Western Balkans • Bosnia and Herzegovina

Industrijski Otpad: Turning Waste into Opportunity

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Sector • Waste management
Enterprise Class • MSME
Executive Summary

This case study describes how one married couple started a self-sustainable enterprise despite unfavorable conditions in a country still recovering from civil war. Located in Travnik, Bosnia and Herzegovina, the business, Industrijski Otpad Ltd\(^1\) is based on waste management and recycling.

This small enterprise has been economically self-sustainable, despite some challenges since its founding in 1999. In this case, we will examine the keys to Industrijski Otpad’s success including its strategic partnerships, value chains and an environmentally friendly, socially inclusive business model.

Started as a small backyard operation, Industrijski Otpad has grown to become a regional business and a model for replication elsewhere in Bosnia and Herzegovina. The business collects waste, sorts it manually, presses it and packages it for further sale. Industrijski Otpad relies heavily on locally available manual labour, and as a part of its business model employs ethnic minorities and those living on the socio-economic margins such as single mothers.

More broadly, Industrijski Otpad aims to improve the performance of the local recycling industry and raise public awareness of waste issues in central Bosnia and Herzegovina. To do so, Industrijski Otpad’s business model encourages community participation while contributing to a cleaner and healthier environment. The business also seeks to create sustainable economic, social and environmental results.

Such strategies have helped Industrijski Otpad deliver profitable growth and long-term market leadership, while also preserving local natural resources. Despite being a small enterprise, Industrijski Otpad demonstrates a successful inclusive business approach that can be replicated in municipalities across the Balkan region.

Challenges: a Risky Idea

The founders of Industrijski Otpad faced several risks on their way to making the business a success. Several factors including socio-economic conditions, the regulatory environment in Bosnia and Herzegovina, limited public awareness of recycling, the nature of solid waste, and geography all created obstacles. In addition, there were practical business concerns such as the costs of waste collection, transportation needs and the logistics involved in treating and disposing of waste. Even so, the founders of Industrijski Otpad saw opportunity where others saw risk.

“Together with my husband I’ve built this enterprise from scratch,” Industrijski Otpad co-owner Zijada Isić said. “My husband was unemployed while I was unofficially working in a local restaurant at that time. In reality we were both unemployed when we started. As

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\(^1\) The full name of the firm is ‘Sakupljanje i prerada industrijskog otpada,’ which means “Collection and separation of industrial waste”. In this case study, it will be known by the abbreviation ‘Industrijski Otpad’.
happens in life, one day the president of the national waste disposal company was having lunch in the small restaurant where I was working. I heard him talking about some hydraulic press machine that wasn't working properly and that they were ready to sell. I called my husband and asked him if I should approach him. The rest is history, as we decided to buy that hydraulic press machine, and put it in our [small] backyard. We didn't know much about business but we were confident that we could succeed. We had a van, so we started gathering paper going through garbage containers around town. Many of our friends and family were judging us, and looking at us like we were beggars looking for food. However we were full of pride and optimism. After a while, I stopped working in the little restaurant and I officially registered our paper recycling business. I rented a place of 250 m² and that's how we officially started.”

At the beginning, there were three people employed: Ms. Isić, her husband and one other employee. Initially, they had one big buyer, a company from Zenica that processed recycled paper (the company continues to work with Industrijski Otpad).

Early on, the Isićs also cross-financed their business by running a small grocery store. They also reinvested early profits back into the business, allowing them to construct a 600 m² facility in 2001.

**Context: Fragile Environment**

Located in south-eastern Europe, Bosnia and Herzegovina is home to more than four million people. The Balkan nation gained its independence during the Yugoslav wars in the 1990s. The country is home to three ethnic groups: Bosniak (48 percent), Serb (37 percent), and Croat (14 percent).

As part of the dissolution of the former Yugoslavia, Bosnia and Herzegovina experienced civil war between March 1992 and November 1995. The war created damage and hardship across the country.

From an economic perspective, the civil war brought economic ruin to millions. From a political point of view, Bosnia and Herzegovina evolved from the war as a politically decentralized nation with two governing entities: the Federation of Bosnia and Herzegovina (51 percent of the country) and the Republika Srpska (49 percent of the country). (The district of Brčko is a de facto third entity which officially belongs to both, but is under direct jurisdiction of the central Bosnia and Herzegovina state.) The country is further divided into 10 cantons, and all of them have their own cantonal government. Lastly, Bosnia and Herzegovina is subdivided at the municipal level, with 79 municipalities in the Federation and 63 in Republika Srpska.
Bosnia and Herzegovina’s GDP per capita was US$ 6,500 in 2008, with a labor force of 1.863 million people.¹ The unemployment rate in 2007 was 29 percent, but due to an unofficial ‘grey economy’, the actual unemployment rate may be less than 20 percent. In 2004, 25 percent of the population lived below the poverty line² and 19.5 percent of the population lived on less than two dollars a day.³ Distribution of income by GINI index is 56.2 (2007), which means that the poorest 10 percent of the population has 3.9 percent of the national income, and the richest 10 percent of the population has 21.4. The country’s inflation rate (consumer prices) was 8 percent in 2008, and public debt equalled 40 percent of the GDP.

