not least, administrative reforms will also help to achieve more efficient waste services by strengthening their capacities and thus contributing to environmental and resource protection.

The SWM sector – including formalized / authorized IWS – can play a vital role on the way to a green economy in Kosovo.
Part II: Analysing an Existing System – Waste Management in Kosovo
5 Organizational Structure and Public Budget

5.1 Introduction

Solid waste management is one of the core functions of local governments in urban areas. As cities grow physically and economically, business activities and consumption patterns increase the quantity of solid waste generated. This makes it challenging for municipalities to collect, treat and dispose of waste generated by all urban population groups in an environmentally and socially satisfactory manner using the most economical means available (The World Bank, 2016a). The challenge is not only the quantity of waste produced in urban areas but also its heterogeneity. Municipal waste no longer consists mainly of food waste and ash, but more and more includes plastic packaging, paper, metal, glass and discarded electronic equipment (UN-HABITAT, 2011). Since accumulated waste in densely populated urban areas poses health hazards, collecting and managing it have been the mandate of the health/public health departments within the municipalities (Baud et al., 2006: 4). But due to the increased complexity of the waste composition, the World Bank recommends that solid waste units should come out of public health departments, be upgraded to individual departments and be placed directly under the management of engineers trained in systems design and operations rationalization (The World Bank, 2016b).

International organizations such as the World Bank and the United Nations have time and again...
focused on the institutional and financial aspects of managing waste. A range of tools and technologies already exist for proper management of solid waste. However, the critical aspect is financing them. In many lower income countries, municipalities already spend 20% to 50% of their budgets on solid waste management, yet only manage to provide services for less than half of their citizens. A related major concern lies in long-term sustainability in the sector, which requires greater efforts to reduce, reuse, recycle and overall avoid waste (The World Bank, 2013). Thus, municipal bodies need robust organizational structures in order to manage waste management functions. In addition, a separate budget is necessary for the functioning of administrative units.

This chapter covers the organizational structure of waste management and the public budget of the municipality of Pristina. It also focuses on the waste bank pilot project to be set-up in Dardania. In addition, it elaborates on the changes to organizational structures that will follow the introduction of the waste bank and the consequent effect on the public budget for managing waste. The chapter is structured as follows:

- Municipal solid waste and waste flow
- General aspects of waste management in municipalities
- Waste management in Pristina
- Organizational structures in Pristina
- Public budget for waste management

5.2 Methodology

The group focused on the following objectives:

- Stakeholder analysis – preparation of a stakeholder matrix indicating the organizations involved in overall waste management functions for Pristina municipality.
- Public costs and finances – current costs incurred by public organizations managing municipal waste. This includes costs incurred by public bodies once the waste bank has been introduced.
- Organization and management of the waste bank / municipal solid waste – possible organization and management structures for municipal waste in Pristina after the introduction of the waste bank.

The methods undertaken in order to reach the objectives are:

- Secondary literature review – in order to understand the current situation in Pristina, Kosovo, and the regulations regarding waste management. This also helped in understanding and identifying the actors and institutions, in Kosovo as well as in Pristina, who are involved in municipal solid waste management.
- Interviews with officials from the municipality and the public organizations – the interviews were conducted during the field visit to Pristina. Discussions were held with municipal officials and public organizations (refer to interviews in annex).
- Discussion with GIZ officials working on the project – this was important since GIZ has been supporting the Pristina municipality in implementing the measures on the ground. They have provided data and insights on organizational aspects and the public budget of waste management in Pristina.

5.3 Municipal Solid Waste and Material Flow

The term ‘municipal solid waste’ (which includes waste generated by households and commercial establishments) is used to describe waste generated in urban areas, the nature of which varies from region to region. The characteristics and the amount of waste produced in a region depend on the living standards and lifestyles of the residents of the region and on the abundance and type of the region’s natural resources (United Nations Environment Program, 2005). Solid waste is that part of the ‘waste’ that should be or is anticipated to be in a solid state and not in a liquid or gaseous state. The simple definition of waste is:

‘Waste is a left-over, a redundant product or material of no or marginal value for the owner and which the owner wants to discard.’ (Christensen, 2011: 3)

Waste also has subjective characteristics defined by the value of the item the owner associates with. The European Union defines waste as ‘any substance or object which the holder discards or intends or is required to discard’ (European Union, 2012a). Thus certain things discarded by one individual have potential value for another. As a result, an understanding of the value chain of waste is important in order to plan for waste management. This leads to improved treatment of discarded materials and ensures environmental sustainability.

In order to understand the logistics of waste generation, it is important to look into the material flow and how elements from the environment move through society and are used then returned to the environment in a modified form. In simple terms this means resource extraction, use and disposal to landfill. Figure 1 (Christensen, 2011) shows that resources are not entirely consumed but are merely transformed during the processes of extraction from the environment, production and use before ending up as waste. This waste could possibly be returned to the production-use cycle in society or disposed of into the environment. The material flow is fueled by a substantial use of energy and results in emissions to air, water and soil. The extraction of resources and the disposal of waste into the environment also have associated environmental repercussions (Christensen, 2011).

5.4 Overview of Waste Management System

Traditionally, as the economy expands, the material flow in turn expands, resulting in more resource consumption, waste generation and environmental burdens. The quantity and content of the waste produced also depends largely on the kind of economy a country has – developed or developing – and on climatic conditions and geographic location. Depending on the characteristics of waste, management practices vary but the basic flow of waste is nevertheless quite similar. Figure 2 (next page) shows the processes of waste generation, collection and disposal practiced in urban areas. Waste generated by households (also commercial establishments and institutions) can be collected by two methods: 1) door-to-door collection and 2) from communal waste bins/containers. Ideally, organic and inorganic waste should be separated at source. There are various ways in which this can be done. Organic waste can then be used directly for producing biogas. The sorted/colllected waste can go to storage or separation centers for either further separation or temporary storage before
Waste Management in Pristina, Kosovo

Kosovo, as a recently-formed nation, is taking positive strides towards defining the municipal functions of dealing with solid waste in the country. The Ministry of Environment and Spatial Planning of the Republic of Kosovo has drafted a Strategy on Waste Management as required by Sections 8 and 9 of the Law on Waste Management approved in 2012. According to the Law on Local Governance, municipalities are as responsible as their local government for the successful realization of necessary improvements. The citizens of Pristina participate in the decision-making process. The PRKWM 2012-2016 is a planning document that enables implementation at the local level of the Strategy of The Republic of Kosovo on Waste Management. The strategy is as follows:

- Law on Waste (Law No. 04/L-060) – approved in 2012
- Plan of The Republic of Kosovo on Waste Management (PRKWWM) 2012-2016
- Waste Management Master Plan (WWMP) 2014
- Solid Waste Management Plan (5-year)

According to Law No. 04/L-060 on waste and the national Strategy on Solid Waste Management (SWM), Kosovo’s municipalities are responsible for issuing their local waste management plans, which shall deal with, in particular, the following:

- Amount and types of waste expected to be generated; origin of waste to be used or stored, as planned, in a particular space
- Program for municipal waste collection from households, and commercial and industrial waste
- Program for collection, gathering and separation of hazardous waste from other wastes, or separation of waste types
- Proposals for appropriate techniques for reuse and recycling and reduction of various components of municipal waste
- Program for raising public awareness and education regarding waste management
- Description of locations for equipment and facilities for waste treatment and disposal, including necessary technical requirements for the design of new facilities
- Estimation of waste management costs and funding sources for the implementation of planned projects

It is clear that not all requirements of the new waste law can be fulfilled immediately, while future development should be seen as a dynamic process driven by the administration and the people, whose active participation is indispensable. The citizens of Pristina are as responsible for their local government for the successful realization of necessary improvements.
is responsible for waste management, the services for which are provided by the regional company Pastrimi, based in Pristina. Pastrimi is a publicly owned enterprise (PoE). Shareholders of this PoE are the municipalities of Pristina, Fushë Kosova, Obiliqi, Lipjan, Drenas, Graqana and Podujevo. Since 2012, it has been required to apply to the MESP for a licence to collect and dispose of municipal solid waste from Pristina. Municipalities (Partnership Council for a Healthy Environment of Pristina Commune, 2015: 13).

Kosovo Landfill Management Company (KLMC) is responsible for the regional landfill site. KLMC is a registered independent company in charge of the management of facilities for the final disposal of waste in Kosovo. Facilities for the final disposal of waste include landfills and transfer stations. There are currently four landfills under KLMC management (Prizren, Gjan, Pristina and Podujevo) and one transfer station (Fetjajo). KLMC is responsible for ensuring that landfills are operated safely and efficiently and that all environmental requirements are complied with. It is also responsible for the closure and care of the facilities when their life cycle is completed and for the construction of new waste disposal facilities. KLMC reports back to KEPA annually. The engineered landfills built in Kosovo have a minimum life expectancy of 15 years. There are other facilities for the final disposal of waste, such as for export or transport to mills for the production of granulates. The following table (table 1) lists the actors/stakeholders in waste management in Kosovo.

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Sector</th>
<th>Role / Function</th>
<th>Financial impacts</th>
<th>Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>MESP</td>
<td>Public</td>
<td>Law on Waste Management</td>
<td>Costs for landfill</td>
<td>- na</td>
</tr>
<tr>
<td>KEPA</td>
<td>Public</td>
<td>Monitoring &amp; evaluating</td>
<td>- na</td>
<td>- na</td>
</tr>
<tr>
<td>Pastrimi</td>
<td>Public</td>
<td>Waste Collection and Transport</td>
<td>Fee collection</td>
<td>- na</td>
</tr>
<tr>
<td>KLMC</td>
<td>Public</td>
<td>Waste Disposal</td>
<td>Operation costs</td>
<td>- na</td>
</tr>
<tr>
<td>Municipality of Pristina</td>
<td>Public</td>
<td>Waste Management/Policy</td>
<td>Maintenance costs of container sites</td>
<td>Frequency annual budget allocated resources</td>
</tr>
<tr>
<td>Households, Businesses, Institutions</td>
<td>Casual / Formal</td>
<td>Waste generation</td>
<td>Fee payment</td>
<td>Not 100%</td>
</tr>
<tr>
<td>Waste Pickers</td>
<td>Informal</td>
<td>Sorting recyclables</td>
<td>Financial impact</td>
<td>- na</td>
</tr>
<tr>
<td>Microbusiness Companies</td>
<td>Formal / Informal</td>
<td>Processing recyclables</td>
<td>Economic gap</td>
<td>Technology for increasing efficiency</td>
</tr>
</tbody>
</table>

At the local level, apart from the municipality of Pristina, households, businesses and institutions are also generators of waste. Waste from these sources is deposited or dumped at waste container sites within the city for collection and transport. Individual waste collectors go around the city removing recyclables from the waste bins at these container sites. They then sell the collected recyclables to scrap processors who act as middlemen by preparing the material for export or transport to mills for the production of granulates. The following table (table 1) lists the actors/stakeholders in waste management at national, regional and local level.

While discussing the current situation of waste management during the field visit, some of the constraints experienced by the actors/stakeholders came to light. Each stakeholder was facing certain issues in the carrying out of their role as indicated in table 1. Pastrimi faces issues related to the collection and disposal of special waste, collection times and efficiency (elaborated in 5.5.3). Fee collection from households, businesses and institutions does not function 100% and so has room for improvement. The municipality will shortly take over waste management from Pastrimi, which will require human and financial resources.

5.5.3 Current Waste Management Process in Pristina

The figure 3 shows the present process of waste management. In order to have a holistic understanding of the waste management system in Pristina, it is important to understand each phase involved: generation, collection, sorting, and disposal. The information in this section is based on the field visit to Dardania, Pristina, and interviews with the municipality and Pastrimi on 21 and 22 June, 2016.

a. Waste generation

The main sources of waste generation in Pristina are: households, businesses and institutions. Since the disposal sites provided by the operator company have only one kind of bin, the waste material is disposed of by the sources in containers without any kind of sorting. Additionally, there are other types of waste that are not currently provided with a proper disposal site: animal waste from butcheries, construction debris and medical waste. Since these are not allowed to be disposed of at the landfill, several illegal dumping sites have sprung up around Pristina and the region (Salihu, 2016).

b. Collection and disposal

The collection and disposal of waste is carried out by the publicly owned enterprise (PoE) Pastrimi which operates in seven municipalities, including Pristina. Pastrimi collects waste in two ways depending on the type of waste that are not currently provided with a proper disposal site: animal waste from butcheries, construction debris and medical waste. Since these disposal sites are provided by the operator company, they can even be emptied two or three times a day. According to the director of Pastrimi, this practice does not have any advantage and reduces the efficiency of waste collection.

Previously, waste collection and the emptying of bins was done at night. As of June 2016, collection is supposed to be carried out between 0700 and 1500 hours, a rule imposed by Pastrimi that is still not always put into practice. The director of Pastrimi explained that this change in collection times had become an issue as people had not yet adapted and waste collection had decreased as a result. He suggested that the new collection times offered waste pickers the opportunity to collect recyclables from container sites at night instead of the morning (Salihu, 2016).
c. Sorting

As explained earlier, sorting at source is not yet practiced in Pristina. However, an informal process of sorting is carried out by individual collectors at the container sites. They select the recyclable materials from the containers, especially PET bottles, by rummaging through the mixed waste. Often they do this during the day. They then take the bulk of what they have collected to scrap processors and mills, privately owned companies which process and export the material or make new products from it, or they drop it off at collection points from where the material is picked up by these companies.

Usually, individual collectors take the collected recyclables from Pristina to Fushë Kosovo, on the outskirts of the city, where most local scrap processors and mills are located. The individual collectors mainly employ two modes of transportation: walking with bundles on their backs, and motorcyclists or motorbikes fitted with trailers to carry the load. The municipality is concerned about the health risks faced by individual collectors, who are prone to accidents and to harming themselves by carrying heavy loads on their backs. This method of sorting is also an issue for Pastrimi, due to constant littering around the container sites, making it difficult to empty and collect waste. The company is also concerned about the hygiene of the sites and that residents might complain that Pastrimi is not performing the service properly.

5.5.4 Current Organizational Structure of Waste Management in Pristina

Various actors are involved in the process of waste management in Pristina. These include: public institutions, civil society and private companies. The role of each actor has been described in the stakeholder analysis of this chapter (see table 1 and figure 4). The relationship between the actors is represented by arrows. At present, the municipality is in charge of the administration and implementation of the Plan of the Republic of Kosovo on Waste Management (PRKWM), and Pastrimi is in charge of waste collection and disposal to landfill. It is important to mention that the container sites are now managed. The planned change in operations will mean that the entire responsibility for waste management is transferred to the Municipality of Pristina. The municipality will then contract out the services to a private organization. Pastrimi will be eligible to apply and, if awarded the contract, would continue in their previous role (Qorri et al., 2016).

The sorting of recyclable material is done by unorganized and informal individual collectors mainly from the Roma, Ashkali and Egyptian (RAE) communities. After sorting, the material is processed to be exported or repurposed for new products, a process that is carried out by scrap processors and mills, companies which can be either formal or informal.

5.5.5 Public Budget and Finances for Waste Management in Pristina

Presently the budget for waste management is included in the Public Works segment of the municipal budget. The waste management unit was established in 2016 and will have a separate budget from next year. After the operations change – from the PoE to the municipality – the budget will be more defined. From 2017, collection fees will also be managed by the municipality, which is in the process of planning the budget and the timeline (Qorri et al., 2016).

The information in this section is based on interviews with the municipality and Pastrimi on 21 and 22 June, 2016 and also on data gathered from Mr. Shkelqim Daci of GIZ, Pristina.

a. Costs of waste management in Pristina

Table 2 depicts the direct and indirect costs of waste management per household in Pristina as incurred by Pastrimi. Direct costs include: operational equipment, staff and consumables. Indirect costs include: garaging, office premises, consumables for workshop, indirect staff and other administrative costs. The figures are for 2014. The average cost per month of waste collection, transfer and disposal was 515 Euros per household.

<table>
<thead>
<tr>
<th>Service Population for</th>
<th>Average Cost of SWM per Household per Month</th>
<th>Projected Costs per Month</th>
<th>Projected Costs per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>91,000 households</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Cost</td>
<td>2.56 €</td>
<td>232.06 €</td>
<td>2,786.38 €</td>
</tr>
<tr>
<td>Indirect Cost</td>
<td>2.94 €</td>
<td>263.18 €</td>
<td>3,158.14 €</td>
</tr>
<tr>
<td>Total SWM Cost</td>
<td>5.50 €</td>
<td>495.24 €</td>
<td>5,944.52 €</td>
</tr>
</tbody>
</table>

Direct and indirect costs include waste collection, landfill gate fees and street cleaning costs. The costs for businesses and institutions were not available.

Of the total SWM costs, 65% went on waste collection, 25% on landfill gate fees and 10% on cleaning.
According to officials at Pastrimi, the number of households in Pristina covered by waste collection services has increased from 45,607 in 2014 to 91,000 in 2016. Table 3 represents the calculation of service costs for 2016, done by extrapolating unit costs per household per month to the current number of households in a year (see table 3). According to the calculation, the total cost of waste management services in Pristina for 2016 will be 5,623,800 Euros.

Administrative costs are structured by Service Area and Staff Position as follows: Management Staff, Administration, Workshop, and Security (see table 3). Administrative costs for 2014 were 551,736 Euros.

b. Revenue from waste management in Pristina

Currently the only source of revenue for the public sector in waste management are the collection fees. Below are the three fee rates for different segments according to the information provided by Pastrimi:

1. 4.65 Euros per household per month
2. Between 6 to 9 Euros per month and 16 to 18 Euros per month for businesses, depending on the size of the business
3. 12 Euros per 1.1 m3 container for institutions

Calculations for the total annual revenue collection by Pastrimi could not be carried out due to the following data gaps:
- Total number of businesses in Pristina
- Total number of institutions and the number of containers each has
- Annual grants/transfers from the national government

Officials at Pastrimi named the procedures for collecting fees from the above-mentioned segment as the following:
1. Through fee collectors: There are 40 fee collectors in Pristina. Each handles between 1200 and 1300 bills per month, totaling between 4,000 and 5,000 Euros. They get either 9% of fees collected or a minimum 360 Euros salary.
2. Through collection points: There are 9 fee collection points in the city where citizens can go and pay directly.
3. Through direct bank transfers, with an additional one Euro service charge.

The payment of fees is voluntary as Pastrimi does not have a legal mandate to collect fees from the citizens or users. Hence the fee collection rate is not 100%. An average of about 70% of fees are collected. There are also other constraints, such as the unwillingness of commercial users to pay and the fact that charges for businesses are low compared to the service they receive. During our interview, the officials at Pastrimi reported that last year 75% of users paid their waste fees and that 67% of this number were households. The director of Pastrimi claimed that even if the fee collection rate were increased to 100%, revenues would only cover administrative costs and day-to-day operational costs and that there is a need for extra funds for capital investment. As possible sources of financing he cited international donors, the national government and the municipality who could provide support by supplying equipment and paying other infrastructure costs (Salihu, 2016).

**Organizational Structure and Public Budget**

**Solid Waste Management in Kosovo**

<table>
<thead>
<tr>
<th>Service Area and Staff Position</th>
<th>Management Staff</th>
<th>Administration</th>
<th>Workshop</th>
<th>Security</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>4</td>
<td>88</td>
<td>26</td>
<td>16</td>
</tr>
<tr>
<td>Basic Salary €/ month</td>
<td>3,991 €</td>
<td>2,510 €</td>
<td>975 €</td>
<td>280 €</td>
</tr>
<tr>
<td>Social Benefits €/ month</td>
<td>€</td>
<td>€</td>
<td>€</td>
<td>€</td>
</tr>
<tr>
<td>Total Indirect Staff Cost 2014</td>
<td>€</td>
<td>€</td>
<td>€</td>
<td>€</td>
</tr>
<tr>
<td>€/month</td>
<td>3,991 €</td>
<td>2,510 €</td>
<td>975 €</td>
<td>280 €</td>
</tr>
<tr>
<td>€/year</td>
<td>12,976 €</td>
<td>30,330 €</td>
<td>11,850 €</td>
<td>15,360 €</td>
</tr>
</tbody>
</table>

**Annual Administrative Costs Incurred by Pastrimi, 2016**

Table 3: Annual Operational Costs Incurred by Pastrimi, 2016

Source: Prepared by Authors, Based on Information Provided by GIZ, Pristina

Table 4: Annual Administrative Costs Incurred by Pastrimi, 2014

Source: Prepared by Authors, Based on Information Provided by GIZ, Pristina

The proposed pilot project in Dardania aims at introducing sorting and recycling at source. The waste bank will serve as a collection point for recyclable materials. There will be two options for the collection of recyclable materials: 1) residents bring them to the waste bank, or 2) drop them in the yellow bins to be provided at existing container sites. From both the yellow bins and the waste banks, the material will be picked up by trucks managed by a private company and taken to its plants to be sorted and processed. In this scenario, the current black bins will remain and individual collectors will be able to take recyclable material from them and take it to the waste bank, where they will be paid by the private company who manages it.