A FRAGILE SECTOR

The waste recycled per capita in Bosnia and Herzegovina is far lower than the amount recycled in more developed countries, which indicates great potential for recycling industry.⁴ Additionally, World Bank studies show that the creation of micro-enterprises and informal waste recycling cooperatives are a key way for the private sector to help the urban poor.⁵ In Bosnia and Herzegovina, there is also a need for waste management services, particularly at the municipal level. Before the country’s civil war, waste was not treated adequately and the large-scale destruction caused by the war created further problems. On average industry in Bosnia and Herzegovina annually produces around 2 million ton of waste, of which about 10 percent is hazardous waste.

However, Bosnia and Herzegovina lacks official policies and procedures to handle the waste. In one example, there are no fees such as bottle deposits to encourage people to recycle. Additionally, households in Bosnia and Herzegovina pay a fixed fee for waste management based on the number of residents. The fee is collected monthly by public communal enterprises owned by local authorities. In most cases, this monthly fee covers waste management, water supply, and street cleaning - all on one invoice. In Sarajevo, Banja Luka, Mostar, Tešanj and other cities, bill collection rates are satisfactory. In other municipalities such Travnik⁶, home to Industrijski Otpad, the collection rate is less than 40 percent. In turn, low collection rates undermine municipalities’ ability to maintain services and invest in new equipment.

Due to Bosnia and Herzegovina’s political and territorial divisions, collection, treatment and disposal of municipal solid waste is also not centralized, but based on loosely organized intracantonal cooperation. (Travnik, 2010)

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² Ibid.
In newly independent Bosnia and Herzegovina, local governments modest capacity and lack of experience have also impeded the development of recycling legislation and introduction of waste management practices. Presently, none of the 10 cantons in Bosnia and Herzegovina have a waste management plan or adopted a legal framework clearly defining policies and procedures for municipal waste management. This lack of planning has lead to irregular waste services, few recycling bins and a public poorly informed about the need to recycle. Slowly, however, authorities are moving toward adopting a national strategy on waste management including at the municipal level.

In Travnik, the city tentatively plans to build a modern processing plant for waste management in a new business zone by 2015. Aware of the expense involved, the local government is seeking strategic partnerships to help cover costs. For instance, transportation of waste to processing plants can cost as much as 27 € per ton (with Travnik disposing of around 650 tons of waste per month). With these factors in mind, long-term the local government in Travnik aims to reduce the amount of waste it disposes by 70-80 percent, to around 100 tons by 2015.

For now, however, there are not enough waste disposal sites. Consequently, considerable quantities of waste have been dumped at illegal sites, such as roadsides, village dumps, rivers, or abandoned mines. In the Federation territory, for instance, there are 1.893 thousand sites of ‘uncontrolled’ (or wild) landfills in an area of 974.221 m². Additionally, municipal, industrial, inert waste and waste from animals is disposed of in an uncontrolled, improvised fashion. Currently, there is only one sanitary landfill in Sarajevo, with another under construction in Zenica. Three more are in development. In Travnik, the public community enterprise that deals with waste is transporting their waste to Zenica.

**Business Model: a Business Opportunity**

Given the lack of organized waste management in Bosnia and Herzegovina and demand for services, Industrijski Otpad identified an ideal business opportunity. Industrijski Otpad has since built its business model around the lack of a municipal recycling infrastructure and a need for more cost-efficient raw materials.

Similarly, private sector recycling businesses in the Western Balkans have filled a growing demand for waste management. The waste industry, especially recycling, is a new and fast-developing sector in the region including in Bosnia and Herzegovina.

Capitalizing on this business opportunity, Industrijski Otpad aimed to improve waste collection and separation and to help the environment by raising public awareness. As part of that approach, Industrijski Otpad looked for opportunities to increase its capacity for waste collection and to employ some of the poorest members of the community.
At the first stage of the waste management process, Industrijski Otpad collects waste from containers in 400 locations. Containers in another 200 locations are operated by organizations with which Industrijski Otpad cooperates such as local shopping malls or private companies. These recycling bins and containers are designed to be easily recognized. They are sometimes marked with slogans that promote recycling. The company’s solid waste collection vehicles regularly collect the content of these bins and containers. The vehicles then take the waste to a material recovery facility where it is almost entirely manually sorted by about 15 employees (depending on volume). Industrijski Otpad also has three compressing machines, one truck and two vans, two forklifts, many small tools and machinery such as welding machines, grinders, and drilling machines to collect and sort the waste.

Table I: Eight different categories of waste with specific sub-categories collected by Industrijski Otpad

<table>
<thead>
<tr>
<th>No.</th>
<th>Categories of waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>all types of textile</td>
</tr>
<tr>
<td>2</td>
<td>paper</td>
</tr>
<tr>
<td></td>
<td>I. old corrugated cardboard and Kraft paper</td>
</tr>
<tr>
<td></td>
<td>II. high grade paper, newspaper, textbooks, magazines, mixed paper and other paper such as tissue paper, napkins, paper towels, paper plates, paper food cartons, milk cartons...</td>
</tr>
<tr>
<td>3</td>
<td>plastic</td>
</tr>
<tr>
<td></td>
<td>I. high density polyethylene (HDPE) bottles natural and colored; high density polyethylene (HDPE) wide; high density polyethylene (HDPE) slim and wide; other plastic containers and other plastic</td>
</tr>
<tr>
<td></td>
<td>II. polyamides or nylon</td>
</tr>
<tr>
<td>4</td>
<td>all types of glass</td>
</tr>
<tr>
<td>5</td>
<td>metals</td>
</tr>
<tr>
<td></td>
<td>I. aluminium cans and other non-ferrous metals such as other products from aluminium, stainless steel, copper, brass, bronze, lead, zinc, and other metals to which magnet will not adhere.</td>
</tr>
<tr>
<td></td>
<td>II. ferrous and ferrous scrap metals</td>
</tr>
<tr>
<td>6</td>
<td>white goods - discarded, enamel-coated major appliances, such as washing machines, clothes dryers, hot water heaters, stoves, refrigerators, and freezers</td>
</tr>
<tr>
<td>7</td>
<td>tires - pneumatic tires from all types of vehicles</td>
</tr>
<tr>
<td>8</td>
<td>wood</td>
</tr>
</tbody>
</table>

After the collection and sorting process, Industrijski Otpad’s strategic partners buy the recycled waste as raw material. Industrijski Otpad generally divides partners between big and
small ones, depending on the cumulative quantity of transactions they make and the total amount of money they transfer. Big partners include Weltplast, from Posusje, which buys nylon from Industrijski Otpad. Agrokop, from Travnik, which buys only plastic materials, Maglaja-based Natron-Hayat, which buys old corrugated cardboard and Kraft paper, Tehnopapir from Belgrade (Serbia) which buys old paper, and Nobil from Nova Bila, which buys textiles.

Industrijski otpad’s business model breaks down as follows:

Figure I: Industrijski otpad's business model

![Diagram showing the business model of Industrijski otpad](image)

Source: Author

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BUSINESS CHALLENGES

On its way to becoming a successful business and a model company, Industrijski Otpad has also encountered several challenges. For instance, in Bosnia and Herzegovina waste is not separated at the source, which slows down the recycling process and makes it more expensive. Additionally, communal waste can also contain industrial, medical and other types of hazards that need special disposal. Much of this special waste ends up in unregulated dump sites and is not treated properly. There is also low public awareness of waste separation and the importance of recycling.

To overcome this constraint, Industrijski Otpad has invested in advocacy by printing educational material for consumers. In addition, the local government has also promoted the importance of properly handling waste. In particular, the government highlighted the five stages of solid waste management as a catalyst for raising public awareness and engagement as follows:

Figure II. Stages of solid waste management in Bosnia and Herzegovina

Source: Author
FINANCIAL MODEL

Since the founding of Industrijski Otpad in 1999, all profits have been reinvested in the company. The money has been used to expand facilities and purchase new equipment. Industrijski Otpad follows a simple financial model based on collecting material, then processing it, selling it to buyers and making a profit. The following table shows results for three consecutive years (compare Table II). In the profit and loss statement, the lack of profit is probably due to high taxes.