5.6.2 Organizational Structure of Proposed Project

From 2017, the municipality of Pristina will own the pilot project. They will steer the operations and set all quality control standards through the Waste Management Unit (WMU) set up within the municipality. Six people will be employed within the WMU to manage operations: one head of sector, one operations officer, one complaints/PR officer, one IT officer, two maintenance officers. Currently these three people are employed. For collection and disposal the municipality will contract a company, possibly Pastrimi if it meets the requirements of the public tendering process (Qorri et al., 2016).
According to the presentation by Mr. Kai Hofmann on 19 June, 2016, a private company will be contracted in the project to manage the waste bank in Dardania. The company will be in charge of collecting recyclables from the yellow bins and from individual collectors and transporting it to sorting and processing centers. The company will also pay individual collectors at the end of each day. As previously mentioned, six individual collectors with experience of collecting recyclables in Dardania will be employed by the company to sort and collect recyclables from the container sites within Dardania. The municipality, with the support of GIZ, will float a tender to select the company.

With the introduction of the waste bank the municipality intends to regularize informal individual waste pickers. A reduction in the amount of waste being transported to the landfill will also result in reduced gate fees and a decrease in public expenditure.

The municipality of Pristina has positive economic expectations of the pilot project. They expect that the project will encourage people to separate their waste at source. This will lead to less waste being disposed of as landfill, thereby reducing costs due to gate fees. Additionally, the municipality is targeting a fee collection rate of 100% by introducing some new measures. For example, if a household wants to register his car, he has to pay property tax and when he pays property tax he has to prove that he has paid the waste fee. A business example might be a café owner who wants to use his terrace, but can only get a permit if he pays the waste fee (Qorri et al., 2016). If the householders are made aware of these incentives, they will feel motivated to separate their waste at source. This will lead to less waste being deposited at the official landfill and more recyclables will find their way to the waste bank.

The municipality will also adapt initiatives to incentivize sorting at source. They intend to make it mandatory for the private company running the waste bank to contribute a part of their profit to the neighbourhood schools. This amount will contribute to the children’s education or enhance services within the neighbourhood. When the citizens are made aware of these incentives, they will feel encouraged to sort at source (Qorri et al., 2016).

The municipality is confident that if they achieve a 100% fee collection rate, the revenue will be enough to run the entire waste management system, not only the waste banks. Officials at the municipality stated that waste collection is their duty and that they intended to fulfil it. They hope to learn good practices from the pilot project in Dardania and to use them to scale up. This is a new venture for the municipality and they will learn more as the project progresses (Qorri et al., 2016).

5.6.3 Public Budget and Finances for the Proposed Project

The pilot project is being funded by the municipality. GIZ has supported the awareness raising campaigns and is now cooperating with the private partner who will be in charge of the waste bank.

5.6.4 Cost of scaling up the pilot project to city level

After operationalizing the pilot project in Dardania, the municipality of Pristina intends to set up 21 waste banks across the city. Once integrated into the system, these will lead to efficient managing of recyclables, increased waste segregation at source, and will provide a livelihood for the informal/individual waste pickers. A reduction in the amount of waste being transported to the landfill will also result in reduced gate fees and a decrease in public expenditure.

Scaling up will also result in an increase in operating and maintenance costs as indicated in the previous section in table 5. The following are the capital costs of the waste banks that will be incurred by the municipality.

Annual costs for maintenance and operation to be incurred by the municipality for the new waste banks could not be calculated due to the following data gaps:

- Cost of utilities at the waste bank (electricity, water, etc.)
- Maintenance of container sites
- Human resources costs

5.7 Recommendations for the Pilot Project

Recommendations have been broken down into the following categories:

5.7.1 Regarding the Waste Management System:

The foremost concern for both the municipality and Pristriini is littering by individual collectors at the container sites. The implementation of a waste bank will not address this aspect as collectors will

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continue to work at the present container sites. It is recommended that a space within the sites be demarcated where collectors can sort the recyclables. The municipality should also put in place measures for keeping the sites clean by mandating the private company to carry out an inspection at the end of the day. According to Mr. Shkelqim Daci from GIZ, Pristina, there will be 150 container sites in total in Pristina, similar to the ones that are presently in Dardania, Pristina. Individual waste collectors should also be made aware of health and hygiene issues. These actions are necessary in order to make the waste banks function as intended.

As previously mentioned in this chapter, collection times have been changed, meaning that the regularized collectors will not find much waste at the container sites during the day. Therefore a schedule should be set up to synchronize Pastrimi’s collection times with the working hours of individual waste collectors and the cleaning of the collection sites at the end of the day.

5.7.2 Regarding Organizational Structure:

The organizational structure of the pilot project looks complex. Sorting and recycling will be overseen by two different stakeholders: a private company and individual collectors. We recommend streamlining the structure for better output, with only one stakeholder performing each function. This would mean organizing the collection of recyclables so that just one stakeholder picks up material from any given place and conveys it to another. For example, only informal pickers pick up material from collection sites and dispose of it at the waste bank, and from there the company truck takes the material to the processing plant.

5.7.3 Regarding the Public Budget:

As previously mentioned, due to changes in the law in Kosovo waste management functions will be shifted to the municipality from 2017. As of that date, Pastrimi will no longer be in charge of collection and disposal. Hence, it is important for the municipality to ascertain the revenues generated and the operational costs before scaling up the project to the city level. As indicated above, a number of data gaps resulted in incomplete cost calculations. These data gaps have to be filled by the municipality in order to get a clear picture of the total revenue generated by waste fees and the total operational and management costs involved. This could be done by tracking fees collected and costs incurred. Thus, a separate budget for waste management is absolute necessity. The budget heads should indicate the fee collection rate, the total amount collected in a year and the costs incurred by the municipality.

5.7.4 Suggested Indicators

It is recommended that the outcomes of the implementation of the pilot project be measured by fulfilling the following indicators:

- The municipality should have a separate waste management budget by the end of 2017.
- The Waste Management Unit at Pristina Municipality should have human resources capacities to allow the scaling up of waste management services by 2017.
6 Economic Impacts of the Dardania Waste Bank Project

6.1 Introduction

The way in which cities and countries manage the waste produced by households and businesses not only has an impact on the environment, but could also become an important source of income and employment for many. This report analyses the economic impacts of waste management in general and in particular in Kosovo. The first section introduces the concept of circular economy and explains the potential of the recycling industry. Section two identifies and describes all the stakeholders in the recycling value chain. The PET recycling value chain was chosen as the base for the analysis. The third section details several calculations conducted in order to estimate the positive and/or negative impacts on the different stakeholders in the plastics value chain, based on a cost-benefit analysis. Using the findings from section three, section four introduces an alternative scenario for the operation of the waste bank that is shown to be more profitable for the current stakeholders. This section includes two case studies that illustrate the suitability and likely good outcomes of the alternative proposed. Finally, in section five we identify the data gaps that need to be filled in order to have more accurate results.
6.1.1 Circular Economy

The utility and value of consumable goods decrease over time, ultimately turning them into waste. Waste is environmentally harmful and economically unsustainable. The idea of circular economy tackles precisely this problem. It is an economy that is restorative and regenerative in nature (Ellen MacArthur Foundation, n.d.). In simple terms, products that have been consumed and discarded are brought back into the market through recycling and re-use. The Ellen MacArthur Foundation defines a circular economy as a continuous positive development cycle that preserves and enhances natural capital, optimises resource yields, and minimizes system risks, thus making it an important guide towards a more sustainable future where resources are not depleting at an exponential rate due to anthropogenic activities (Ellen MacArthur Foundation, n.a). A circular economy has even greater relevance in urban settings where consumption of goods and waste production are both extremely high.

The cycles of circular economy are divided into two parts: biological cycle and technical cycle (Ellen MacArthur Foundation, n.a). The biological cycle allows nature to restore and regenerate while the technical cycle enables humans to use regenerate ways to recover materials. The core idea behind circular economy is not merely the recycling and recovery of materials, it also aims to completely design out waste, maximize the use of energy at all stages, including production, consumption and recovery, and to reinvigorate the economy (Perella, n.a.). While many countries are gearing towards circular economy, studies have predicted a significant benefit for the global economy due to this movement.

6.1.2 The Economic Potential of the Recycling Business

According to the World Bank estimate made in 2010, global Municipal Solid Waste (MSW) generation levels are expected to double by 2025 (World Bank, 2010). Therefore, the recycling business has a lot of potential in terms of the employment and profit that it is able to generate. The cost of recycled materials compared to new ones is usually lower. Therefore, if the costs of clearing and repairing are not too high, many companies will prefer to use recycled materials in order to reduce the costs of production. In the United States, the recycling industry employed more than 1.1 million people, generated over $236 billion in gross revenues and saved municipal budgets for landfilling over $3 billion in 2014 (Gonen, 2015).

Benefits of recycling would be:

1. Energy saving: Recycling reduces the need to extract and process primary resources and materials, two industries that require high levels of energy and produce high levels of CO2 emissions.
2. Land saving: Since land is a scarce natural resource, people need to use land efficiently. The more we recycle from waste, the less goes to landfill or the incinerator.
3. Job creation: As a recognized industry, recycling creates jobs and generates revenue. It is estimated that dumping 10,000 tons of waste into landfill creates six jobs while recycling 10,000 tons of waste creates 36 jobs (Thi Van Nga, 2013).

6.1.3 Global Markets for Recyclable Materials

The second step to understanding the execution of the recycling industry is to look at the external conditions that could exogenously modify the costs and profits of the business and therefore threaten its stability. Recycling has its environmental benefits, but most recycling companies are in it for profits. In the case of plastics, for example, when the oil price is too low to make recycling viable, only large companies are able to stay in business in the long run. In this context it is important to observe the behavior of some commodities that directly impact the recycling business.

In the case of plastics, they are derived from by-products of the petroleum refining processes. Therefore, when oil prices go down, the price of plastic follows. In the last three years, the oil price went down dramatically from more than USD$110 per barrel in June 2014 to around USD$30-50 per barrel in 2016, a drop of over 60% (Bloomberg, 2016). Low oil prices make plastics recycling barely economically viable, since it becomes cheaper to produce new plastic than to recycle old (see figure 8).

Concerning recycling metals, the commodity markets have been at historic lows and the value of scrap materials has also fallen dramatically. For instance, aluminium and steel prices dropped by 50% (see figure 9), rendering the economic benefit of recycling them very small. Some companies would therefore strategically choose to stockpile those metals until prices rise again.

6.2 Market Analysis of the Recycling Sector in Kosovo - Identification and Description of Economic Stakeholders

In order to understand the economic impacts of the waste bank project, the first step is to understand the structure and relationships between the stakeholders of the recycling sector, i.e. the role and the margins of each actor in the value chain. Figure 10 shows the scheme of the value chain of the recycling sector.

Individual Collector

As mentioned in the Social Impacts chapter, individual collectors are mostly people from the RAE communities who work in the collection of recyclable materials from waste containers in the different neighbourhoods in Pristina and other cities in Kosovo with the aim of selling them to the buyer who offers them the best price. Therefore, the type of transport that they can afford can make a significant difference in terms of their income.

Figure 11 shows the distances between

Source: London Metal Exchange
In table 7, the prices that different types of buyers pay for different types of materials are shown. Thus, individual collectors have the option to sell the collected materials to middlemen such as scrap processors or directly to the mills. According to the field research conducted, scrap processors in Pristina pay 15 cents. Meanwhile, the mills pay the most. Izolimi Plast, the recycling company interviewed for this report, pays between 20 and 25 cents depending on the purity of the PET (Rama, 24.06.2016). The third option, ECMI, an NGO located in Fushe Kosovo pays 15 cents. Meanwhile, the mills pay 13 cents per kilogram of PET, while those located in Pristina pay 20 cents. The center is equipped with shredding machinery, which allows it to sell shredded plastic at a higher price to mills. The center buys plastic waste from individual collectors at 25 cents/kg of PET bottles, and sells the shredded waste to mills for an average of 21 cents/kg of PET (Kabashi, 23.06.2016). The center pays more than other scrap processors because it runs as a non-profit organization. In order to ensure the sustainability of the center after donor support expires, ECMI is looking at the possibility of creating a social enterprise to run the center in the future. However, legislation for social enterprises has not yet been created in the Republic of Kosovo. Nevertheless, this would provide the association of individual collectors with the opportunity to move up in the value chain.

### Middlemen

**Scrap Processors**

A large number of scrap processing companies is distributed across Kosovo. In the late 2000s, scrap processors focused mostly on metals (iron, copper and aluminium) (UBO Consulting, 2011). However, as the price of metals drastically decreased, interest shifted to plastics. In terms of where scrap processors’ supplies come from, 75% of the collected material comes from individual collectors and the remaining 25% from waste sources and buyers in Dardania. In table 7, the prices that different types of buyers pay for different types of materials are shown. Thus, individual collectors have the option to sell the collected materials to middlemen such as scrap processors or directly to the mills. According to the field research conducted, scrap processors in Pristina pay 15 cents per kilogram of PET, while those located in Fushe Kosovo pay 15 cents. Meanwhile, the mills pay the most. Izolimi Plast, the recycling company interviewed for this report, pays between 20 and 25 cents depending on the purity of the PET (Rama, 24.06.2016). The third option, ECMI, an NGO located in Fushe Kosovo, pays 15 cents per kilogram of PET.

### Mills

Businesses and public institutions, which illustrate the importance of the individual collectors for the industry in Kosovo. Most investment in this segment is self-financed and directed towards basic equipment for shredding and compressing and transport (UBO Consulting, 2011). As buyers, scrap processors have two options: 1) sell on to a Kosovar mill that processes the type of waste purchased, or 2) export the compressed or shredded material to surrounding countries. For the latter option, the most common destinations are Macedonia, Albania, Serbia, Bosnia and Turkey. The price received per kilogram is not fixed. It depends on the global commodity market (UBO Consulting, 2011). However, the field research conducted in Kosovo revealed that they are paid 25 cents per kilogram of compressed plastic bottles when they export to the countries mentioned. This 2016 figure represents a significant fall from 2012, when the price per kilogram was 45 cents (Latifaj, 23.06.2016). This is related to fluctuating oil prices as explained in section 6.1.3.

### European Centre for Minority Issues (ECMI)

As explained in the Social Impacts section, ECMI has been successful in creating an association of individual collectors. One of the most significant outputs of the project is the implementation of a collection center in Fushe Kosovo, run entirely by individual collectors. The center is equipped with shredding machinery, which allows it to sell shredded plastic at a higher price to mills. The center buys plastic waste from individual collectors at 25 cents/kg of PET bottles, and sells the shredded waste to mills for an average of 21 cents/kg of PET (Kabashi, 23.06.2016). The center pays more than other scrap processors because it runs as a non-profit organization. In order to ensure the sustainability of the center after donor support expires, ECMI is looking at the possibility of creating a social enterprise to run the center in the future. However, legislation for social enterprises has not yet been created in the Republic of Kosovo. Nevertheless, this would provide the association of individual collectors with the opportunity to move up in the value chain.
In the previous section, a brief overview of the stakeholders in the value chain was given. As a specific example from the recycling value chain in Kosovo, we have selected the recycling of plastics. The types of plastics used in this industry are (USAID Kosovo Private Enterprise Program, 2009):

- Polyethylene Terephthalate (PET)
- High Density Polyethylene (HDPE)
- Low Density Polyethylene (LDPE)
- Polyvinyl Chloride (PVC)

The most important goods produced from them are:

- Foil for agriculture and construction
- Drainage pipes
- Shopping bags
- Bottles, containers, bottle caps
- Tempos foil for wrapping

Off the 0.6 million tons of municipal waste generated in Kosovo in 2012, 17% was plastic. This means that 66,000 tons of plastic could potentially be collected and recycled (Ministry of Environment and Spatial Planning, 2014). However, 90% of total waste goes directly to landfills, with 50% of that being recoverable material (Kosovo Environmental Protection Agency, 2009). However, as previously mentioned, access to landfills is restricted. In figure 13 a rough picture of the value chain of plastics in Kosovo can be observed.

As can be seen, waste management in Kosovo goes through three main phases. Firstly, in the waste generation phase, homes and private businesses pay 3.5 Euros per month as a waste management fee. In the second phase, recyclable waste is collected by individual waste collectors who sell the waste either to middelemen or directly to recycling companies. Finally, waste is sorted and transferred to recycling companies for processing. The arrows indicate the direction of the flows and the relationship between the different stakeholders.

6.3 The Introduction of a Waste Bank in Dardania through a Private Operator - Expected Impacts

The previous section provided an overview of the functioning of and threats facing the recycling business, with an emphasis on plastics. In this section the focus will be on the Dardania Waste Bank Pilot Project that the GIZ plans to support the municipality in implementing in a public-private partnership with Green Recycling, a private recycling company. In particular, we will assess how Green Recycling will function, whether or not the scheme will be profitable and whether or not other stakeholders in the value chain will benefit.

6.3.1 S.R.I. to Green Recycling: Lessons Learned

The former pilot project conducted by the Municipality of Pristina and supported by the GIZ within the framework of Sustainable Municipal Services (Waste Management) 2014 – 2017 Project, included a public-private-partnership (PPP) with the S.R.I. Kosova/Gasser Austria private company. In this section we will examine the valuable lessons learned from this experience with an outward look towards the proposed pilot project in the Dardania neighborhood with the new company, Green Recycling.

In 2014, S.R.I was one of the private operators in Pristina involved in the collection and trading of recyclable waste. It employed around 25 people and collected about 10,000 tons of recyclable material per year, 95% of which was exported to countries such as Turkey and Macedonia (Valdet, 22.06.2016).

The company was chosen to manage the waste bank and its collection points in the pilot program. However, the company chose to terminate its business in Kosovo for a variety of reasons (Valdet, 22.06.2016): low institutional support, high rents, low profit margins and loss of profit due to fluctuations in the price of oil in the world market which caused the value of plastic to decline.

In the new pilot project, the new local company Green Recycling has been chosen as the private sector partner. The company employs some of the former employees of S.R.I., so maintaining knowledge of the area and its networks. Also, given that the company is local, it is able to function at lower profit margins than the foreign company S.R.I., and to operate better in the local institutional and cultural context. Furthermore, the company has negotiated lower rents and intends to expand its activities to include waste processing as well as collection.

According to our interview with Green Recycling (Valdet, 22.06.2016), their business model will have the following characteristics:

- Low institutional support
- Low rents
- Low profit margins
- Loss of profits due to fluctuations in the price of oil in the world market which caused the value of plastic to decline

It is important to mention that the information shown in this figure refers only to our field research. The number of companies interviewed was not big enough to be extrapolated to the entire industry.
yellow containers. This waste will be collected by Green Recycling trucks and taken directly to the recycling facilities for further processing.

- The remaining 20% of recyclables will remain in the black containers, unsorted. This means that 80% of the cost will go on transport.
- 6 individual collectors will work with Green Recycling in Dardania to extract the remaining recyclable materials.
- Individual collectors will pick the recyclables from the black containers and take them to the waste bank, which will be located in the neighbourhood.

- It is estimated that each individual collector who works with Green Recycling will be able to pick two or three 30-50 kilo sackfuls per day from the black containers (the yellow containers will be locked). This adds up to between 60 and 150 kilos per day.
- For each kilogram of PET, individual collectors will receive 8 cents. This price is the lowest in the market, but according to Green Recycling it will be compensated for by the increased amount of waste available exclusively to the collectors, the elimination of transport costs and other benefits such as the provision of a uniform, gloves, badges, etc. In the following sections we estimate the costs and benefits of this model for the individual collectors in order to evaluate the real effects.
- The company estimates that the waste bank will receive 0.5 ton per day, gradually increasing to 1.5 tons per day, a maximum of 30 tons per month in 20 working days.
- The company’s intention is to use the majority of the plastics collected to produce granulates. A proportion of collected waste will be sold to bigger mills with the machinery to clean impure fractions. Recyclables are expected to be sold at a premium price, making a 100 Euros per ton profit.

Based on the information detailed above, we performed a cost-benefit analysis for Green Recycling using the available cost information from Kroni (extracted from USAID Kosovo Private Enterprise Program, 2009), a company established in 2009, which together with Izolimi Plast and Euro Plastika is one of the biggest mills in the plastics sector in Kosovo. In table 9 the detailed costs of Green Recycling can be seen.