Table II: Profit and loss statement of Industrijski Otpad from 2006 to 2008

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total revenues</td>
<td>82915,28</td>
<td>87447,15</td>
<td>79807,38</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>51535,37</td>
<td>52037,19</td>
<td>58729,33</td>
</tr>
<tr>
<td>Operating Expenses</td>
<td>29738,88</td>
<td>34853,18</td>
<td>20667,80</td>
</tr>
<tr>
<td>Total cost and expenses</td>
<td>81274,25</td>
<td>86890,37</td>
<td>79397,13</td>
</tr>
<tr>
<td>Profit before tax</td>
<td>1641,03</td>
<td>556,78</td>
<td>410,25</td>
</tr>
<tr>
<td>Net Profit</td>
<td>492,31</td>
<td>389,74</td>
<td>410,25</td>
</tr>
<tr>
<td>Profit After Tax</td>
<td>344,61</td>
<td>272,82</td>
<td>287,18</td>
</tr>
<tr>
<td>Number of employees</td>
<td>10</td>
<td>18</td>
<td>15</td>
</tr>
</tbody>
</table>

All financial data is shown in US$.

In 2008 (compare Table II), Industrijski Otpad experienced financial problems due to decreased demand and lower prices for recycled materials as a result of the global economic crisis. “The prices of our products decreased sharply (as shown in Table III), by half in fact, and we also experienced a 10-20 percent drop in demand for raw materials,” Industrijski Otpad co-owner, Ms. Isić, said. “But we managed to stabilize our business model due to the large availability of raw material and strong supplies. Fortunately, some prices lately started to rise again.”
Table III: Dynamic of Prices

<table>
<thead>
<tr>
<th>Material</th>
<th>Price in Nov 2008</th>
<th>Price in Dec 2008</th>
<th>Percentage drop</th>
<th>Current price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old paper</td>
<td>70</td>
<td>35</td>
<td>43.1</td>
<td>56</td>
</tr>
<tr>
<td>White paper</td>
<td>113</td>
<td>100</td>
<td>11.3</td>
<td>115</td>
</tr>
<tr>
<td>Ferrous</td>
<td>330</td>
<td>65</td>
<td>80.3</td>
<td>130</td>
</tr>
<tr>
<td>Copper</td>
<td>513</td>
<td>154</td>
<td>70</td>
<td>349</td>
</tr>
<tr>
<td>Nylon</td>
<td>200</td>
<td>165</td>
<td>17.5</td>
<td>200</td>
</tr>
<tr>
<td>Plastics</td>
<td>256</td>
<td>77</td>
<td>70</td>
<td>205</td>
</tr>
<tr>
<td>Cardboard</td>
<td>65</td>
<td>37</td>
<td>43.1</td>
<td>56</td>
</tr>
<tr>
<td>Textile</td>
<td>102,5</td>
<td>102,5</td>
<td>-</td>
<td>102,5</td>
</tr>
</tbody>
</table>

All prices shown are in Euros (1 €=1.95 KM) per ton.

Due to declining sales beginning in November 2008, Industrijski Otpad secured its first micro-loan in 2009. “Of the 28 companies in the same business in [Bosnia and Herzegovina], 22 have closed and now there are only six of us,” Ms. Isić said. “Although some parts of our business model never reached its full potential— like our textile business — we have never suffered from big losses. At one point, I realized that I couldn’t pay out all the state taxes and subsidies regularly and sustain our business model, so I called my workers and explained the situation to them. In the end, we came to the joint decision that we have to decrease the workers’ monthly pay checks by 25 €, lay-off one truck driver and cut costs wherever it is possible. That truck driver got three months of wages and we told him that we’ll call him when conditions improve. As a result, we’ve saved a lot of money: about 500 € on gas every month and about 350 € total on cutting pay checks. A crisis is not [always] for the worse, for example, it forced us to be more innovative so we started using rope instead of wire. This made us save 1000 € every month.”
Business and its Key Relationships

Figure III: Waste collection process and principle actors

To achieve its goals, Industrijski Otpad established strategic partnerships along its value chain. Industrijski Otpad now has approximately 70 partners in its supply chain. Those suppliers range from local shopping centres such as Bingo and Konzum, to production facilities such as Economic, Vitez; Ecos, Vitez; Konfekcija Borac, Travnik; Olip-Bosna, Travnik; Still, Vitez; and EZ, Busovaca. At its peak in 2008, Industrijski Otpad also employed 50 independent contractors to sort waste. Due to economic dips and the global recession, the number of contractors is now about 30.

At the moment, it is often easier or cheaper for local manufacturers in Bosnia and Herzegovina to use new materials rather than use recycled goods in manufacturing. However, Industrijski Otpad is closing this gap by creating locally available raw material from recycled goods.

This process is based on strategic partnerships with buyers such as Nobil. Located in a small town near Travnik, Nobil is a family-owned enterprise that produces mattresses, pillows, bed slats and linens. They are one of the biggest employers in the region, with about 80 permanent employees. Roughly 35 to 40 percent of Nobil’s products are exported to the Netherlands, Slovenia, Germany, Croatia and other countries. Given market demand, Nobil predicts this percentage could increase up to 70 percent in the next few years.