According to our analysis, the estimated cost of Green Recycling will be 492.75 Euros per ton with 70% fixed costs and only 30% variable costs. Meanwhile, the cost structure of Kroni shows only 40% fixed costs.

There are two reasons for this:
1. For 80% of the recyclables the only cost is transport, and for the remaining 20% the collection cost is way below the market price.
2. Economies of scale possibly play a role. Kroni produces 1.4 times more than Green Recycling and 10 times more than Izolimi Plast. Izolimi Plast also has the advantage of vertical integration with the construction company Izolimi Construction. In this context, Green Recycling will be able to generate the expected profit of 100 Euros per ton, but will not be the most competitive firm in the market despite the low variable costs.

Another point to consider is that the project relies entirely on the success of the awareness campaign.

If the awareness campaign does not bring about the objective of 80% of recyclables being separated at source and deposited in the yellow container, other costs will increase or profit margins will decrease due to a lower return on investment.

Finally, if Izolimi Plast decides to open its own collection point, it will create much stronger competition for Green Recycling through not only enjoying the advantage of economies of scale, but also the advantage of low collection costs.

3.6.3 Economic Impacts on Individual Collectors

A second important issue is the low price that Green Recycling is willing to pay individual collectors and the limited number of individual collectors it is willing to hire. In order to show the impact on individual collectors, an economic impacts assessment has been done. Assumptions:
- Total waste produced in Dardania: 28.000 kg/day
- Plastic waste generated in Dardania: 4,144 kg/day
- Amount of recyclables collected in one big sack (120l): 30 – 50 kg
- Transport cost: 2 cents/kg
- Price of PET Green Recycling: 8 cents/kg
- Price of PET other buyers: 13 – 25 cents/kg

The results according to these parameters are shown in table 9. Estimation based on data extracted from Kosovo Environmental Protection Agency (2009), Ministry of Environment and Spatial Planning (2014), and Interview with Valdet (22.06.2016).

The figures show that, even though the volume of plastics available for six individual collectors increases almost threefold, they will only be better than the market price.
individual collectors in the classification of materials. However, the sector is not organized, nor consistent in its operations. Also, because of its poor access to appropriate tools and equipment, and its focus on just a few types of recyclable materials, the sector is deemed inefficient.

Despite these obstacles, the opportunity exists to create a more systemized and formal method of collecting materials through individual collectors. As has already been observed, the sector is growing significantly. For those, whose demands involved in no longer rely only on municipal garbage containers but also collect waste from private businesses. They have also begun to purchase the materials collected and then resell them to scrap processors or mills. This shows that the sector is becoming more structured in its operations. It is important since the aim of the pilot project should be to utilize existing networks and systems.

Within this premise an alternative scenario is suggested for the pilot project. The creation of a social enterprise to manage the waste bank. The establishment of an association of informal waste pickers led by the European Centre for Minority Issues (ECMI) shows that there is an interest within the sector for mutual cooperation and organization. This provides the opportunity to encourage greater participation within the association. As can be seen with the collection center supported by ECMI, individual collectors are willing and capable of creating and managing organized systems of waste collection.

A social enterprise owned by the association would be a sustainable manager for the waste bank project and would provide social and economic benefits. The project would profit from the abundant experience and social knowledge of individual collectors. It would also provide employment opportunities, give individual collectors the opportunity to move up the value chain and increase their quality of life. Furthermore, with institutional help and access to adequate tools and machinery, waste collection efforts (which largely consist of the work of individual collectors) would become considerably more efficient. Lastly, a social enterprise would prove more resistant to fluctuating world market prices of materials, given the non-profit nature of the company. Obstacles facing this alternative scenario include:

- Current low levels of institutional assistance
- Current dependency of the association on aid organizations and donors
- Lack of legislation in Kosovo regarding social enterprises

Possible initial financing sources for the scheme include:

- Kosovo Consolidated Budget
- The budget from municipal revenues
- Grants from the USAID EMPOWER Private Sector program
- Donations
- Available trade capital
- Leans from international financial institutions

Furthermore, in figure 14 we present the estimated economic impacts of a waste bank managed by the proposed social enterprise. Estimates based on data extracted from Kosovo Environmental Protection Agency (2009), Ministry of Environment and Spatial Planning (2014), and interviews with Valdet (22.06.2016).

The inclusion of individual collectors in the management of the waste bank can bring economic advantages to the pilot project. The local recycling market is largely dependent on the material collection stage, which directly affects the post-collection stage of the process. As we have described in previous sections of this report, individual collectors are the only actors working in the separate collection of recyclable waste.

The sector has prevailed in the market given that it is the supplier of waste to scrap processors. This is due to the significant levels of expertise possessed by individual collectors. In this case scenario, individual collectors working 13 to 6 kilograms per day can earn more without the waste bank than with it. Moreover, the number of jobs lost could be as many as seven individual collectors because of the waste bank restrictions. This can be reflected when observing the wealth generated by all individual collectors. In conclusion, the waste bank, as it has been proposed, will not improve the income of individual collectors currently working in Dardania.

Table 10 shows the estimated economic impacts of a waste bank managed by the proposed social enterprise. The establishment of an association of informal waste pickers led by the European Centre for Minority Issues (ECMI) shows that there is an interest within the sector for mutual cooperation and organization. This provides the opportunity to encourage greater participation within the association. As can be seen with the collection center supported by ECMI, individual collectors are willing and capable of creating and managing organized systems of waste collection.

Economic Impacts of the Dardania Waste Bank Project

As can be seen in the graphs, for every economic variable that was measured, the best possible situation for the individual collectors would be with a social enterprise. In terms of employment, the number of individual collectors involved in the Dardania Pilot Project would grow from six with the waste bank up to 27 with a social enterprise; as 100% of the recyclables would be available to individual collectors. Moreover, one individual collector would earn 11 Euros per day with the waste bank versus 27 Euros with a social enterprise, a monthly income of 221 Euros versus 540 Euros (see figure 14). Providing a significant increase in their monthly income would not only improve the quality of life of the individual collectors, but would also make it easier to eliminate child labor in this sector. If a household can earn the same amount of money as before with the work of only two people instead of four, the incentives to send their children to school will increase.

At this point it is also important to mention the benefits for the mills since they play a very important role in the upgrading of the recycling business in Kosovo. The mills would benefit from the social enterprise model since they would reduce their costs by approximately 2 cents per kilogram and would have a reliable and permanent source of recyclables.
Waste Recycle Projects in the World – Case Studies of Successful Practices Including the Informal Sector

Indonesia


Waste banks in Indonesia can be found in many regions, from the capital Jakarta to small neighbourhoods in villages. Waste banks in Indonesia are developed exclusively by the local community or neighbourhood, without any private company involvement.

Like a regular commercial bank, households or persons can open an account with the nearest local waste bank. Periodically, they make deposits with recyclable materials, which are weighed and given a certain price value, based on rates previously set between the community and the waste bank. This value is saved in the waste bank account from which, like a regular bank, people can withdraw. The basic principles of waste banks remain the same across provinces: collect, save, earn, change behavior and enjoy a clean neighbourhood.

In this system, there are no individual collectors in the neighbourhoods; the individual collectors are found mostly in landfill areas. The neighbourhood or community holds a meeting each week to discuss prices and activities to maintain the cleanliness of the neighbourhood, as well as awareness raising for kids and schools, and the use of recyclable materials in various arts and crafts.

After people transfer their waste to the waste bank, the waste is either processed at the waste bank and passed on to local citizens for use in handicrafts and other products or it is sold as processed waste. The main idea behind the waste bank is to provide people with small amounts of money that they can withdraw periodically while at the same time contributing to improving their neighbourhood.

Table 11: Strengths and Weaknesses of the Indonesian Waste Bank System

<table>
<thead>
<tr>
<th>Strength</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>The neighbourhood becomes stronger</td>
<td>Hard to maintain the sustainability</td>
</tr>
<tr>
<td>Household can earn money from the activities</td>
<td>Need the involvement of the government for the initial investment</td>
</tr>
<tr>
<td>The awareness raising of waste management is already built up and still continued</td>
<td>Government needs to do awareness raising before the system could work</td>
</tr>
<tr>
<td>Some of waste that cannot be recycle are reused by the community</td>
<td></td>
</tr>
<tr>
<td>The system is not dependant to private company</td>
<td></td>
</tr>
</tbody>
</table>

Reciveci is a citizens’ initiative created in 2015 with the objective of promoting inclusive recycling in Ecuador. It was started by a group of neighbors from Quito who decided to work together to raise awareness about the importance of recycling and the role of individual collectors in the process. About 70% of individual collectors in Ecuador are female from low-income households. At the habit of separating at source is not very widespread amongst Ecuadorians, individual collectors have to dig amongst the trash, sort out the recyclables and then sell them to a middleman at very low prices, resulting in working conditions that are not only impoverishing, but also unhealthy (ReciVeci, 2016).

The pilot project of this citizens’ initiative, launched in March 2016 in the La Carolina neighbourhood, was designed to build a recycling culture by creating a bond between the individual collectors and the residents. Within three months it was able to expand to two more neighbourhoods. The role of the organization in this process is to create awareness about recycling through workshops held in the neighbourhoods and to reinforce the link between households and individual collectors. Households interested in recycling after attending the workshops can download an app in order to contact the individual collector in their area directly and arrange the times for the recyclables to be picked up (ReciVeci, 2016).

This organization works on:

- Raising awareness of the advantages of recycling through:
  - workshops
  - mobile apps
  - social networks
- Increasing the amount of recyclable materials available for individual collectors by encouraging separation at source.
- Linking the households to their neighbourhood individual collectors.
- Improving the working conditions and income of individual collectors.
- Strengthening the social organization of individual collectors and boosting their entrepreneurial potential.
Izolimi Plast - Case Study of Recycling Project in Kosovo

Izolimi Plast is one of the biggest companies in the recycling sector in Kosovo, even though it started operations only three years ago under the leadership of Aldan Rama. Aldan Rama is a 27-year-old Kosovar who decided to enter the recycling business after becoming aware while working in his grandparents' construction company, Izolimi Construct, of the huge amount of construction materials that needed to be imported. Realizing the potential of the recycling business in Kosovo, he started producing thermos-insulation foils used in construction and agriculture, two rapidly growing sectors in Kosovo (Rama, 24.06.2016).

In the three years the company has been active, it has expanded significantly. It started with only the machinery to produce the thermos-insulation foils, meaning that it still needed to buy granulates. The company now produces its own granulates out of used plastic. Izolimi Plast currently employs 36 people, but by the end of the year they plan to expand that number to 66 (Rama, 24.06.2016).

The company’s machinery has a capacity of 300 tons of plastic per month. To reach this capacity, waste sometimes has to be imported. Rama argues that there is enough waste in Kosovo to fulfil the needs of the local market and says that the problem is that the collection system is not reliable. Therefore, he is considering opening his own collection points all over Kosovo to cut out the middlemen and improve the efficiency of the business (Rama, 24.06.2016).

In terms of costs and profits, he pays 18 to 25 cents per kilogram, depending on the type of plastics and the purity of the fractions. These materials are used to produce granulates which he sells at 90 cents per kilogram. Besides the price of the inputs he has to consider the costs involved in the high-energy consumption of his machinery. His price is the highest in the market, but customers, who are mostly locals, prefer him because he offers very good quality and service (Rama, 24.06.2016).

Biggest challenges:
- Entry barrier: high price of machinery
- Unreliable supply of waste
6.5 Data Gaps

The conclusions in this chapter are based on a number of assumptions regarding the data on the plastics recycling sector. One reason for this was the lack of time available to collect primary data, forcing us to rely on secondary data from previous reports. As is known, the number of assumptions grows, the accuracy of the model decreases. Precise information about costs, profits, margins and other economic indicators used would have increased the quality of the estimates. However, we believe that the work done gives a good overview of the impact that a waste bank operated by a private operator such as Green Recycling might have.

Some of the data gaps and possible future indicators for assessing the feasibility and financial sustainability of solid waste management in the Dardania neighborhood are:

- Precise information about the waste generated in Dardania
- Comparable company data: profit analysis of other middlemen companies in Pristina
- Industrial data analysis of market share of middleman and recycling company
- Detailed costs information from Green Recycling and S.R.I.
- Change in the amount of clean recyclables collected
- Change in profit margins of the recycling company acting as middleman (with the assumption of a stable global market value for recyclables)
- Number of individual collectors involved in formalized collecting due to successful scaling up
- Average monthly income of individual collectors involved in the pilot project compared to average monthly income of individual collectors not involved in the pilot project

6.6 Conclusions and Recommendations

This chapter has analysed the financial sustainability of the proposed pilot project, as well as its expected economic impacts on the various stakeholders involved. Primarily, it was concluded that the involvement of individual collectors is clearly crucial for the functioning of the recycling process in Kosovo. However, the proposed scheme would not improve the livelihoods of individual collectors in terms of income and strength within the value chain. Furthermore, as can be seen from the results, while the involvement of a private company is viable, it would not be particularly profitable and would possibly be unsustainable. Given the various economical constraints found in the analysis of the project, alternative scenarios have been proposed. Thus, specific recommendations are outlined:

1. Creation of a social enterprise: As mentioned before, the creation of a social enterprise owned by the association of individual collectors would be a sustainable alternative for the management of the waste bank. Not only would the inclusion of individual collectors into a higher position in the value chain bring social benefits, it would also create a more economically stable basis for the pilot project.
2. Creation of appropriate legislation: The Republic of Kosovo is in the process of creating legislation for social enterprises. It is important to advocate for a quicker establishment of the necessary legislation in order to include the association of individual collectors in an institutional and legal framework that allows them to climb the value chain.
3. Provision of support for the association of individual collectors: Support for the growth of the association through institutional assistance in the form of hygiene and safety training, and the provision of equipment and market information. Such assistance would raise the efficiency of individual collectors.
4. Establishment of partnerships: Current active actors in the recycling scheme in Kosovo should be considered for partnerships.

a) Partnerships with mills could provide great advantages for both sides. Since mills frequently face the problem of unreliable waste collection, a reliable source of waste from the waste bank would be attractive. In return, the waste bank could rely on a permanent buyer that would cover transport costs.

b) USAID is a possible partner since it provides grants to companies that create employment through its EMPOWER Private Sector program. This could be crucial in the establishment of a social enterprise. Furthermore, USAID has experience in supporting businesses within the recycling industry in the country (Marku, 22.6.2016).

c) Cooperation with ECMI is crucial since the organization has invaluable experience in the creation of the association of individual collectors, as well as in training, prevention of child labor in waste collection, and the creation of a collection center run by individual collectors. A partnership with ECMI would greatly assist the beginning phases of the creation of a social enterprise to manage the waste bank by guiding the process.
7 Implications for the Livelihood of the Informal Sector of Implementing a Waste Bank Pilot Project in the Dardania Neighbourhood in Pristina

7.1 Introduction

In assessing the impact of the waste bank pilot project in the Dardania neighbourhood in Pristina, it is absolutely vital to consider how it will affect the livelihood of the informal sector. It should be carefully examined whether the waste bank will provide benefits to individual collectors and bring improvements to the organizational structure of the waste management sector as well as to society at large. The implementation of the waste bank within a framework that provides the informal sector with organizational capacity that improves their collective bargaining, and thus their remuneration and livelihoods, is at the heart of this analysis.

7.2 Background

7.2.1 Conceptualizing Informality

The notion of informality came to the fore last century and people’s perception of it is continuously evolving. Initially, informality was seen from a dualistic perspective, differentiating between protected and unprotected labor forms. Subsequently, the structuralist view perceived informality in terms of “cleavages in economic and social composition between formal and informal economies” and considered informality a consequence of uneven capitalist development (AlSayyad 2004:12). Finally, the legalists viewed informality as a way of escaping the regulatory hand of the state and carving a place...
in the economy through “survival strategies” outside the formal labor market (AlSayyad 2004:13).

The term “informality” is often misunderstood, and frequently associated with “negative terms, such as illegal, unregulated, underground, irregular, disorganized, unstable, dark” (Gregson et al., 1999; Kanbur, 2009 in: Moscoso Teixeira de Mendonça 2015:11). The consequences of failure to effectively understand the role of informality can become highly counter-productive and result in the exclusion of some of the already most vulnerable segments of society (Moscoso Teixeira de Mendonça 2015).

7.2.2 Understanding Informality in the Waste Sector

The informal waste sector is defined as “informal activities of extraction, valorisation, transporting and commercialisation of recyclable materials into the recycling value chain,” and it is undeniable that it plays a key role in waste management across the globe (Moscoso Teixeira de Mendonça 2015:18).

The Integrated Sustainable Waste Management Framework (ISWM) has been developed by Arnold van de Klundert, Justine Anschütz, and Anne Scheinberg (van de Klundert and Anschütz, 2001 in: Moscoso Teixeira de Mendonça 2015) to establish a broader understanding of solid waste management in order to provide a more comprehensive understanding of solid waste management considering not only the technical aspects, but also the social, institutional, legal and political conditions that constitute it (Moscoso Teixeira de Mendonça 2015: p.14). The innovative aspect introduced by this framework is the way it stresses the need to build on existing waste management systems and their integration of the key role played by the informal sector in the recycling system (Moscoso Teixeira de Mendonça 2015:15). The presence of the informal sector in waste collection presents a number of benefits to the overall waste system and has been accepted and proven to be a positive factor “in sustainable and inclusive solid waste management” (Moscoso Teixeira de Mendonça 2015:1). In Pristina, it is impossible to neglect the all-too-visible role that the informal sector plays within the waste management sector.

7.2.3 Individual Collectors

For individual collectors, recyclable waste is a valuable resource from which they can recover financial gains (Moscoso Teixeira de Mendonça 2015:18). The role of individual collecting is often taken on by urban poor, who work in precarious and standard conditions, as well as with a high level of stigma and discrimination (Moscoso Teixeira de Mendonça 2015:15). Despite this, it must also be mentioned that there are many positive aspects to the informal work of individual collectors, such as autonomy, flexibility, working hours, relative freedom and independence, as well as ease of access (Moscoso Teixeira de Mendonça 2015:23). These aspects must be taken into account when assessing the impact of the waste bank pilot project.

7.2.4 Approaches to Informality in the Waste Management Sector

Conceptually, there are two different scenarios when dealing with the informal sector. The first consists in the “subtraction scenario”, which stipulates that the informal waste sector should be “restricted or reduced through prohibitory legislation or mercoprolization of recovery activities by the formal sector”. This scenario usually demonstrates the unsuccessful performance of the formal sector in taking on activities previously reserved to the informal sector, due to lack of experience, skill and know-how (Moscoso Teixeira de Mendonça 2015:26).

On the other hand, the “addition scenario” recognizes and cooperates “with the informal waste sector through legislation and by including individual collectors in municipal planning activities”. This scenario has demonstrated improvements in the recycling system and overall waste management system (Moscoso Teixeira de Mendonça 2015:26).

7.2.5 The Informal Waste Sector in Pristina

The informal sector is at the very bottom of the recycling value chain in Pristina (Moscoso Teixeira de Mendonça 2015:44). Although the informal sector is key to the recycling system, it is generally characterised by a lack of organization, consistency, efficiency and regularization (Urban Research Institute 2015:14). Recycling operations performed by individual collectors are often interrupted by weather conditions or social obligations, and the collecting process lacks effectiveness because the waste pickers only collect the materials that have value in the recycling market and leave the rest behind. Additionally, a lack of proper equipment for collecting and transporting larger quantities renders the whole operation even more inefficient (Urban Research Institute 2015:14). Finally, there is a lack of regularization of the informal sector, subjecting individual collectors to standard working conditions. Two main actors from the informal sector primarily perform recycling activities: the scrap processors and individual collectors. While individual collectors perform the collection of scrap materials, scrap processors are at the receiving end and are the main buyers of recyclable materials from individual collectors (UBO Consulting, 2015). This chapter focuses mainly on the impact of the waste bank on individual collectors.

Individual collectors are the most active agents in the recycling system in Pristina and perform an important role in society, and it is members of the Roma, Ashkali and Egyptian (RAE) minority communities who perform the role of individual collectors (Moscoso Teixeira de Mendonça 2015:3). RAE communities face a number of social issues, including lack of access to education and employment, as well as a lack of political representation and marginalisation, in addition to social stigma and discrimination (Moscoso Teixeira de Mendonça 2015:3). The living conditions of RAE minorities tend to be marked by marginalization, poverty, standard working conditions and lack of government support (Moscoso Teixeira de Mendonça 2015:3). Most RAE families live in conditions of extreme poverty: “average monthly income is up to 50 euros for 20% of these communities, up to 80 euros for 26.06%, and up to 120 euros for 19.76%; and there are no big differences between Roma, Ashkali and Egyptians” (KFOS SOROS), 2009 in: Moscoso Teixeira de Mendonça 2015:33). With regard to social benefits, nine percent of Egyptians, 41 percent of Roma, and 48 percent of Ashkalis, receive social assistance (Moscoso Teixeira de Mendonça 2015:33).

Individual collectors suffer from a lack of institutional support and proper equipment to carry out their activities. They often collect materials by hand and transport it by foot or on non-motorized vehicles. Individual collectors often travel 20 kilometers per day, carrying heavy loads. It is estimated that they make an average of 200 euros per month (UBO Consulting 2011).

Individual collectors typically engage in the recycling sector due to a lack of alternative income-generating opportunities (UBO Consulting, 2011). Lacking qualified experience and necessary qualifications, they do not have access to the formal labor market (Moscoso Teixeira de Mendonça 2015:47). According to an ECMI report, the income of RAE minorities is mainly generated from the collection and sale of recyclable waste materials (Urban Research Institute 2015:14).

Another matter of concern is the connection between the informal sector and child labor. Many individual collectors are unable to cover school costs and sometimes even depend on their children to contribute to the household income (Urban Research Institute 2015).

It is therefore clear that urgent measures must be taken to improve the situation of individual collectors, not only to improve their well-being, but also to achieve efficient recycling and waste management. This chapter is concerned with analyzing how the waste bank pilot project, as proposed by the GIZ, will affect the livelihoods, working conditions and status of the individual informal collectors.
7.3 Methodology

7.3.1 Desktop Research

Preliminary desktop research was conducted prior to the trip Kosovo to obtain an understanding of waste management in Pristina, specifically regarding the role of the informal sector. Key to the background research was a master thesis project conducted by Moscoso Teixeira de Mendonça in January 2015.

7.3.2 In Situ Qualitative Data Collection

In situ data collection was undertaken in Pristina from 19 – 24 June, 2016. Face-to-face interviews with individual collectors were conducted utilizing semi-structured questionnaires. Questionnaires were developed in collaboration with students from the University of Pristina. Interviews with individual collectors were performed in Albanian by the Pristina students and subsequently translated into English. A total of ten informal individual collectors were interviewed during the field observation exercises. Additionally, an unstructured interview was conducted with the operator of a collection point in Fushë Kosovë.

A number of meetings were held with key stakeholders through semi-structured interviews. These stakeholders include: the municipality, ECMI, Green Recycling, Directory of Economic Development of the Gjilan Municipality (including Eco-Higjiena and NGO representatives of Gjilan), Reciclimi (Gjilan) employees and one individual collector, Gerhard Dummer of the Moser Groups and Eco-Higjiena and IOM.

7.3.3 Field Observations

A number of site visits were undertaken in order to contextualize the information gathered. The sites visited include:

- Waste collection sites in Fushë Kosovë
- The potential location of the waste bank within Dardania
- The collection center run by ECMI in Fushë Kosovë
- Waste collection sites in Gjirokastër
- Waste collection sites in Gjilan
- Gjilan Regional Landfill

7.4 Results

The following section provides a sample list of pertinent insights and deductions obtained from the data collected.

7.4.1 Individual Collectors

Five unstructured interviews were conducted with individual collectors in Dardania and Fushë Kosovë.

- Informal individual collectors generally travel to the same area on a daily basis to collect recyclables. They do not have territories and act on a ‘first come, first served’ basis.
- Five individual child collectors were encountered during our field study, four of them accompanied by their fathers. One 12-year-old child was unaccompanied.
- All individual collectors interviewed benefited from a social subsidy to complement income generated from collecting recyclables.
- Individual informal collectors travel by foot, bicycle, tricycle or motorized tricycle.
- Four out of five individual collectors interviewed preferred to sell directly to recycling companies and avoid going through the collection center or a middleman. They all agreed that going through a middleman would decrease their profits.
- The self-declared income of individual collectors varied from 3 to 5 euros per workday.
- Individual collectors working with their children acknowledged the importance of education, but said they could not afford to send their children to school.
- All individual collectors expressed their willingness to be employed within a formalized system and also a willingness to remain in the recycling industry, although they expressed concerns about working conditions, salaries, and the loss of social subsidies.

7.4.2 Waste Bank Operated by Green Recycling

A visit to the potential location of the waste bank pilot project and an interview with Green Recycling shed light on the role of the waste bank, its mode of operation and most importantly its relationship with the individual informal collectors. From that interview it was deduced that:

- The waste bank will formalize six individual informal collectors who will benefit from protective clothing and receive more efficient means of transport. They will be chosen based on an already established relationship with Green Recycling.
- Green Recycling sees individual informal collectors as unreliable, since they do not work to a fixed schedule and the waste bank requires a reliable and consistent system.
- Separation will happen at source and waste will be divided into two bins: one yellow, one black. The yellow bins containing recyclables will be kept locked and the black bins will be used for the remaining waste, such as organic waste, glass and paper, in addition to unsorted waste that could contain plastics. Individual informal collectors will have access to any remaining waste in the black bins.
- When asked about the incentives for individual collectors to bring recyclable material to the waste bank rather than directly to the recycling factory, it was stated that the incentive would be in the form of improved working conditions.

7.4.3 European Center for Minority Issues

The meeting with ECMI provided some additional information on the current situation and livelihood of individual informal collectors.

- ECMI works with 60 individual collectors in Fushë Kosovë and 100 in Pristina, and avoids working with individual collectors using child labor.
- Individual collectors’ self-reported income is 4 euros/day.
- ECMI aims to create a middleman who can offer a higher price for recyclables compared to factories.
- ECMI helps turn some of its beneficiaries into middlemen who can later buy the recyclables for 18 cents/kilo (the usual sale price is 16 cents/kilo), compress the recyclables and sell them for 21 cents. The collection point collects 10-15 tons of waste per month.
- ECMI provides individual collectors with training in safety and hygiene and supplies tools, equipment, compressing machines and motorized transportation.
- Individual collectors express the need for formalization, uniform, equipment and access to recycling companies.
- Individual collectors want formal jobs, but fear losing social assistance, they would rather lose a job than lose social assistance.
- ECMI aims to become a social enterprise where profits are reinvested to improve the livelihood of individual collectors. It aims to support and improve the situation of individual collectors, increase their income, support them in starting up businesses and offer them access to alternative opportunities.
ECMI considers their project successful since they claim that the amount of materials collected, as well the income of individual collectors, has increased through their intervention.

7.5 Discussion

7.5.1 Individual Collectors and Working Conditions

Individual collectors often operate in unsafe working conditions and there is much room for improvement. One of the major challenges faced by individual collectors is transportation. According to the UBO Consulting (2011), individual collectors travel about 20 kilometres each day. Individual collectors lack the proper equipment to transport their waste and also have to travel large distances between the locations in which they collect the waste and the factories where they sell it. An example of good practice is the way Reciclim, the recycling company in Gjilan, is addressing this issue. Reciclim offers individual collectors a pick-up service using their truck, as well as large white bags to facilitate the transportation of recyclables.

Individual collectors mainly collect items that have a market value and that they can sell to recycling factories, and sometimes collect items such as food, clothes and shoes for personal use. According to the data collected, there seem to be no territorial disputes or conflicts among individual collectors operating in a given area. One interviewee even mentioned that it is not uncommon for individual collectors to help each other out, for example in carrying loads.

The number of hours of work per day varies among interviewees. The group of individual collectors interviewed in Fushë Kosovë stated that they work on average from 4 am to 6 pm. According to UBO Consulting (2011), individual collectors travel about 20 kilometres each day. Individual collectors lack the proper equipment to transport their waste and also have to travel large distances between the locations in which they collect the waste and the factories where they sell it. An example of good practice is the way Reciclim, the recycling company in Gjilan, is addressing this issue. Reciclim offers individual collectors a pick-up service using their truck, as well as large white bags to facilitate the transportation of recyclables.

Based on interviews with stakeholders involved in the pilot project, initiatives are being carried out to improve the working conditions and livelihoods of individual collectors. ECMI works with the RAE minority groups and seeks to support the informal sector through a number of strategic interventions, including providing individual informal collectors with training in safety and hygiene, and providing tools and equipment to facilitate their work. ECMI also directs some of its efforts toward the entire recycle chain, supporting individual collectors’ livelihoods through the establishment of a middleman who pays them a higher price for recyclable materials than the factories, though this may prove difficult since the price of recyclables is subject to market forces.

7.5.2 Income

There is a rather large discrepancy between the income declared by individual collectors and the amount that recycling companies estimate they can make. While interviewees declared earnings of about 3 to 4 euros a day per individual waste picker, 15 to 20 euros per week and 10 to 12 euros a day for an average of 5 to 6 people per week in Gjilan estimated that individual collectors make an average of 20 euros a day. Individual collectors declare lower earnings in order to avoid taxation and due to the fear of losing their social subsidies. Generally, all individual collectors interviewed benefited from a social subsidy to complement income generated from collecting recyclables.

7.5.3 Employment and Formalization

Individual collectors stated that they would continue to work as recyclables collectors, since they have sufficient experience and know-how, but also expressed the need for a stable income and improved working conditions. They also expressed their willingness to be employed within a formalized system, but were concerned about the implementation of the recycling chain in order to integrate the informal sector into the recycling value chain, reliability and timely collection need to be ensured. Based on interviews with stakeholders involved in the pilot project, initiatives are being carried out to improve the working conditions and livelihoods of individual collectors. ECMI works with the RAE minority groups and seeks to support the informal sector through a number of strategic interventions, including providing individual informal collectors with training in safety and hygiene, and providing tools and equipment to facilitate their work. ECMI also directs some of its efforts toward the entire recycle chain, supporting individual collectors’ livelihoods through the establishment of a middleman who pays them a higher price for recyclable materials than the factories, though this may prove difficult since the price of recyclables is subject to market forces.

7.5.4 Child Labor and Education

Child labor is a major concern when discussing the informal waste sector in Kosovo. A high prevalence of child labor was observed during visits to Dardania and Fushë Kosovë and the regional landfill in Gjilan. Children take part in collecting recyclables as a way of supplementing the household income. When the question regarding child labor was brought up during interviews with individual collectors, they all acknowledged the importance of education, but most could not afford to send their children to school. It was also mentioned that he will be in difficulty when his child turns six, since he will likely not be able to afford the notebooks the child needs for school. Measures need to be taken in order to improve school attendance by RAE youth and prevent child labor in the waste sector.

ECMI is taking measures to discourage child labor by refusing to work with individual collectors who use child labor. The manager of the waste bank pilot project will ensure that the individual collectors who engage in a formal relationship with the waste bank will not use child labor.

7.5.5 Stakeholder Analysis

The waste bank pilot project involves multiple stakeholders, each with different interests and concerns. This section aims to conduct a stakeholder analysis from the perspective of the informal sector.

The municipality should ensure that the waste management sector adheres to certain standards, such as basic working standards for individual collectors and the eradication of child labor. A collaborative organizational structure between the municipality and the informal sector needs to be put in place to benefit both parties.

NGOs such as ECMI have a key role in supporting the informal sector and ensuring that their voices and opinions are heard. They also play a role in providing the informal sector with training and equipment to facilitate their work and help increase their income. ECMI aims to foster a social enterprise where the profits are reinvested for the benefit of individual collectors.

The private sector, including recycling companies, essentially rely on the work of individual collectors. Therefore, they need to ensure that individual collectors get fair remuneration for their work, as well as improved conditions.

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The analysis is based on Capacity WORKS tools (Deutsche Gesellschaft für Technische Zusammenarbeit [GTZ] GmbH [2008]: Capacity WORKS. Das Managementmodell für Nachhaltige Entwicklung. Eschborn).

### 7.5.6 The Impact of the Waste Bank Pilot Project

During the meeting with representatives administering the waste bank pilot project, the question of incentives for individual collectors to bring recyclable material to the waste bank rather than directly to the recycling factory came up. It was meant that an attempt would be made to provide improved and more dignified working conditions for individuals as a whole. However, it seems that individual collectors are willing to go the extra mile in order to sell directly to the factories and so maximize their income, so, the waste bank pilot project needs to provide sufficient incentives for individuals in order to ensure its success.

Based on current information, it is unclear whether the waste bank will provide sufficient benefits to the informal sector. It is evident that it will improve socio-cultural perceptions of individual collectors and will allow them to collect more recyclables. They will be able to sell directly to the factories and so maximize their income, so, the waste bank pilot project needs to provide sufficient incentives for individuals in order to ensure its success.

In addition, their work contributes to the lowering of pollution levels and greenhouse gas emissions created through waste management activities (Schindelberg et al., 2011 in Moscoso Teixeira de Mendonça, 2015).

### Table 12: Stakeholder Analysis of the Implications for the Informal Sector of Implementing a Waste Bank Pilot Project in the Dardania Neighbourhood in Pristina

<table>
<thead>
<tr>
<th>Stakeholder Area</th>
<th>Stakeholder Mandate</th>
<th>Relationship to other Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household and Businesses</td>
<td>Support effective waste collection system</td>
<td>Play a role in supporting the informal sector by ensuring payment of the waste tax, as well as maintaining access to services to formal and informal individuals.</td>
</tr>
<tr>
<td>Municipality</td>
<td>Ensure waste management system adheres to standards</td>
<td>A collaborative organisational structure between the municipality and the private sector is needed to be put in place to facilitate better participation.</td>
</tr>
<tr>
<td>NGOs (in ECM:</td>
<td>Support informal sector and individual collectors</td>
<td>NGFs aim to foster a social enterprise where the profits are reinvested for the benefit of individual collectors.</td>
</tr>
<tr>
<td>Private sector</td>
<td>Profit seeking</td>
<td>Need to ensure that individual collectors get fair remuneration for their work, as well as improved conditions.</td>
</tr>
<tr>
<td>Business sector</td>
<td>Profit seeking</td>
<td>Private sector capitalizes on their activities by setting up recycling businesses with access to material at low cost.</td>
</tr>
</tbody>
</table>


7.5.8 Concerns Regarding the Implementation of the Waste Bank

It remains unclear how the waste bank will benefit individual collectors. It was revealed that waste would be discarded into two different colored public bins: yellow bins for sorted recyclables at household level, to be kept locked, thus preventing informal collectors from accessing it; and black bins for all other waste, which will be accessible to individual collectors. However, the waste bank seeks to employ just six individuals out of a total of 20 waste pickers whose livelihoods depend on waste picking. Employees of the waste bank will collect recyclables utilizing a truck. Recyclables received from households will be obtained at no cost and those received from individual collectors will be bought by middlemen in the Dardania area for 15 cents per ton, which is below the market value of 16 cents per ton. (ECMI meeting on June 23, 2016.)

This scenario is problematic as it may erode the informal sector and increase the profits of the middlemen. With households sorting at home and discarding waste in locked bins, it is projected (by GreenRecycle/Valda) that 80% of recyclables will be in the yellow bins and thus off limits to individual collectors. Access to the remaining recyclables in the black bins is limited to the six individual collectors employed by the waste bank with no guarantee of leftover recyclables. Recyclables received from household waste collectors are not sold, but rather kept locked, thus preventing informal collectors from accessing them.

The informal sector performs valuable economic and environmental services. Economically, the waste collectors reduce the quantity of waste being diverted to landfill, thus decreasing landfill fees for publicly owned enterprises along with transportation costs. Additionally, they perform recycling with no cost to the municipality. In addition, their activities create income-generating opportunities for themselves as society fails to provide them with employment opportunities. Finally, the private sector capitalizes on their activities by setting up recycling businesses with access to material at low cost.

Individual collectors in Kosovo also benefit the environment as their recycling activities reduce the amount of waste being diverted to landfill and the environment, and permit the re-use of materials. In addition, their work contributes to the lowering of pollution levels and greenhouse gas emissions created through waste management activities (Schindelberg et al., 2011 in Moscoso Teixeira de Mendonça, 2015).

7.6 Recommendations

In order to improve working conditions, enhance collective bargaining capacity and reformulate socio-cultural perceptions of individual collectors operating in the recycling chain, a number of potential actions and initiatives are suggested.

a) Support association of individual collectors: Support, foster and incentivize individual collectors to form associations to improve their collective bargaining capacity and defend their interests.

b) Improve better working conditions for individual collectors by setting standards that improve their working conditions and ensure that they have access to health insurance, as well as access to better equipment that allows them to collect more recyclables. They should also be provided with training in health and hygiene, as well as protective clothing.

Mechanisms to control child labor should also be established, as well as formal agreements to ensure consistent access to work. Existing NGOs should also be made to achieve a gradual and incremental formalization of individual collectors in which benefits outweigh losses (such as independence, self-established working conditions etc.).

c) Empower the informal sector: Considering its relationship with the informal sector in Pristina, NGOs such as ECMI should play an active part in propelling initiatives that empower the informal sector, in order to improve their bargaining power.

• Improve the collective bargaining power of the informal sector by granting them political representation.
7.6.1 Recommended Indicators

The following indicators are proposed to monitor the impact of the pilot project. The following indicators should be measured at the beginning of the project as a baseline (a control group involved in waste collection but not beneficiaries of the program can also be used to measure these indicators initially), then again some time after implementation in order to measure its impacts:

1. The change in monthly income and earnings of individual collectors who are beneficiaries of the project will increase by XX% by 201X.
2. The change in percentage of RAE children attending school whose families are involved in waste collection and are beneficiaries of the pilot project in Pristina from XX% to XX% by 201X.
3. The change in percentage of RAE children performing work in the waste sector in Pristina at the pilot project site in Dardania/Pristina from XX% to XX% by 201X.
4. The change in percentage of individual collectors who are beneficiaries of the pilot project in Pristina with access to health care and other social benefits from XX% to XX% by 201X.
5. Number of individual collectors operating illegally at the landfill will decrease by XX% by 201X.
6. Increase in the percentage of individual collectors benefitting from formalization with respect to the total (X) number of RAE community members involved in waste collection sector in Pristina by XX% by 201X.
7. Increase in the number of individual collectors equipped with knowledge and mechanisms to improve their bargaining capacity through the measures in the pilot project by XX% by 201X.
8. Number of individuals who attended training in negotiation and collective bargaining as percentage of total waste collectors.
9. Number of individuals who attended health training as percentage of total waste collectors.
10. Number of individuals who attended training in work safety as percentage of total waste collectors.
11. Number of individuals who attended training in civil rights as percentage of total waste collectors.
12. Number of individual collectors forming part of an organization or association in the sector of waste management in Pristina/Fushë Kosovë as percentage of total waste collectors.
13. Percentage of individual collectors represented in waste management discussions with municipality in the project steering committee meetings with municipality and private sector.
14. Presence of campaigns that positively highlight role of individual collectors in Pristina.
15. Increase in positive perceptions of society regarding RAE minorities and individual collectors through the awareness raising measures in the pilot project in Dardania/Pristina from XX% to XX% by 201X.

7.7 Conclusion

The inclusion and recognition of the informal sector in the recycling and waste sector is of vital importance. According to the IWWM, an effective initiative should build on the existing waste management systems and give the informal sector a key role in the overall system (Moscoso Teixeira de Mendonça 2015:13). Furthermore, it would be wise to adopt the “addition scenario”, which recognizes and cooperates with the informal sector rather than trying to eradicate it (Moscoso Teixeira de Mendonça 2015:26). The benefits of the “addition scenario” would be twofold. First, it would result in improvements in the waste management and recycling sector in Pristina. Second, integrating a larger portion of the informal sector and recognizing its key role in the recycling chain in Pristina can also address some deep-rooted social problems. Therefore the existing discussion by ECMI on a sustainable alternative to the waste bank pilot project, whereby the creation of a social enterprise owned, managed and operated by the informal sector, including a greater portion of it, needs to be supplemented with a legal framework that can draw on the experience of the pilot project and flow into the design and establishment of a social enterprise at a later stage. This would not only ensure the sustainability and efficient functioning of the waste bank in Dardania, but would also ensure overall improvements in the recycling and waste sector of the area, and also bring about a number of important socio-economic benefits.
8 Waste Data Collection, Monitoring and Reporting System

8.1 Introduction

Municipal waste management remains one of the predicaments of urbanization for cities. Continuous population growth means that more waste is being generated, at a rate which overwhelms the capacities of municipalities. An efficient municipal waste management system requires reliable data on the waste situation:

1. To supply information on environmental problems in order to enable policy-makers to evaluate their severity
2. To support policy development and priority setting by identifying key factors that put pressure on the environment
3. To monitor the effects of policy responses. (Smeets et al., 1999: 5)

Since the quantity and composition of waste play a determinant role in deciding waste treatment methods and the allocation of resources, the acquisition of data on composition and quantity is a key component of an effective waste management system. In general, after various types of waste, e.g. organic, plastic, paper/cardboard, glass, etc., are generated in various amounts, they are categorised for further treatment or landfilling. Whether or not recycling is feasible and efficient depends on the amount of recyclables generated.
This chapter discusses, analyses and makes recommendations to improve the municipal waste data and monitoring/reporting system in Pristina, with the aim of enhancing the waste management infrastructure of the municipality through the implementation of the Waste Bank Pilot Project. It starts with a summary of the legal and regulatory framework, followed by an overview of the current waste data statistics (i.e. waste generation, composition and fraction), methods of waste treatment/management (e.g. landfilling and recycling), and the waste monitoring/reporting system.

8.2 Aims and Approach

Developing a good system for municipal waste data collection and waste monitoring/reporting depends on the intended use of data. This requires setting clear targets on the type of data to be collected and the methods of collection, and also requires identifying the challenges encountered during the collection process. In the Pristina project context, the following were set as objectives in the discussion of waste data:

- To analyse the waste composition and volume to be managed
- To identify which waste should be collected separately
- To describe, analyse and suggest ways to improve the current waste data collection and monitoring system in Pristina

However, the short stay in Pristina did not allow the authors sufficient time to visit and interview all of the aforementioned stakeholders. The following are the stakeholders interviewed:

1. Ministry of the Environment and Spatial Planning (MESP)
2. Kosovo Environmental Protection Agency (KEPA)
3. Municipalities
4. Kosovo Landfill Management Company (KLMC)
5. Regional public companies for waste management
6. Recycling companies
7. Importers and exporters of waste
8. Households (waste producers)
9. Individual collectors

The authors understand that these goals require inputs to present a solid base for the conception of other aspects of the Waste Bank Pilot Project. Achieving these objectives allows the waste issue to be addressed with useful waste data about Dardania.

8.3 Methods

Desktop research and field investigation were adopted as the main approaches in this study. This involved the collection of both quantitative and qualitative data through literature review, conducting structured interviews, taking field notes, and observations. All of these were then used to formulate the contents of this chapter. The desktop study research, which was initiated in Berlin prior to the visit to Pristina, involved the identification and compilation of a list of stakeholders which could be sources of waste data in Pristina. The stakeholders identified were the following:

1. EPA: the national environmental regulatory agency responsible for waste data processing and the industrial use of chemicals, the focus of this chapter is on municipal solid waste
2. Municipality of Pristina: a local government institution established by an act of parliament. Among other responsibilities, the municipality is required to set up a waste management system, including the development of a waste management plan
3. KLMC: a public body responsible for the management of sanitary landfills in Kosovo
4. Pastrimi: a public entity responsible for collecting waste and transporting it to sanitary landfills. Pastrimi is also involved in identifying and cleaning up illegal dump sites
5. Izolimi: a private company that focuses mainly on the recycling of plastic waste into finished products
6. Green Art Centre: a non-governmental organization that works on environmental issues through awareness raising and capacity building
7. Individual collectors: workers in the informal sector who collect valuable recyclable materials either from private homes or waste collection points and sell them directly to the recycling companies or through middlemen

Interviews conducted and information obtained were based on questionnaires designed with the assistance of GIZ staff. Using these questionnaires, the authors conducted semi-structured interviews to obtain quantitative and qualitative data from the stakeholders who either provided answers to the questions during the interview or supplied the authors with relevant documents afterwards.

Equipped with a small but useful amount of qualitative and quantitative data, as well as their own observations made during visits to the stakeholders, the authors were able to discuss in detail the current waste data collection situation. It is important to point out that data from various years are used due to the insufficient current data available at the time of the field trip. Despite this seemingly inconsistent use of data, this chapter can help elaborate the waste management situation in Kosovo in general and at municipality level in Pristina.

8.4 Framework for Waste Management

The most recent census in Kosovo, carried out in 2011, showed the population of Pristina to be 198,897 inhabitants (Kosovo Agency of Statistics, 2013: 53). Since the overall population of Kosovo was expected to grow over the following years, it can be assumed that the population of Pristina has also increased. Assuming that waste generation per capita is constant, the total amount of waste generated grows as the population increases. Although the current framework not only provides regulations, instructions and guidelines for dealing with municipal waste, but also for hazardous waste and the industrial use of chemicals, the focus of this chapter is on municipal solid waste.
8.4.1 Law on Waste

At national level, the Law on Waste No. 04/L-066 is the legal backbone of the regulations which support proper waste management in Kosovo. The aim of the Law on Waste is to:

- Prevent and reduce as much as possible the generation of waste, promote the reuse of used components from waste, sustainable development through protection and preservation of human resources, prevention of negative effects of waste on the environment and human health, and final storage of waste in an environmentally acceptable manner (KEPA, 2014: 10).

8.4.2 Strategy for Waste Management of the Republic of Kosovo

With the Law on Waste as its legal basis, the Ministry of Environment and Spatial Planning published the “Strategy of the Republic of Kosovo on Waste Management” in 2012 to align the country with European Union legislation on waste management (European Union, 2012; MESIP, 2012). In addition, the difficulty of achieving comprehensive and accurate data on waste (as also experienced by the authors of this chapter during their stay in Pristina) was addressed in the “Strategy of the Republic of Kosovo on Waste Management” of MESIP (2012).

8.4.3 National Waste Management Plan 2013 – 2017

This five-year plan aims at improving the current waste management situation and its effects on the environment and human health by reinforcing the waste management system, increasing spending on associated infrastructure and raising awareness (KEPA, 2014).

8.4.4 Local Level

At local level, municipalities should devise local waste management action plans in line with the Law on Waste (KEPA, 2014: 12). Up until now, 14 municipalities have their own action plan in place (KEPA, 2014: 12), including the site of study, Pristina (Krasniqi, 2012), while the plans of four other municipalities are in the development stages (KEPA, 2014: 12).

According to Krasniqi (2010), the Pristina municipal waste management plan entails immediate, medium, and long term strategies for improving waste management with the aim of minimizing the adverse effects of waste on the environment. The main goal of the action plan is to reduce the amount of waste deposited in landfill by promoting waste recycling as well as the reduction of waste generation (Krasniqi, 2010). The action plan details a list of activities to be undertaken and the expected outcomes of these activities, as well as the indicators and means of verification.

8.5 Waste Data Collection System in Pristina

In this section, the current waste data collection system in Kosovo is explained. The stakeholders involved and the methods used in this process are therefore the main focus. In order to analyse the system, EU standards and existing literatures are used. The collection of adequate and usable data is required to generate reliable information. This is the only way to establish indicators that “supply information, support policy development and priority settings or monitor the effect of policy responses” (European Commission and Eurostat, 2013: 9). However, the implementation of comprehensive, accurate and effective data collection is always a challenge. The case of Kosovo, unfortunately, is no exception.

Though Kosovo is not yet a member state of the European Union, it is working towards this goal. For this reason, improving waste statistics is a way of reducing the gap between Kosovo’s status quo and EU standards. According to Article 3 of “Waste Statistics Regulation” (Regulation (EC) No 2150/2002) promulgated by EU (2012), data collection should be carried out for both waste generation and waste treatment. The following areas should therefore be covered by EU member states in terms of data collection:

- Statistics on waste generation
- Statistics on waste treatment
- Data on treatment infrastructure and coverage of the waste collection scheme

In Pristina, the waste management system consists of four major stakeholders: KEPA, KLMC, the Ministry of Environment and Spatial Planning, and NGO Izolimi. KEPA is responsible for the national waste management plan, while KLMC is responsible for waste collection and transportation. NGOs work to promote waste recycling, and KLMC manages waste sanitary landfills. Stakeholders are engaged in different roles in waste management and have different data collection responsibilities.

8.5.1 Waste Data Reporting/Monitoring System in Kosovo

An analysis of waste data collection and data processing, not only at national level, but also at municipality level (e.g., Pristina), is crucial in understanding the current situation and determining a proper waste management policy for the future. A complex system with several stakeholders engaged in different roles is observed. Moreover, this system does not function as one coordinated body, meaning that the actors operate according to their own interests and only data beneficial to them are under consideration. During the authors’ research, it was discovered that an efficient and effective formal reporting/monitoring system was not yet in place. Instead, an informal system was observed. The following paragraphs describe this system.

8.5.2 The Stakeholders

KEPA is the national institution responsible for the publication of the “The State of Waste and Chemicals Report”. It functions as a coordinating body which requests data from other stakeholders. In other words, KEPA rarely produces its own primary data. In addition, some stakeholders that do generate primary data (local governments, regional waste companies, landfill administration companies such as KLMC, NGOs, recycling companies, international institutions such as the World Bank (WB) and GIZ) report only sporadically. As a result, most waste data are collected from the waste treatment sector. This manifests a lack of systematic collection of data on waste generation despite the fact that studies have indicated a link between generation and treatment. Among these studies were KEPA’s “The State of Waste and Chemicals Report” and GIZ’s “Analysis of Municipal Solid Waste Pristina – Kosovo”.

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Table 13: Summary of the Status of Waste Data Collection and Reporting/Monitoring of Six Stakeholders

<table>
<thead>
<tr>
<th>Serial</th>
<th>Stakeholders</th>
<th>Status</th>
<th>Responsibility</th>
<th>Available Data</th>
<th>Reporting to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>National Municipal Assembly in Collaboration with GIZ</td>
<td>Public body</td>
<td>Establishment and development of waste management system</td>
<td>Waste composition: waste analyses for Pristina conducted at new recycling plants between October 2009 to March 2011</td>
<td>Reports to KEPA, Ministry of Environment and Spatial Planning (MESIP)</td>
</tr>
<tr>
<td>2</td>
<td>Kosovo Environment Protection Agency (KEPA)</td>
<td>Public body</td>
<td>Coordinating body for data collection</td>
<td>Quantity of Waste collected for Pristina and other Regions in Kosovo</td>
<td>Reports to the MESIP</td>
</tr>
<tr>
<td>3</td>
<td>Kosovo Landfill Management Company (KLMC)</td>
<td>Public body</td>
<td>Management of solid waste sanitary landfills</td>
<td>Quantity of waste deposited in Kosovo landfills from 2009 to 2012, Waste fractions in Kosovo for 2012</td>
<td>Reports to KEPA</td>
</tr>
<tr>
<td>4</td>
<td>Pastime</td>
<td>Public body</td>
<td>Municipal waste collection services and transportation of collected waste to the sanitary landfills</td>
<td>Amount of waste generated within Pristina for 2015</td>
<td>Reports to the Municipal Assembly and shares data to KEPA through the board of directors</td>
</tr>
<tr>
<td>5</td>
<td>Green Art Centre</td>
<td>NGO</td>
<td>Waste management promoting public awareness and implementation of projects related to the environment</td>
<td>Data on recyclables for Pristina and Kosovo</td>
<td>N/A</td>
</tr>
<tr>
<td>6</td>
<td>LEZUM</td>
<td>Private Company</td>
<td>Private sorting companies engage mainly in the recycling of plastic waste</td>
<td>Amount of waste recycled at company market data for 2015</td>
<td>Currently data is not reporting reliable and any other stakeholders</td>
</tr>
</tbody>
</table>

Source: Prepared by Authors
8.5.3 Reliable Sources of Waste Data

Data obtained from KLMC and Pastrimi are more systematic and comprehensive since these two stakeholders keep records of their waste data on a regular basis: KLMC produces monthly reports on waste to KEPA, while Pastrimi keeps account of the amount of municipal waste collected through the receipts issued by Mirash Landfill. The importance of data collection is mentioned at the beginning of this section and the task demands a considerable amount of effort and resources, which explains the lack of data on local waste generation. Some actors, like GIZ and GreenArt Centre, which have developed useful tools for obtaining data through research on waste fraction and recyclables, are the main sources of Kosovo’s official data on waste generation. The remainder are collected from or reported by other recycling companies. To summarize, figure 20 shows the identified waste data collection system in Pristina.

8.6 Data on Waste Generation, Composition and Fraction

An understanding of sources, types, compositions and fractions of waste is required for a more thorough analysis at a later stage. KEPA (2014) divided waste in Kosovo into the following types:

- **Household waste**: refers to waste (mostly solid) that is generated within the home through domestic activities and consists largely of garbage.
- **Commercial waste**: waste generated through business and income generating activities.
- **Construction waste**: waste produced through building or demolition works.
- **Ash and grime**: waste produced as a result of burning and
- **Other waste**: refers to waste categories not mentioned above that include but are not limited to animal, medical and hazardous waste.

Household waste, also known as domestic or residential waste, refers to waste generated by individuals within their habitats. In general, household waste consists of a mixture of organic, recyclable and sometimes hazardous waste. The amount and type of household waste generated varies largely between different neighbourhoods due to such factors as population make-up, population density, education level, income level, etc.

According to the data obtained, the average amount of waste generated by the inhabitants of Pristina in 2012 was estimated to be 1.4 kg/capita/day, which surpassed the average of 0.9 kg/capita/day for Kosovo inhabitants in general. It was also observed that there was an increase from 0.3 kg/capita/day in 2008 to 1.4 kg/capita/day in 2012 in Pristina (KEPA, 2014). Pristina is one of few big cities in Kosovo, which might explain the higher level of waste generation. A waste fraction analysis carried out by the Urban Research Institute Tirana and GIZ (2015) shows that the 20,000 inhabitants of Dardania generated 19,000 kg of waste daily, meaning that their average daily waste generation of 0.9 kg/capita/day was the same as the national average.

A composition analysis of household waste for Dardania was conducted by GIZ (2011) over three different periods between October 2009 and March 2011. The result as presented in table 14 shows that the waste generated in Dardania constituted 40.87% organic waste and 38% recyclable waste. The main fractions of recyclable waste were paper/cardboard, plastic and glass, in proportions of 12.83%, 14.78% and 4.45%, respectively.

<table>
<thead>
<tr>
<th>Waste Composition Average</th>
<th>Percentage Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic</td>
<td>40.87%</td>
</tr>
<tr>
<td>Wood</td>
<td>1.97%</td>
</tr>
<tr>
<td>Paper and Cardboard</td>
<td>12.83%</td>
</tr>
<tr>
<td>Plastics</td>
<td>16.30%</td>
</tr>
<tr>
<td>Glass</td>
<td>4.45%</td>
</tr>
<tr>
<td>Textiles</td>
<td>2.50%</td>
</tr>
<tr>
<td>Metals</td>
<td>1.18%</td>
</tr>
<tr>
<td>Hazardous Waste</td>
<td>0.35%</td>
</tr>
<tr>
<td>Complex Products</td>
<td>6.03%</td>
</tr>
<tr>
<td>Fines</td>
<td>7.06%</td>
</tr>
<tr>
<td>Other Categories</td>
<td>1.01%</td>
</tr>
<tr>
<td>Fines &lt; 10 mm</td>
<td>2.34%</td>
</tr>
</tbody>
</table>
Although metal waste was one of the main fractions of recyclable waste in Kosovo, relevant data for Dardania was not available.

In figure 23, a graph of waste collected per capita is shown. Though the level of waste collected per capita in all other Kosovo regions combined between 2010 and 2012 is higher than that of Pristina, Pristina, just one city, still accounted for roughly 40% of the total waste collected in Kosovo. Assuming that waste generated is directly proportionate to waste collected, it could be deduced that Pristina generated a relatively very high, if not the highest, amount of waste per capita in Kosovo. Moreover, a positive variation could be related to varying weather compared to in cold weather. Similarly, seasonal differences in amounts of organic waste are observed (figure 24). This could be due to a higher level of consumption of fruit and vegetables in hot weather compared to in cold weather. Similarly, differences in the amount of plastic waste (figure 25) from packaging could also be related to varying seasonal consumption of cooling drinks and food.

It is important to note that research, surveys and other projects related to waste management are not carried out consistently in the same years by NGOs, government agencies, private companies, etc. Thus, data has been compiled from different years. Therefore, changes in waste generation can be anticipated according to the specific time of year.

8.6.2 Data on Waste Collection and Disposal

Pastrimi, the main actor in waste collection in Pristina, is a public enterprise which reports to the municipality of Pristina. Pastrimi carries out waste collection in two ways before transporting the waste to Mirash Landfill: 1) door-to-door collection; and 2) collection from collection points across the municipality. Because of the lack of waste treatment facilities at the landfill site, Pastrimi does not accept animal, medical or construction waste.

During the visit and interview with Pastrimi (2016), the company exhibited good data collection and management practice and a good reporting system. Waste trucks are weighed before and after unloading at the landfill. The amount of waste collected can thus be obtained. By keeping account of the receipts that the waste truck drivers receive from the landfill site in Pristina on which the amount of waste deposited is stated, Pastrimi systematically collects data on a daily basis. Pastrimi then reports to Pristina Municipal Assembly and shares their report with KEPA. Although Pastrimi is the main actor in waste collection in Pristina, private operators and individual collectors are also involved. Obtaining data from these actors is identified as a gap because their involvement is either private or informal.

8.6.3 Waste Treatment in Pristina

According to the “Manual on Waste Statistics – A Handbook for Data Collection on Waste Generation and Treatment” of the European Commission and Eurostat (2013: 30–31), waste treatment is “the generic term for all recovery and disposal operations” of waste; recovery is the “result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy”. It also should be mentioned that recycling is “a subset of recovery and means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes”; and disposal means “any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy” (European Commission and Eurostat, 2013: 30–31).

As presented in the waste flow chart (figure 29) for Pristina, the flow of waste consists of waste generation/production, then collection, transportation and treatment (landfilling and recycling). Recycled waste is then processed into useful materials. For example, plastics are recycled and converted into plastic granules for use in the production of plastics products. Landfilling and recycling are the two main waste treatment methods in Pristina. The treatment of paper, plastics, metals, batteries, aluminum cans, tires, waste oil, etc. is carried out by the private sector. If recycling or processing facilities are not available locally, the collected waste is compacted and transported outside of Pristina for treatment. According to KEPA (2014), 43% of waste in Kosovo is recyclable, whereas the figure for Pristina is 38%.

8.6.3.1 Landfilling in Pristina

KLMC operates sanitary landfills in Kosovo. It accepts household waste and construction waste etc. Construction waste is used as a layer to cover other waste in the landfill. No separation is performed on site by KLMC. However, due to the nature of different industries, the types of waste delivered tend to take on different specificities. A gate fee of 6 Euros/entry is charged in addition to a fee of 5.7 Euros/ton of waste upon receipt. This helps cover the overall operational costs (KLMC, 2016). KLMC reports to KEPA.
8.6.3.3 Waste Composition and Quantity in Landfill

95% of the waste fraction sent to the legal landfill, Mirash Landfill, is household waste, while the rest is bulky waste and commercial waste. Landfill contains higher amounts of organic waste; kitchen waste is prominent and accounts for 37% of the total waste in landfill. Also, paper/cardboard and plastic waste make up a considerable amount (KLMC, 2016; SEF-Energietechnik GmbH, 2015: 38).

KEPA (2016) identified all illegal landfills in Kosovo in 2013. Pristina also suffers from illegal waste dumping. According to KEPA (2016), there are currently around 10 bigger illegal landfill sites which occupy between 20 and 47 hectares across Pristina. A large percentage (the exact figure is unknown) of the waste disposed of in illegal landfill is construction waste, due to the fact that only a small amount is accepted by the legal landfills.

8.6.3.4 Waste Data on Separation and Recycling

Recycling is a way of recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes” (European Commission and Eurostat, 2013: 30–31). Accurate data on waste separation and recycling is undoubtedly essential for the successful implementation of the Waste Bank Project. It is therefore also important to obtain data on the amount of waste recycled, the different fractions and their respective values. Plastika and Izolimi are the two main private recycling companies in Pristina engaged exclusively in recycling plastics. 130,928 tons of waste was generated in Pristina in 2015. In the absence of any exact figures, the “Analysis of Municipal Solid Waste Pristina – Kosovo”, GIZ (2011) was used to form the assumption that while 90% of this was used for landfill (legal: 80%; illegal: 10%), only 10% was recycled.

According to KEPA (2014), 38% of waste generated in Pristina is recyclable. Plastic is only one of the fractions of recyclable waste and accounts for just 14.8% of total waste generated in Pristina in 2012. However, little information was obtained from companies currently involved in recycling other waste fractions, such as paper, glass and metals. It is therefore assumed that less than half of the recyclable waste produced in Pristina is recycled. The remainder is collected and exported directly, mixed in with waste which is supposed to be sent to Mirash Landfill, or disposed of illegally.

Furthermore, Izolimi (2016) recycles 350 tons of plastic waste per month which is collected mainly from individual collectors. The most valuable plastic fraction, according to Izolimi, is polyethylene terephthalate (PET) which has an export value of 350 Euros/ton.

Obtaining comprehensive data on the amount of waste recycled in Pristina has proven to be difficult since centralized reporting and a data sharing system for recycling companies are not yet available. Although some data were obtained from the interview with Izolimi, they were not enough to allow an estimate of the total amount of waste recycled.

8.6.3.5 Waste Flow

The waste flow in Pristina is represented in figure 29. The flow diagram divides waste flow/management into three steps, namely generation, collection and treatment. As shown in the flowchart, waste generated at the domestic market is recycled. The process of recycling materials (mostly plastic) and sell it to middlemen or directly to recycling companies. Recycling companies then recycle the waste into semi-finished or finished products which are either exported or sold to the domestic market. The process of recycling also produces waste in the form of ash. This ash is sent to the KLMC landfill. It is also important to note that the process involved in the collection and treatment of other types of waste generated, namely “other waste” such as ash and grime, as well as construction and demolition waste, is not clearly defined. Therefore, for the purposes of this work, it is assumed that most of the other three types of waste generated that is not serviced by Prasimi is disposed of in illegal landfills, or mixed with the waste that is deposited in the KLMC landfill.

8.7 Conclusions and Recommendations

8.7.1 Implications for Waste Recycling Brought about by the Waste Bank Project

38% of the waste generated in Pristina is recyclable (GIZ GmbH, 2011). However, only 10% is recycled, meaning that more than two-thirds of recyclable waste is sent to landfill (either legal or illegal). This suggests that there is the potential for the Waste Bank to collect these recyclables, e.g., plastics, paper, and save them from the landfill.
8.7.2 Identifying the Types of Waste Which Should be Collected by the Waste Bank

As mentioned in previous sections, the major fractions of recyclables in Pristina are plastics, paper, glass and metals. There is an existing structure to support the recycling of plastics, as shown by the prevalence of recycling companies specializing in plastics in Pristina. However, recycling companies dealing with other recyclables are not as prevalent. Therefore, the Waste Bank should endeavor to promote and raise awareness regarding the collection of these fractions of recyclables.

8.7.3 Regarding the Waste Data Gap within Waste Production, Collection and Treatment

As discovered by the authors, there is a complex system involving several stakeholders engaged in different roles in Pristina. Moreover, the lack of coordination amongst the stakeholders is an impediment to obtaining accurate waste data. As a result, only the data which are beneficial to the various actors are collected. This confirms that an efficient and effective formal reporting/monitoring system is missing; the existing reporting/monitoring system is an informal one.

8.7.4 Suggestions for a Waste Data Collection System

The generation, collection and organization of waste data are also challenges. The absence of a centralized formal reporting/monitoring system where all actors are able to contribute data is a huge barrier to accurate waste statistics. KEPA (2016) mentioned in an interview that the establishment of this kind of system would make data collection and aggregation convenient for all actors. However, this solution would apply only to waste treatment and not to generation. Initiating the Waste Bank Project could be seen as an opportunity to introduce new and essential elements to the existing system. The Dardania Pilot Project is therefore an opportunity to introduce the importance of the aggregation of quality data about waste generation, not only in Pristina, but also at the national level in Kosovo. Without doubt, this issue needs to be addressed and considered throughout the planning of the project. As mentioned before, GIZ (2011) has performed a study to acquire data on waste generation and fraction. Therefore, if the project proceeds as conceived, these data will be a key to counteracting weaknesses in the collection of data on waste generation. The project should be accompanied by:

- The legal institutionalization of the waste data system
- The implementation of the centralized information system coordinated by KEPA which is in progress
- Specification of stakeholders’ roles,
- Increase in public sector participation in primary data collection
- Granting KEPA the resources to perform studies regarding waste generation, collection and treatment and
- Guaranteeing local governments a higher participation in the data generation process to achieve accurate results.

In addition, the regulatory framework needs to be reinforced or even amended in order to oblige stakeholders such as recycling companies and municipalities to report their data on waste to KEPA. The suspension of licenses (of recycling companies) and the impounding of funds for projects (of municipalities) could be examples of ways to motivate the reporting of waste data.

Lastly, this new system requires some stakeholders to assume key roles. The authors strongly suggest the following responsibility allocation:

- Municipality of Pristina Corporation: data collection of type, quantity and locality of waste generation, composition and collection
- KEPA: data collection on the current state of sanitary landfills (both legal and illegal) and environmental data
- Waste recycling companies: data collection of type and quantity of waste recycled
- KLMC: data collection on type and quantity of waste disposed of to landfill.
9 Awareness Raising

9.1 Introduction

Public awareness raising is a method used to highlight a specific issue within a community in order to change attitudes and behaviors. This method has long been identified as the most relevant part in projects that require public participation in order to function as desired (Muller et al. 2002:241–258). Recycling of domestic waste would not be achievable without public involvement. In order to support waste management projects it is crucial that the population is aware of what the recycling system is, why it is important, and how to start the recycle chain. Research has demonstrated that raising awareness has a significant effect on increasing the level of people’s willingness to participate in recycling programs. (Evison and Read, 2001:275–291)

For this reason, a successful awareness raising campaign is considered a crucial component of many projects around the world, especially those with a focus on environmental and health issues. As in the case of our Pristina / Kosovo study, waste management projects aiming to separate at source are especially dependent on behavioral shifts in communities, who are required to play an important role. This results in the improvement of collection rates for specific fractions, which again increases the input in mass flow and reduces the loss of material. In several case studies from Asia, it has been shown that awareness raising campaigns for waste management projects contributed to successful project implementation. The results of a behavioral survey in Indonesia showed that separation
of organic waste was significantly promoted by an awareness raising campaign (Murase et al 2016:6) and a research conducted in Malaysia found that educational programs affected people’s attitudes towards recycling (Mc Allister 2015:14).

As a measure to tackle the current environmental problems related to waste that Kosovo is facing, the national government encourages the municipalities to promote waste separation at source. Regarding the waste issue in Pristina, the GIZ has acknowledged that, in addition to the lack of capacity of the municipality to provide proper management, awareness in the community is low (Urban Research Institute Tirana, 2015). In the light of this, the GIZ/SMS project has offered a local subsidy to the municipality of Pristina in order to develop an awareness raising campaign to encourage separation at source. Initially, this campaign will be implemented in the Dardania neighbourhood, as one of the measures within the GIZ pilot project (Qorri, 23.06.2016).

Some awareness raising movements linked to the protection of the environment are being successfully organized in Pristina by civil society organizations. For instance, Green Art Center (GAC) has been running a program in schools in Dardania called EcoFriend, whose target is to form and finance volunteer groups (Green Clubs) to stimulate environmental education (Muçaj, 23.06.2016). In addition, Kosovo Advocacy and Development Centre, 2012). Despite the achievements of this campaign, inhabitants later felt demotivated to participate and to recommend suitable awareness raising tools.

9.1.4 Objectives

In order to make appropriate recommendations for an awareness raising campaign suitable for Dardania, the research focused on achieving specific goals, outlined below:

- To understand people’s behaviors regarding waste separation
- To assess their willingness to cooperate and join the waste bank pilot project and to assess their acceptance of informal sector participation
- To analyse their understanding of waste management topics
- To identify efficient tools for raising awareness

9.1.3 Methodology

The methodology applied in this research was the collection of primary data through interviews and previous studies and research into awareness in waste management developed in Pristina, and to carry out a questionnaire survey among the population living in the Dardania neighbourhood. Prior to the fieldwork, literature on the importance of awareness in waste management and tools to achieve awareness raising were reviewed, in order to help set benchmarks for the recommendations to be detailed later.

Information was obtained through interviews and meetings with specific stakeholders playing different roles in the solid waste management system in Pristina and able to influence awareness raising. As the main instrument to achieve the research objectives, data was gathered by means of a survey randomly conducted over 39 households and 14 small businesses in Dardania, 53 interviews in total. The questionnaire was divided into two main parts. The first part was related to waste management topics: understanding, current practices, separation and motivations. The second part focused on awareness and acceptance of the waste bank pilot project.

9.2 Analysis

A survey was conducted in the Dardania area in order to acquire information on the current awareness status of households and small businesses. 39 Dardania residents and 14 small business owners were interviewed on Wednesday, 22 June 2016. The survey was intended to supply not only quantitative but also qualitative data through open-ended questions, with the aim of uncovering motivations and degree of understanding of waste management topics and the waste bank project. Following the structure of the survey, our analysis is divided into households and businesses.

9.2.1 Households

Dardania has nearly 20,000 inhabitants, distributed over approximately 4065 households, with an average of 5 people in each household (Urban Research Institute Tirana, 2015). Separation of waste at source is the main objective of the awareness raising campaign and households are the key actors towards achieving this goal.

After visiting the pilot project area, namely the Dardania neighbourhood, and speaking to the inhabitants, the team members observed that Dardania is very homogeneous as regards its residents. Most people live in similar kinds of accommodation in high-rise buildings and belong to a middle income group. Therefore, though the one-week field trip did not allow sufficient time to carry out more interviews, due to the similarities between residents the results are considered to be representative.

Nearly the same amount of women (18) and men (21) were interviewed. Based on our conversations with them, it appears that women are responsible for taking care of waste disposal. This outcome highlights one of the main target groups for the campaign.

Most of the people interviewed were well educated, since 75% were either studying at the local university or already held a professional qualification (figure 30). An even higher number (82%) knew what recycling was. This means that, regarding education level, the vast majority of Dardania residents possess some knowledge of recycling and that conducting a campaign dedicated to teaching what recycling is might not be necessary. In addition, most residents knew that some waste materials were valuable; for instance, aluminium and paper being those they were most aware of (figure 31). Even some people who did not know what recycling was, knew that at least one of these materials had economic value.
This finding tells us that the campaign should also not be focused on the value of waste materials. It is important to state that Dardania residents' awareness of the economic value of waste and recycling is closely related to the informal sector and the work it does in the neighbourhood. Of all the people interviewed only 6 already separated their waste. This group was composed mainly of people over 60 years old, which means that more than 50% of the residents interviewed in this age group separate their waste. The motivation of all of them to separate their waste was the same: to help the waste pickers, either because they have sympathy for them or to avoid the mess they make when they separate the waste themselves. For instance, a 65 year old lady commented that she separates plastic into a different bag to make the waste pickers' job easier.

Figure 31: Waste Materials with Higher Value According to Residents
Source: Based on the Survey

Figure 32: Households Motivations to Separate Waste
Source: Based on the Survey

Concerning the waste bank pilot project, only one of the residents had any idea what it was and none knew that such a project was expected to be put into operation in Dardania. Once the concept was explained to them, all showed both an interest in and acceptance of it being implemented in their neighbourhood. The main motivation for accepting such a project was to support the informal sector and make their work easier.

In conclusion, even though Dardania is very homogeneous as regards the people who live there, different groups may have different motivations regarding waste separation. It is important to tackle all of these groups in the awareness raising campaign. In the light of the survey, the identified target groups are:

1. Women from all age groups since they are perceived as the caretakers of the households and are in charge of waste disposal.
2. The elderly (60 and above). Some already have a social motivation to separate, but not all of them do.
3. Young people (aged between 18 and 30) without children. This was the most numerous group interviewed. Their main motivation to separate was environmental consciousness.

Finally, it is assumed that children are already being involved in waste separation through the EcoFriend program run by the GAC in local schools and it is expected that this information would be passed from them to their parents (refer to Gjilan chapter for further information on the EcoFriend program). This is the reason why neither of these two groups are considered as a target group for the campaign.

9.2.2 Businesses

Approximately 677 businesses operate in Dardania, most of them small or medium sized. Small businesses are located mainly along the Bill Clinton Boulevard, above the “Tunnel”, along the Martyrs of the Nation Boulevard, IliazKodra Str, LekeDukagjini Str, etc. (Urban Research Institute Tirana, 2015).

There are a variety of businesses, including restaurants, clothing shops, shoe shops, cosmetics shops, supermarkets, butcher shops and laundries, and they are a major source of waste production. Since the business structure is heterogeneous, with businesses selling different types of items, the types of waste they produce are also different.

Figure 33: Types of Small Businesses
Source: Based on the Survey

Figure 34: Education Level of Small Business Owners
Source: Based on the Survey

Figure 35: Waste Materials with Higher Value According to Small Business Owners
Source: Based on the Survey

Owners of different types of businesses were interviewed to get a broad perspective of waste disposal habits and awareness. The survey sample reflects the spread of small businesses operating in the area, with 30% coming from restaurants and bakeries, 15% from supermarkets, clothing and computer/mobile shops, and 7% from shoe shops, cosmetics shops, laundries and pharmacies (figure 33). Most of the interviewees (60%) were from the 18-30 age group and the remainder were over 30. This shows the high percentage of young people working in the business sector.

Furthermore, none of the business owners interviewed separated plastic, paper and electronic batteries.
In the case of restaurants, organic waste was also separated. Awareness of waste separation is necessary in this sector.

Only 15% of business owners knew about the waste bank project in Dardania. This small percentage presumably knew about it due to their children’s participation in the EcoFriend program, but they had no clear information about it. After having the project explained to them, most felt positive about it and said that they would gladly use the waste bank (Figure 36). This indicates that the businesses are willing to accept the new system. For them, the main motivation to recycle waste was environmental and economic. They care about protecting the environment and this would inspire them to separate their waste. They also expressed an economic motivation once they realized the value of the waste.

9.3 Recommendations

Based on an analysis of the survey conducted on-site, different tools and methods are suggested for each target group (women, the elderly, young people and small businesses), taking into account their different characteristics and motivations. For example, women and young people focused on environmental motivations, whereas the elderly focused on social motivations and small businesses on economic motivations.

Regarding the suitable content for each target group, the campaign should include the following topics:

1. Importance and method of separation for all target groups
2. Value of recyclable materials for small businesses
3. Functioning and benefits of waste bank for all target group
4. Contribution of waste pickers to women, young people and businesses

A cohesive design, in terms of color schemes and visual strategies, as well as a defined motto, should be developed for the awareness raising campaign. This design should be present in every tool to be implemented, so that it comes to identify the campaign. It is expected that this strategy will enable the different actors to link together the information related to waste management education available from diverse sources.

Finally, it is important to address cultural aspects during the campaign. Discussions conducted with GAC (Muça, 23.06.2016) during the field research week, revealed that Pristina residents usually have strong family values and a low sense of belonging with regard to public spaces and common areas and the tools used need to take these societal aspects into consideration.

a) Workshops: This tool would be useful for introducing the project to the people and encouraging their involvement. Activities in the workshops should also focus on developing a sense of belonging and community pride. Two types of workshops are suggested: one targeting the households (women, the elderly and young people) and the other one targeting small businesses. The survey revealed that the main motivations for households are environmental and social. In the case of small businesses, the main motivations are environmental and economic. Therefore, activities that focus on raising awareness on these motivations are necessary. Within the household workshops, different activities should be arranged depending on the participants of the group. For example, artistic activities involving the use of recyclable materials might be suitable for young people, women and the elderly, and activities which highlight the benefits of the project for waste collectors might be more interesting to the elderly.

b) Media campaign: Spreading awareness through media could be an effective tool. Media in this context refers to television, radio, newspaper and social media. It could cover a wide range and reach different audiences. Both the municipality and the Green Art Center NGO are very active on Facebook and suggested it as a good method to reach people in Pristina. During the survey many young residents mentioned that they frequently use social media, so it can be used to raise public awareness of waste management. For this tool to be effective, the content must be creative and regularly updated and should focus on environmental motivations for waste separation. For elderly people and small businesses a different type of media such as newspapers, radio and television advertisements is suggested. It was observed during the field visits that many businesses have televisions and their owners regularly read newspapers. According to a previous survey, the vast majority of people living in Dardania are interested in reading newspapers. During the survey, many young people mentioned that they usually spend more time interacting in public spaces and common areas, like playgrounds and parks.

c) Visual campaign: Pictures and images are more easily retained in people’s memory than words, because of their visual appeal. Billboards and posters have always been a powerful tool in shaping or changing public opinion (Andrews 2008:11). Most campaigns use these means to get the attention of the community for a specific issue. The main benefit of using these tools for raising awareness is that they can efficiently deliver messages to a mass audience. In order to attract people’s attention, visual campaigns need to have a clear, understandable and strong message and to use attractive graphic design. Content can be designed to appeal to an individual target group. Posters and banners should be placed in key busy locations, such as restaurants, cafes, shopping centers, parks, schools, universities, and in the common areas of residential buildings and especially at garbage container sites.

d) Word-of-mouth publicity: An important strategy for promoting any campaign, project or product, word-of-mouth will function as an indirect tool to increase awareness of the benefits of the waste bank and therefore the importance of properly sorting waste. Word-of-mouth relates well to cultural aspects in Pristina. People exchange information more frequently when communicating with each other. It is considered a highly efficient strategy because word-of-mouth is credible, social, repeatable, measurable and respectful. This is reflected in the fact that 9 out of 10 people believe recommendations from friends and family over all other forms of advertising (Whitler, 2014). A successful word-of-mouth campaign relies on three E’s: Engaging people to participate in the project; Empowering the community with a reason to talk about their understanding of waste separation and recycling; Empowering people by letting them know that they are important in the project and that their opinions is vital for achieving the project goals, while at the same time helping them find different ways to share information with their circles (Whitler, 2014). It is believed that this tool would be more likely used by women and the elderly since it was observed during the field visits that these two target groups usually spend more time interacting in public spaces and common areas, like playgrounds and parks.
e) Social events: These can include festivals, gatherings and marathons, among other things. They have the ability to attract a large number of people and bring them together to work for a common cause. They instil a sense of belonging and community pride in the participants. Indirectly, these events could also lead to word-of-mouth publicity of information and appear on the television news.

For example, a marathon type event to promote waste separation could be held, with participants earning small prizes like t-shirts and bags carrying the campaign slogan that would help spread the message. Similarly, a ‘clean the neighbourhood drive’ could be arranged, with all residents eligible to participate in separating the communal waste together, thus creating social connections and developing a sense of belonging within public spaces. ‘Happy street’ events could be implemented where on a particular day of the week one of the neighbourhood roads is turned into a pedestrian friendly zone (no vehicular movement) to host a variety of community activities. Activities can include bicycle riding, music concerts, dance, waste separation games, etc. This would offer the possibility to involve all target groups (women, the elderly, young people) in the events. It is recommended that such events be arranged periodically to involve the maximum number of people.

It is believed that the waste bank project itself will also contribute in raising awareness in Dardania. During the survey, many residents mentioned that a proper infrastructure would motivate them to separate waste. Infrastructure will be provided in the form of a waste bank and so will function as an awareness raising tool.

Finally, as a follow up to the awareness raising campaign, another survey is suggested after its implementation to measure its success through people’s awareness of waste management topics such as valuable waste materials and their knowledge of the waste bank project. In addition, success could also be measured through quantitative indicators like percentage of waste separation before and after the campaign.

<table>
<thead>
<tr>
<th>Awareness Raising Tool</th>
<th>Women</th>
<th>Elderly</th>
<th>Youth</th>
<th>Small Businesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workshop</td>
<td>X</td>
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<tr>
<td>Media Campaign</td>
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<td>Visual Campaign</td>
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<tr>
<td>Mouth Publicity</td>
<td>X</td>
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<tr>
<td>Social Events</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

Table 15: Awareness Raising Tools Recommended for Each Target Group
Source: Summary of the Recommendations
Figure 37: Group Work
Photo: Mozdeh Saeidkhani
Figure 38: Awareness Group
Photo: Galuh Rohmah
Right Page: Survey of the Dardania Residents
Photo: Rucha Kelkar
Abstract

One of the oldest preserved scriptures on architecture is “De Architectura”, whose author was Vitruvius, a Roman engineer and architect. In these writings, dedicated to the Roman emperor, he explains that architectural works must take into consideration three characteristics: the long durability of the structure (firmitas), the proper use of the space (utilitas) and the good appearance of the form (venustas).

Taking the Vitruvian Triad (firmitas, utilitas and venustas) as a basis for the analysis of waste bank architecture, the first three parts of this chapter consist of different approaches to the proposed architectural product. The first part explains the program (use) required of a waste bank: function. It describes its purpose and how it is used. The second part analyses building costs and materials: structure. It consists of a technical approach, and provides the means to materialize the function of the waste bank. The last part focuses on the appearance of the final architectural product and provides proposals for the visual design: aesthetics.

A description is given of the architectural forms chosen and how these relate to the functional and structural requirements previously discussed.

Following this sequence, the fourth part of the chapter considers the future of the project should it prove to be a success. It describes how it can be scaled up in Pristina, meaning that it can be implemented in other neighbourhoods.
Waste Bank for Kosovo: Design, Beautification and Scaling-up

10.1 Introduction

An architectural product can be distinguished from other forms of art, such as painting or sculpture, by the fact that it serves as a utility to human beings. Early forms of architecture, for example, served as protection against harsh weather conditions and as shelter from dangerous animals. The purpose of a building is so embedded in its form that, archaeologically findings and the observation of the shape of architectural ruins and their internal layout allows us to understand the lifestyle and culture of ancient civilizations.

Buildings are certainly a reflection of the aesthetic tastes of societies, in every era and place, and carry cultural values within their forms. In the same manner, the way that the forces (caused by weight and wind) are conducted along the architectural structures (from the roof to the foundations) reflects the techniques, knowledge, and materials available to different people in specific locations. However, despite the shape and structure imbued in every architectural product, buildings are primarily constructed as places to host human activities (e.g. work, leisure, etc.).

Dardania is a middle-density housing neighbourhood of the city Pristina, which will receive selected recyclable and non-recyclable material. It is around 12 km to the centre of the city and around 10 minutes’ walking distance (around 1.5 km) from the city centre. The neighbourhood was developed during the 1970s, based on the “Urban Program for Three Residential Neighbourhoods in Pristina” of 1962.

From this point of view, the present project to introduce a waste bank into the neighbourhood of Dardania, Pristina, must consider a holistic approach. The waste bank can act as a visual stimulus concerning the separation of recyclable, reusable and non-organic material which can be recycled. The project proposes that around 2.8 tons of plastic, 2.4 tons of iron, copper, and others are generated daily. The site for the waste bank is likely to peak during certain hours of the day and vary seasonally in the course a year. As such, the waste bank, as stated in interviews with the local authorities, is already reached its capacity.

In order to see how a waste bank might meet these expectations, a pilot project will be launched in the Dardania neighbourhood. Thus, the main goals proposed for this project are:

- To encourage separation of waste at source, so eliminating scavenging activities at the waste container sites
- To reduce the amount of waste that needs to be dumped by increasing the collection of recyclable materials disposed of in the waste bank
- To offer new opportunities for recycling and reprocessing of waste
- To offer a visual cue to residents about the importance of recycling
- To provide information and education about recycling
- To encourage community participation in recycling
- To increase local awareness of recycling
- To improve the environment by reducing the amount of waste sent to landfill

10.2 Function: A Program for the Waste Bank

The municipality of Pristina has certain expectations regarding the implementation of a waste bank, as stated in interviews with the local authorities and in conversations with NGOs and GIZ, conducted during the one-week study-trip. One of these expectations is the enhancement of the image of the city concerning its cleanliness. Currently, many of the waste collection sites in Pristina have garbage strewn on the ground around the waste containers. This is frequently the consequence of scavenging activities carried out by individual collectors at the sites, as was witnessed during the study-trip.

Another expectation is an improvement in the practice of separation of recyclable materials from general “dumping” waste, since the Pristina landfill has already reached its capacity. In this sense, it is important to recognise the need to create the right image for the waste bank. Its appearance should create awareness in the neighbourhood of recycling-related activities in the city. It needs to appeal to the inhabitants of Dardania, in order to act as a visual stimulus concerning the separation of waste at source. This “image” therefore provides an “introduction” to its function as an information point by serving as a “marketing announcement” on its own.

A waste bank, therefore, as proposed in the pilot project for the neighbourhood of Dardania, has extended functions beyond those of a common container site for recyclables, though it does not intend to function as a scrap processor. This model is more attractive than a customary recycling container site, due to the financial compensation provided for recyclable materials brought there. But other functions executed by a scrap processor, such as preparing and baling, are not part of the purpose of this project.

10.3 Structure: Dimensions and Materials

With regard to the dimensions required for the temporary storage of recyclable materials in the waste bank, it is important to know in detail the data that indicate the volume of recyclable material generated from day to day as a product of human activity in the Dardania neighbourhood. Taking into account that the population of Dardania is around 20,000 inhabitants and that the amount of garbage produced per capita per day in this area of the city is 0.95 kg/per capita/day (Urban Research Institute, 2015:6, 7), it can be calculated that around 19 tons of waste is generated each day in this middle-class neighbourhood composed of apartment buildings and a commercial area. The demographic data on Dardania have been obtained from the municipality of the city of Pristina. Taking that information as a basis for the dimension analysis, more than 40% of the waste corresponds to organic material, while 33% corresponds to non-organic material which can be recycled and have a market value in the country area around 14% plastics, 1.18% metal and 12.83% paper and cardboard. On this basis, it can be calculated that around 2.8 tons of plastic, 2.4 tons of paper and roughly 22 kg of metals (aluminium, iron, copper, and others) are generated daily.
It is important to highlight that the space required for storage is directly related to the amount of garbage generated per day in the neighbourhood, taking into account such factors as: population numbers, purchasing power, habits and the existence of a commercial area. Also, it is worth noting that all the recyclable materials that will be transported to the waste bank (as a common point for collection in Dardania), will not be compacted either inside or outside the waste bank, but only at their final destination at the recycling plant, which is another reason why the storage space required is considerable.

With regard to the materials which have been selected for the construction of the waste bank, as well as for the storage containers, these have been carefully chosen, taking into account such factors as price, durability, ease of maintenance, aesthetics and resistance to external elements such as water, fire and snow.

Our work team, made up of students from Pristina University and TU Berlin, have suggested two models for the waste bank which will also function as an information center. The first model proposed would be built inside a 20-foot metal ship container (6.06 m x 2.43 m x 2.60 m), which would accommodate the person in charge of the waste bank and information center. Next to the container would be placed deposits to hold the recyclable materials. It is recommended that these be constructed of steel pipes and metal mesh, with an opening not greater than 50mm x 50mm, which would allow visibility into the inside of the compartment. With regard to the maintenance of the structure, the recommended materials require little maintenance. Galvanized steel is resistant to corrosion from environmental factors among others.

The second steel model could be built of brick, keeping the same dimensions as the metal ship container.

A modular design is also expected by the municipality of Pristina, so a metallic structure for the compartments is strongly recommended; any necessary extension to the compartments would require little time and material. For the steel frame that forms the compartments, a galvanized steel tube, square profile, is recommended. These metallic profiles can be joined by welding or by screwing together in order to facilitate assembly and disassembly. Also recommended is the use of galvanized metal mesh, with an opening not greater than 50mm x 50mm, which would allow visibility into the inside of the compartment.

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a) Simplicity

Simple designs are easy to perceive as well as straightforward to use and in the way they interact with the user's environment. They also facilitate quick communication amongst users. Similarly, they can help in the rational allocation of limited space and budget in a project. However, simplicity of design is one of the most difficult qualities to attain. The proposed waste bank for Dardania has limited space: it has to fit in an area approximately 4 by 8 m. It also has a limited budget. Hence, the waste bank has to aim for a simple design solution which could be scaled up and easily replicated elsewhere. The proposed site is adjacent to a road and a public park in the area of Dardania. Although there are no certain necessary criteria for building or installing a waste bank in a neighbourhood in order to maintain or improve the quality of the built environment. As the waste bank is for community use, it is required to be placed within a neighbourhood boundary and some factors that need to be taken into consideration when selecting the site are listed below:

• The site should be at a sufficient distance from the community to minimize the possible effects of odor, yet should be within easy reach of the users.
• Open spaces should be available to ensure proper ventilation.
• It should be easily accessible by road for easy uploading and unloading.
• Space for temporary parking of the vehicle used by recycling companies to collect waste should be available.
• The site should have access to a vehicular road.
• Provision of utilities like water drainage, sewerage, and electricity.

b) Ergonomics

The waste bank is targeted for regular use by the community, with users coming from diverse groups. Hence, it is essential to make it user-friendly by keeping the different users in mind. In general, ergonomic design allows for better interaction of people with the structure, product or environment. Safety and comfort while storing, collecting and transfering waste in and out of a waste bank can directly influence people's perceptions of it. A waste bank that is easy to use creates a sense of belonging, while one that is not can demotivate users. Handles need to be placed at the right height, and the size and height of the opening of the waste bins, along with the dimensions of the lobby space and waste chambers, are all significant human factors to be considered in the design.

c) Architectural Style

Architectural style gives identity to a structure and also helps users relate to it. Getting social acceptance for the waste bank project is essential. Pristina, at present, does not have any vernacular architectural style, but the use of concrete and exposed red brick is a predominant feature of the city. However, new buildings built with modern technology and materials are also emerging in the city. It is difficult to predict which kind of style will be successful for the waste bank. However, a style that blends in with the neighbourhood would be more easily accepted. Figure 41 shows the proposed design for the waste bank. The design of the waste bank can also have an impact on the problem. The proposed designs aim to avoid the release of odor into the surrounding built environment in following ways.

• The chamber design using metal mesh allows for optimum ventilation.
• Metal is comparatively easy to clean.
• The waste bank is strategically placed within an open space where the air flow is not restricted.
• The considerable distance of the site from local residences allows foul air to escape and dissipate before it reaches them.

d) Transparency

The proposed designs use transparent materials not only for beautification but also for the practical purpose of demonstrating how the waste bank process works, so helping to raise public awareness. A user can easily differentiate the internal spaces of the waste bank through direct observation from a distance. The lobby has glass walls, while the waste chambers are made of see-through metal mesh. The transparent design also gives a sense of increased space to a small waste bank built within a limited site area. Thus, visibility in the design of the waste bank is crucial, not only regarding beauty but also to have a positive impact on the neighbourhood.

10.4.2 Quality of Local Built Environment

Manned spaces for any human activity, such as buildings, infrastructures, networks for services, and green spaces, fall into built environment (Roof 2008:24). The built environment has broad social and ecological dimensions (Moffat and Kohler, 2008:260). The interaction between the waste bank and the built environment needs to be considered from the perspective of public health, physical infrastructures, and the air, water and soil quality of the local area. However, as the proposed waste bank is not a massive structure and can accommodate only a limited amount of waste, its impact on the environmental aspect of the neighbourhood will be small. Thus, the current topic only highlights relevant aspects of quality of built environment based on the site location that could be improved through rational design in the following headings:

a) Odor

Odor is an unavoidable aspect of a waste bank. Although good maintenance of the structure and proper management of the garbage help control odor emission, the design of the waste bank can also have an impact on the problem. The proposed designs aim to avoid the release of odor into the surrounding built environment in following ways.

• The chamber design using metal mesh allows for optimum ventilation.
• Metal is comparatively easy to clean.
• The waste bank is strategically placed within an open space where the air flow is not restricted.
• The considerable distance of the site from local residences allows foul air to escape and dissipate before it reaches them.

b) Green Space and Visibility

A green area has the power to enhance the beauty of any structure as well as the visual quality of the surrounding area and the experience of the people in the community. In the case of the waste bank, green climbers and trees could also be used to control the level of visibility from the residential area according to the wishes of the local people. This tool would help avoid the stigma of the waste bank as a filthy and undesirable structure in the neighbourhood.

c) Site Selection

The proposed site is adjacent to a road and a public park in the area of Kardam. Although there are no precise rules for the selection of a waste bank site,
10.4.3 Examples for the Waste Bank

Focusing on the different criteria discussed above would make the concept easier to implement. The proposed designs have tried to incorporate these standards of beautification and built environment by using a simple form and flexible modular metal chambers. The enclosed space required for a lobby due to climatic conditions, a functional aspect, also allows scope for beautification. The use of harmonious color in both the interior and exterior allows the design to be more coherent to the society. Similarly, the ergonomic design, transparency, use of green space and visibility that contribute to the final proportion, pattern, shape and form of the waste bank in the proposed designs has been manipulated to determine the beauty of the form. In the meantime, the proposed model tries to maintain the quality of the built environment by thoughtfully considering factors like visibility, transparency, and odor, as well as the location of the site, green spaces, and ventilation.

The proposed model for the pilot project is a metal ship container. The reason behind this proposal is to provide a temporary waste bank location. If the pilot project is successful, then this container could either be kept in place or replaced later with a more permanent construction.

The brick-constructed waste bank is intended for a permanent location in the neighbourhoods once the scaling up process has been started throughout the city; it could also be adapted according to the space available in the different locations.

10.5 Scaling up

According to GIZ architect V. Limani Xhemaj, Dardania is one of the main neighbourhoods in Pristina; it also has the highest population density in the city. For this among other socio-economic reasons, the municipality has selected this neighbourhood to be part of the pilot project, which will be extended later to other neighbourhoods and eventually to the whole city. The process of scaling up is not limited to the replication of the project in other neighbourhoods. In order to be able to carry out this process it is important to understand how Dardania was developed and grew until the present time.

During our consultations with architect V. Limani Xhemaj, she told us that, when making plans for scaling up, we should start by analyzing the neighbourhood features of Dardania, taking into account the city context at the same time.

Analyzing the city in terms of neighbourhood structure, land use, average income, and housing density so as to define several categories of urban ensembles helped us plan the scaling up process. Based on this analysis, we defined five main categories:

• **City Center.** Distinctions in land use in this part of the city must be taken into account. Neighbourhoods are characterised by having medium density housing as well as administrative and commercial buildings. The university campus is also located in this area.

• **Middle-density housing neighbourhoods.** These, along with other neighbourhoods, date from the socialist era and are mostly middle income neighbourhoods located around 1.5 to 2 km from the city center.

• **Low-density neighbourhoods.** Old and newly-developed neighbourhoods, mainly on the city outskirts, between 10 and 30 minutes’ walking distance (more than 2 km) from the city center.

• **One-use urban ensembles.** Public and private institutions and new high-income housing neighbourhoods make up this category.

• ** Newly-planned neighbourhoods.** Low-middle density housing, partly developed, for middle-income families and more than 20 minutes’ walking distance (more than 2 km) from the city center.

The scaling up strategy should take this categorization into account and should also have the following aims:

• **Fully scale up in the entire city within 7 years.**

• **Continue with the second phase in neighbourhoods with the same or similar characteristics as Dardania, and also include all public institutions in this phase.**

• **Plan to scale up in the city center during the second phase, as it partly covers the first two objectives.**

• **Scale up in other middle-to-high income neighbourhoods (gated communities).**

• **Start a low-density housing neighbourhood pilot project during the second phase, then scale up in similar neighbourhoods during the third phase.**

• **In the fourth phase, scaling up in other low-density and middle-to-low-income housing neighbourhoods is recommended.**

• **Scale up in the city periphery.** Integrate underdeveloped neighbourhoods in order to encompass the whole city.

Based on this, the proposal for scaling up is divided into four phases as indicated below:

**Phase 1 (2016)**

Dardania (pilot project, 45 ha).

**Phase 2 (2017 – 2019)**

Bregu i Dilit 1+2 (49.7 ha), Ulqinica (39.9 ha), Qendra (56.3 ha), Lakrishte, Pejtoni and Quni (71.6 ha), QKUK (64.7 ha), FSK (60.8 ha), Zona ekonomike (128.8 ha), Lagja NIC, International village, Arberia 1 (pilot-1, 87.6 ha).

**Phase 3 (2019 – 2021)**

Arberia 3 (87.6 ha), Aktashi (37.9), Muhajeret (61.9 ha), Dodona and Parku (59.5 ha), QXUP (37.9), Sofaila (23.3 ha), Tashlihe (120.5 ha) and Tophane (30.4 ha).

**Phase 4 (2021 – 2023)**

Mati Veri and Jugi (285 ha), Mati Lindje, Medresja (85.2 ha) and Kodra.
Some general recommendations related to the design, dimensions and selection of materials for the construction of the waste bank have already been made in this document; however, some of these recommendations should be emphasized to ensure the success and sustainability of the pilot project in Dardania.

As previously indicated, plastics make up the largest volume of recyclable material generated in this neighbourhood, with an estimated volume of 56 m³ per day, so plastic will require most space in the waste bank temporary storage compartments (around 22.5 m²) (Urban Research Institute, Tirana & GIZ, 2015:6-7). It is suggested therefore that, once the pilot project begins, periodical evaluations of the amount of material arriving at the waste bank be carried out with the minimum of setbacks, both proposals consider the same type of compartments for storing the waste. However, the number of hours that a responsible person will be present at the site needs to be clearly defined so that decisions can be made regarding the provision of additional services such as water, electricity, and connection to sanitary drainage, all of which are essential in a stationary workplace.

The design of the waste bank should incorporate simplicity, visibility, ergonomic dimensions, proper architectural style, green spaces, and respect for the quality of the built environment.

For the waste bank that will also function as an information point we have selected two designs to be taken into consideration. One involves building the office in situ; the other requires adapting it from a 20-foot metal ship container. It is important to consider the available space and its location in the different neighbourhoods, the accessibility of the waste bank for people and vehicles, and the actual volume of waste material generated in the area, in order to ensure the most efficient collection of recyclable material.

With regard to the selection of materials, there is no doubt that the objective is to ensure the durability of the structure, reduce costs and minimize the time spent on maintenance, so, as recommended above, the use of galvanized steel metal profiles for the skeleton of the structure and the use of galvanized steel mesh would be the best choices.

In order to maintain the quality of the built environment, each element of the design should carefully consider its impact on the surrounding physical, social and ecological environment. The distance between the waste bank, neighbourhood buildings, and community activities should be sufficient to avoid social, environmental and health issues.

The beautification of the waste bank is aimed at maintaining the quality of the local built environment and also at raising awareness of the waste bank among the local population. A few things need to be considered in order to achieve these goals. First, the location of the waste bank must be carefully considered. Placement near a park helps in beautification and also helps to maintain the quality of the space. The project could also be shaped as a continuum of the public park with planting over and around the structures. Furthermore, future expansion of the waste bank would be possible. Regarding the proposed site, the area provided for the waste bank for Dardania fulfills almost all of the criteria for a proper site. However, the site space is limited (32 m²). Meanwhile, the total area required to store recyclable waste for a day is almost 35.40 m². Hence, the area should be increased to ease the collection and storage of the waste. The need for frequent dispatch of the waste throughout the day due to limited storage space might favor the waste containers could be the easier and better possible solution.

### Table 18: External Factor Evaluation Matrix (What affects the waste bank size)

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<th>Rating</th>
<th>Weighted score</th>
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<td>1. Population of the neighborhood (density)</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td>2. Average income</td>
<td>0.80</td>
<td>0.80</td>
<td>0.64</td>
</tr>
<tr>
<td>3. Volume of waste generated per fraction</td>
<td>0.60</td>
<td>0.60</td>
<td>0.36</td>
</tr>
<tr>
<td>4. Period of collection and storage of recyclable materials (days per week)</td>
<td>0.40</td>
<td>0.40</td>
<td>0.16</td>
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<tr>
<td>5. Accessibility and location</td>
<td>0.20</td>
<td>0.20</td>
<td>0.04</td>
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<tr>
<td>6. Available space for the physical structure</td>
<td>0.10</td>
<td>0.10</td>
<td>0.01</td>
</tr>
<tr>
<td>Total score</td>
<td>1.00</td>
<td></td>
<td>0.80</td>
</tr>
</tbody>
</table>
11 Waste Management in Gjilan

11.1 Gjilan City - Profile

Gjilan is a city and municipality in eastern Kosovo. It is the administrative center of the District of Gjilan and one of the seven largest cities in Kosovo. In March 2011, the Gjilan municipality was estimated to have a population of over 90,015 residents, and a population density of 229.7 km² (995 sq mi). The vast majority of the population is Albanian, followed by Serbs, and a small number of minorities (Municipality of Gjilan, 2016).

In order to tackle the rising volume of solid waste disposed of in landfills, the Gjilan municipality proposed an initiative to segregate recyclable waste from non-recyclable waste in certain parts of Gjilan. The recyclable waste would then be processed to generate financial gain. The initiative is already taking place in a number of schools and public buildings and has the support of a local NGO, as well as private companies involved in waste disposal and recycling.

11.2 Involvement of NGO Green Art Center

One of the most important partners working on raising awareness of waste separation and recycling is the NGO Green Art Center (GAC), who are developing their projects mainly in Pristina but also in smaller Kosovar cities. One example is the work that they have been doing in the municipality of Gjilan, encompassing 15 local schools and nine public administration buildings. In order to gain a better understanding of the Gjilan
pilot project and their first positive results, it is important to define the key players in the GAC project: EcoFriend and Green Clubs. EcoFriend is a mechanism established by the GAC which aims to create Green Clubs in public educational institutions in order to promote environmental education and civic activism. EcoFriend has enabled the establishment of 61 Green Clubs throughout Kosovo, also providing field for activity such as workshops, the building of infrastructure in the school, and organizing artistic and promotional activities in public spaces, among other things.

The Green Clubs are voluntary groups running out of educational institutions across Kosovo, and their main focus is to foster good environmental practices among students and young people in general. Their activities include the creation of green areas around schools, encouraging environmental awareness in public spaces, instructing students on environmental management, and organizing professional and artistic activities, as well as running workshops in the field to raise public awareness regarding environmental issues in Kosovo.

In Gjilan, the main goal of the project is to instill the habit of waste separation in schools and public buildings, with special emphasis on encouraging this habit amongst the students. After it has been separated, the recyclable waste is taken to special containers to Reciklimi, the company selected to deal with processing and trading recyclable materials. A portion of the money earned by selling the materials goes to EcoFriend, which finances the implementation and expansion of the project. By reducing the amount of waste diverted to the landfills, not only will the level of environmental pollution be reduced, but also will the landfill costs.

According to Green Art Center, the pilot project has already achieved good results over the past six months. Similar results are expected for the Pritina project which mainly targets young people under the age of eighteen, via primary and secondary schools, and also within their households, while also indirectly targeting parents and relatives. They also intend to focus on other target groups, such as young people between the ages of 18 and 35, as well as the elderly and women, who are considered to be the main family members involved in handling household waste, according to information collected during surveys.

11.3 Waste Segregation at Source - Phase I

Similarly to other Kosovo cities in the area, Gjilan faces the dual issue of an increase in the volume of waste dumped directly into the landfills and the under-utilization of recyclable waste material. In order to tackle this, the municipality, along with the NGO Green Art Center, initiated a drive to segregate residual waste from recyclable waste. In this first phase of the project, the residual waste is managed by Ecohigjiena, and the recyclable waste by Reciklimi. In the second phase of the project, the municipality plans to involve the individual collectors currently operating in the city (Zuzaku, 23.06.15).

Segregation at source reduces the quantity of waste dumped in the landfills and at the same time increases the quantity of recyclables that can be processed and converted into financial gain. Segregation further increases the efficiency with which the recyclable waste is collected by the private companies, and will also make the task of the individual collectors easier during the second phase.

Currently, the municipality has installed two separate types of bin: one for residual waste and the other for recyclable waste. This system is already in place in a small number of municipal and school buildings. The smaller bins are placed indoors, while the larger bins are placed outdoors. The outdoor bins are locked to prevent individuals from dumping waste in them, so obliging them to use the smaller indoor bins.

11.4 Waste Collection in Dardania - Gjilan

For this project, the municipality has provided every household with a waste bin which is located outside. Each household is expected to segregate residual waste from recyclable waste and place each in separate bags before dumping the bags in the waste bins provided. This initiative is proving beneficial since the quantity of residual waste has been considerably reduced, while recyclable waste can now be managed with relative ease by the individual collectors. Littering during waste segregation is one of the main reasons why individual collectors are perceived negatively and segregation at source, at the household level, has proved a simple yet effective way of tackling this problem.

11.5 Ecohigjiena - Waste Management Company

Ecohigjiena was founded on May 23, 2012 and began operations in Gjilan on July 1, 2012, operating within the geographical boundary of Gjilan. It was established through a public-private partnership and is responsible for the disposal of residual waste in the landfills. It also provides other services such as municipal cleaning and the maintenance of streets, city squares, cemeteries, and markets (Ecohigjiena official website, 2016).

In terms of waste, the initiatives of Ecohigjiena primarily target household and commercial waste, as well as non-hazardous industrial waste. Currently it serves around 20,000 people living in Gjilan and the 19 surrounding villages, and manages approximately 27,000 tonnes of waste per year.

The company charges around 5 Euros a month for its services, and this fee is collected by a collector on a door-to-door basis; alternatively, the fee can be paid directly at collection points located in the city. The company currently receives collection fees from roughly 70 percent of its customers, and is looking for ways to improve this rate.

11.6 Reciklimi

Reciklimi is one of the companies responsible for collecting, buying and trading recyclable materials within the municipality. Their main activity consists in buying recyclable waste, mostly plastic, PET, and aluminum, from individual collectors. The recyclable waste is then compressed and exported to recycling companies in Turkey or Macedonia. The company works in close collaboration with the individual collectors. Since the transportation of the recyclable waste is what individual collectors claim to be their greatest challenge, Reciklimi provides them with a truck transport service, which must be requested in advance, and also provides large white bags for putting the waste in. Both services are free of charge. The company pays the individual collectors between 10 and 15 cents per kg of plastic, and resells it to the industries for 25 cents. Should the price of oil continue to decrease, they will be forced to pay the collectors less than 10 cents per kilo, thus reducing their willingness to collect waste materials for financial gain (Lafiqaj, 23.06.15).

Currently, Reciklimi works at half of its full capacity, comprising approximately 550 kg/day of plastic and aluminum. Apparently, they are unable to reach full capacity because of unfair competition from other, unlicensed, recycling enterprises that do not pay taxes and offer a higher rate per kg to the informal sector.

Despite these adversities, Reciklimi has been chosen by the municipality and Green Art Center as part of the pilot project running in public buildings and schools, due to the fact that it is the only company that fulfills all the legal requirements, including payment of taxes.
11.7 Waste Management in Velekinca

The village of Velekinca, in the municipality of Gjilan, has special arrangements for waste collection, created and managed by the community itself. The community, consisting of 100 households, has employed a worker from within the community to take responsibility for collecting the waste generated in the village and disposing of it in designated waste containers in the neighbourhood. The worker was chosen by the community because of his reputation for performing gardening activities in the area, which he continues to perform. He receives a monthly salary of 250 Euros, paid through remittances from families living in other European countries. The waste disposed of by the waste picker is then collected by a private company once a week.

11.8 Landfill

The landfill in Gjilan is built according to the standards of the European Agency Program with a minimum life expectancy of 15 years. It is managed by the KLMC (Kosovo Landfill Management Company), registered as an independent company since 2005 (Kosovo Trust Agency).

The landfill is a site of intense activity, with people sorting through the garbage which is brought in at frequent intervals by the Ecohigjiena transport vehicles. The number of individual collectors varies during the day, but it is estimated that there are approximately 100 collectors (40 percent of whom are children) operating on the site and collecting materials. During a site visit to the landfill, approximately 30 individual collectors were observed working on the landfill, of whom it was estimated that approximately a third were children.

11.9 Conclusion

The waste management initiatives undertaken by the municipality of Gjilan are simple and effective. They have had a positive effect on raising awareness regarding waste management, mainly by focusing on the environmental and economic importance of separating recyclable materials. This is especially apparent among the students from the schools involved in the pilot project. Beyond that, the local waste management strategies not only help to decrease the costs of residual waste operations and generate profits from the recyclable waste, but also assist individual waste collectors in performing the collection of recyclable materials, often their main source of livelihood, in a more efficient manner. This initiative is also particularly impressive because it seeks to include and involve the individual collectors and does not undermine the importance of their work to the entire process. Therefore, in addition to managing waste more effectively, the initiatives in Gjilan also have the effect of enhancing and protecting the livelihood of individual collectors in the informal sector.


Kosovo Advocacy and Development Centre (2012): Concept Note on the Awareness Raising Campaign in the Field of Waste Management.


Pira Energy Group (2016): Higher oil prices are inevitable.


References


UN-HABITAT (2011): Collection of Municipal Solid Waste: Key Issues for Decision-makers in Developing Countries.


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Interviews and Questionnaires

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**Interviews**

**Interview 1**

Name and surname of interviewees:
- Qorri, Habib
- Gashi, Dukagjin
- Mehmetukaj, Fatbardha

Institution: Municipality
Place: Pristina, Kosovo
Date: 21.06.2016

1. What is your opinion about Waste Bank?

The municipality and also Ecofriend Company conceived it as a measure to promote separation at source. They think it will be successful in fostering the will to recycle. Waste management rule for the municipality is also being drafted.
2. What is the Budget for waste management?
Presently the Waste management budget is included in the Public Works segment of municipal budget. The waste management unit has been established now and will have separate budget from next year. After the operations change – from PoE to the Municipality, the budget will be more defined. The fee collection will also be done by the municipality from 2017. They are in the process of planning the budget and the timeline.

3. What is the cost of the containers?
90,000 euro
- Installation and maintenance cost?
- Cost of land for the waste bank?
- Budget for improvement of container site?
- Frequency of improving the container sites?
- Maintenance cost of container sites. (These were not available with them)

4. Who will be in charge of managing the container sites, if municipality is involved then what is the cost?
The container sites are now managed by the PoE. In future when the operations change, it will be the contracted company who will be in charge of maintaining the container sites (it could be also Pastrimi if they get the contract). The costs will be determined later.

5. Positive impacts / financial gains for municipality.
- Separation at source
- Less waste to landfill
- Less gate fees at landfill
- Good image of the city for promoting recycling
- Involving the citizens as well as the informal waste pickers

6. How can the fee collection rate be improved?
The Municipality intends to improve the fee collection by putting in conditioning measures. For example, if the households want to register their cars, then they have to pay property tax and when they pay property tax they have to prove that they have paid the waste fee. For the businesses for example, when a café wants to use the terrace, they can get the permit if they pay the waste fee. Also a part of the profit that the private company makes by collecting the recyclables in the waste bank will go to the neighbourhood schools or within the community and will contribute to the education of the children or enhancing the services within the neighbourhood. When the citizens are made aware of this system, they would be encouraged to sort at source.

7. What is the intended target of fee collection rates?
We want to collect 100%

8. Would the collected fee would be enough to run the waste banks? Will any more funding be required?
If they achieve intended targets, they hope it would be enough for running the entire waste management system, not only the waste banks. And in any case it is their duty to provide waste collection service and they would have to manage somehow.

9. What is the Administrative structure of Waste Management Unit in municipality?
The municipality will own the Pilot Project and will steer the operations and set all quality control standards.

10. What is lacking to achieve desired targets?
Hope to learn the good practices from the pilot project in Dardania and use them to scale up. This is a new venture for the municipality and they will learn more as the project progresses.

11. What is the intended target of fee collection?
Parstrimi if they get the contract). The costs will be determined later.

Interview 2
Name and surname of interviewee:
- Salihu, Feim
Institution: Pastrimi
Place: Pristina, Kosovo
Date: 22.06.2016

1. What is the collection coverage now?
Pastrimi is obliged to collect waste and transport to the landfill sites. Almost 100% coverage of waste collection in Pristina city.

2. What is the collection coverage now?
10-15 percent of waste does not go to the landfill.
Waste collected 200 tonnes/day
47 trucks to transport waste in total. 15-17 trucks are used per day depending on the requirement. Trucks have capacity of 10-16 m3.
1600-1700 containers in Pristina
2 modes of waste collection:
- Door-to-door collection for outskirts and periphery of the city, once a week
- Emptying containers (1.1 cu.m.), once a day.
Also sometimes 2-3 times depending on the requirement/density of the zone

Prevously the collection was done at night. But starting from this year January, the collection is now done between 07-15 hrs.

3. What are the company costs - gate fee, machinery, man power etc.?
- 10 percent increase in employment. Average salary of workers 250 euros + 2.5 euros per day for food. The maximum salary is 500 euros.
- 6.10 euros per tonnes as gate fee to KLMC for landfill
- 50,000 – 60,000 euros per month is landfill fee
- Maintenance for 1 container approx. 50 euros per year. 1 container can be used for 3 years. 1 new container costs 270 euros. To replace 1 wheel in a container is 9 euros. They have made 500,000 capital investments this year.

3 ways to collect fees from households:
- 40 Fee Collectors in Pristina. Each has 1200-1300 bills amounting to 4000-5000 euros. They get 9% as commission or 360 euros on average as salary.
- 8 fee collection points in the city where citizens can go and pay directly
- Bank transfers. But it costs an additional 1 euro.

Total 6 people, 1 head of sector, 1 operation officer, 1 complaints/PR officer, 1 IT officer, 2 maintenance officers; 3 people are already working, 3 more would be employed.

200,010 Euros collected as waste fee only from the households.
Big shopping malls do not pay the fees and businesses are paying low fees. They scatter their wastes in small quantities in different containers.

Private companies are not monitored and they avoid the gate fee. Last month fee collection rate was total 75%. 67% from the households.

Main problem was the new collection time and people need to adapt to the new timing in order to increase collection. Waste pickers could then come at night to collect the recyclables from the container sites, instead of collecting in the morning.

Waste pickers litter around the container sites making it difficult for Pastrimi to empty and collect waste. They are concerned about the hygiene of the place and that the citizens might blame Pastrimi for not doing their job.

2. What are the company costs - gate fee, machinery, man power etc.?
3. Can segregated costs be achieved for Dardania?
   - Dardania collection – 60 tonnes/day
4. What is their opinion on transferring their functions to municipalities?
   - Pastrimi is not satisfied with the role municipality is playing presently. According to Pastrimi Municipality could monitor better and enforce rules more stringently.
Personal Profiles

**Tarek Alkhateeb** is from Syria and has a Bachelor degree in Civil Engineering from Al Baath University, Homs, Syria. Since graduating, he has worked in the housing and energy sectors. He is currently in Berlin doing a Master degree in Urban Management at TU Berlin. His interest is in sustainable development strategies.

**Weng Ian (Anna) Au** was awarded a Bachelor degree in Public Health from Fu-Jen Catholic University in Taiwan in 2013. Also a librarian by profession, she started work as the secretary of Macao Library and Information Management Association after graduation so as to take part in the promotion of reading culture and literacy in Macao. Later, in 2015, she completed the Tour Guide course offered by IFT and obtained her tour guide license.

**Nathalie Bekdache** holds a Bachelor degree in Business Administration from the American University of Beirut and a Master degree in International Relations from the Fletcher School of Law and Diplomacy at Tufts University in Boston. Prior to joining the Urban Management program, she conducted research on civilian protection in Libya and subsequently joined International Alert in Lebanon, where she led projects focusing on citizen-state relations.

**Antonia Burchard-Levine** received a Bachelor degree in International Development from McGill University in Montreal. Afterwards, she collaborated in a number of international cooperation projects in Panama, China, and Mexico, before commencing her Master degree in Urban Management at TU Berlin. In the future, Antonia is interested in conducting research on transit-oriented development and housing issues in Mexico City.

**Bruno Dias Lana** was born in Brazil in 1988. He holds a Bachelor degree in Architecture and Urbanism from the Federal University of Viçosa (UFV-MG). His main work experience is as an architect and urban planner for the public administration of Contagem (MG) from 2012 to 2015. He intends to focus his career on urban development and management, mainly in South America’s largest cities.

**Mariana Enriquez Portillo** was born in Mexico. She holds a Bachelor degree in Architecture and a degree in Valuation from Universidad Autónoma de Chihuahua. Prior to her enrolment in the Urban Management Master course at TU Berlin, she gained professional experience working as a designer and budget consultant. She has participated in many national and international competitions developing conceptual projects in the fields of architecture, interior design and social awareness.

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Rucha Kelkar obtained her Bachelor degree in Architecture from India. Her previous experience is in architectural design projects and sustainable construction techniques. She pursued a PG diploma in Sustainable Management of Natural Resources prior to joining the Urban Management Master program at TU Berlin. Rucha is interested in alternative housing, place-making and sustainable urban development.

Amar Kulkarni is an artist and architect from Pune, India. Before being admitted to the Urban Management program at TU Berlin he worked in several fields, such as architecture, urban design and planning, environment and graphic design. He is exploring and carrying out personal research on urban spaces. He is also directing a feature documentary film in India on urban spaces, titled 'The Space Within'. As an artist and architect, he is interested in working in the fields of art, filmmaking, urban planning and nature conservation.

Naomi Milstein relocated to Austria shortly after completing her Bachelor degree in International Relations at the College of Wooster (Ohio, USA) in 2012. Now studying Urban Management at TU Berlin, she has worked on a project in Dortmund on brain drain and quality of life in urban industrial areas and will be continuing in this field of study while writing her Master thesis on urban competitiveness and quality of life indicators.

Maria Rosa Muñoz Barriga is a 27-year-old Ecuadorian economist. After working as a research assistant and a junior researcher for four years in the Research Institute of the Municipality of Quito, "Instituto de la Ciudad", she developed certain knowledge, understanding and skills which turned urban issues into her major field of interest. Accordingly, she decided to pursue a career in the urban field and develop her skills further, which led her to apply to the Urban Management Master program at the Technical University of Berlin. In the future, she would like to continue conducting urban research with the aim of contributing to more informed, structured and strategic decision making in the Global South.

Lea Nassif El Ksayer earned her Bachelor degree in Architecture at the American University of Beirut in 2009, where she also completed a degree in Engineering Management. Since her graduation, Lea has worked on various architecture projects in Beirut and the MENA region. She has also acquired experience in sustainability and green technologies. Prior to her enrolment in the Urban Management program at TU Berlin, Lea took part in various bioconstruction workshops in Rio de Janeiro, Brazil.

Alokananda Nath is an architect and urban planner from India. She has a Bachelor degree in Architecture from Kolkata and a Master degree in Urban and Regional Planning from Ahmedabad. After working for four and half years in the urban development sector in India, she has returned to the academic world to pursue a second Master degree in Urban Management from TU Berlin. She is interested in inclusive development, affordable housing and smart cities.

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Galuh Ainur Rohmah received a Bachelor degree in Urban and Regional Planning in Indonesia. Afterwards, she was involved in many urban planning projects and gained experience working as an urban planner and in business development in the real estate sector before commencing her Master degree in Urban Management at TU Berlin. In the future, Galuh is interested in working in smart cities and housing development.

Jorge Mariano Rossi obtained a Bachelor degree in Political Science from the University of Buenos Aires, Argentina. He possesses several years of experience at different levels of public management and has worked in infrastructure, services and the urban policies field in Argentina. With a solid academic background in public policies, he is now focusing on Urban Development Studies in the Urban Management Master program at TU Berlin. Mariano aspires to develop solutions to achieve inclusive cities with social justice as the ultimate goal.
Mozhdeh Saeeidkhani is an urban planner from Iran. She has a Bachelor degree in Geography and Rural Planning and a Master degree in Geography and Urban Planning from Iran. After working for five years as a human resource manager and lecturer in a non-governmental university in Iran, she has returned to the academic world to pursue a second Master degree, in Urban Management from TU Berlin. She is interested in urban governance, public transportation and social capital.

Angela Sanchez Zambrano is an architect with a degree in Urban Design from the National University of Colombia. She has worked on urban issues such as planning, regulation, design, and in the application of land management instruments. This work has been mainly developed in the public sector. She has carried out technical coordination of projects for public institutions in Bogotá such as the Secretary of Planning and Metrovivienda, as well as for other public offices in the region of Bogotá Savanna. She has lately joined a civil organization which supports communities to develop bottom-up initiatives and self-help management projects.

Samuel Dordowa Benya Senesie is a Sierra Leonean and holds a Bachelor degree with honors in Civil Engineering from the University of Sierra Leone. He has over eight years’ post-graduate working experience in both the private and public sectors. For five years, he worked with city and district councils in Sierra Leone as head of the Civil Works Department with responsibility for planning, design, implementation and management of civil works projects. Currently enrolled in the Urban Management Master program, he is interested in working on sustainable low-income housing planning, design and finance.

Sharmila Shrestha is an architect from Nepal. She received her Bachelor degree from the Institute of Engineering, Phulchowk campus in Lalitpur. Before moving to Berlin, she worked for over four years on various architectural projects dotted around the urban scene of the Kathmandu Valley. She is interested in resilient urban housing development.

Huiwen Tang holds a Bachelor degree in Public Administration from the University of International Business and Economics (UIBE) in Beijing (China) and a Master of Economics degree from the University of Konstanz (Germany). Prior to her enrolment at the Technical University of Berlin for the Master degree in Urban Management, she was appointed as Investment Project Manager in Shenwan & Hongyuan Securities Co., Ltd., one of the top three security companies in China. In 2007, she took a nine-month internship at Daimler AG in Beijing.

Rafael Valladares Rodas received a Bachelor degree in Civil Engineering from Universidad Tecnológica Centroamericana (UNITEC), in Tegucigalpa, Honduras. With over ten years of experience in the area of engineering and having participated in more than 15 projects at the national level for the public and private sector, Rafael also worked from 2014 to 2015, as ‘ad honorem’ advisor of the developing committee of the Municipality of Danlí, Honduras.

Anna Marie Walter received a Bachelor degree in International Studies from the University of New Orleans in Louisiana, USA. Before commencing her Master degree in Urban Management at TU Berlin, she worked with a non-profit organization focusing on immigration issues for Latinos in the city of New Orleans, and most recently, with GIZ in Chile. Currently, Anna is conducting research on crime prevention in urban areas, with a focus on her home city, Tegucigalpa, Honduras.