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12 http://www.economic.ba/site1
Nobil’s core business is the production of mattresses. A mattress consists partly of cotton and the main raw material for the production of cotton is textile waste. Textile waste in Bosnia and Herzegovina is mainly burned because it is too expensive to dispose of otherwise. With the help of an international partnership, however, Industrijski Otpad arranged to provide Nobil with its raw material.

The two companies were brought together by the Federal Ministry of Finance of Austria and the IFC’s Recycling Linkages Programme (RLP). In 2005, IFC initiated a RLP for three (Home, 2010) years in recycling (paper, plastic and metal) and solid waste management across the economies of the Western Balkans including Albania, the former Yugoslav Republic of Macedonia, Serbia, Bosnia and Herzegovina, Montenegro and Kosovo. The IFC targeted the recycling industry due to its ability to foster strong private sector economic growth while creating sustainable livelihoods among marginalized populations. Through this programme, Nobil and Industrijski Otpad developed joint textile recycling operations in 2007.

With the help of IFC advisors, Industrijski Otpad raised 100,000 € in financing to build a storage facility, and received an additional grant of 10,000 € from UNDP for the purchase of 22 containers to collect textiles. IFC support also enabled Industrijski Otpad to hire contract workers to collect and sell textile waste directly to Industrijski Otpad. The company now delivers 40 tons of sorted textiles each month to Nobil. At the same time, Nobil benefits from cost savings and higher profitability by using locally available textile waste rather than importing it. Nobil’s annual sales have increased to 400,000 € since its partnership with Industrijski Otpad.

In addition to its strategic relationships with its suppliers and buyers, Industrijski Otpad also forged a strong relationship with the local government. The area is home to between 250,000 and 300,000 people, with about 72,000 in the county of Travnik.

“We faced the problem that a lot of people went to other cities to live and work and the central part of Bosnia was left empty,” Travnik Mayor Tahir Lendo, said. “Now, Industrijski Otpad has created full and part-time jobs and is doing an important part in solving the ecological problems of our city and our community. Through the cooperation between our public enterprise that deals with waste issues and Industrijski Otpad, the total amount of waste to be collected decreased by some 40 percent in the last three years. All this made the pressure we used to have on municipal services much smaller, which is important since the process of setting up official regional waste dumps in Bosnia and Herzegovina is very slow.”

The local government is also encouraging rural residents to gather and separate their own waste, rather than depositing the waste in unofficial dump sites. At one point, there were roughly 80 unregulated landfills around the city of Travnik. Now, there about 40 unregulated sites and authorities hope to eliminate all of these ‘wild’ sites in the next five years. As part of that process, the local government has initiated an educational campaign that includes a regular regional TV show on waste management and regular public workshops.

16 Source: Interview with Mr. Lento in Travnik on 25 Sept. 2009. See annex 1.
“If there was no help from the mayor and his team, I am not sure if we would have succeeded.” Ms. Isić said. “The business model could not have developed without their support, [and] it is also very important that the wider public is cooperating. Now they are even sorting out the garbage into categories to some extent—which was not the case at the beginning, …for example, at the very beginning I had to go around and ask for old paper, now people stop me and ask where they can dispose it.”

Local authorities, the media and others involved in waste management plan to continue raising public awareness, and particularly stress the importance of separating the most basic types of waste such as organic and non-organic. In order to influence policy makers, Ms. Isić was also recently made a role model by the Centres for Civic Initiatives for a related national public campaign.

Results

ECONOMIC RESULTS

The business activities of Industrijski Otpad have strengthened the local economy and provided jobs and income to those living on the socio-economic margins. “The benefit of this company lies also in the fact that it employs the most unprivileged citizens and takes care of them,” Mayor Lendo said. “The company is also a tax payer and contributes to the community in that sense too. This is a business project of high quality...which we intend to support in the future in every way possible.”

To achieve growth, Industrijski Otpad has also reinvested its earnings since 2001. Along the way, the company has also expanded its 600 m² site, buying an additional 3500 m² next to it. After a rough period when prices declined as part of the global economic recession, Industrijski Otpad has slowly begun to recover and has once again shown a small profit.

SOCIAL RESULTS

Industrijski Otpad’s business model is labor intensive, rather than capital-intensive, bringing jobs and income to the poor. At its peak in mid-2008, Industrijski Otpad had 18 employees and purchased recyclables from approximately 50 individual contractors, gathering around 1,000 tons of assorted recyclables each month.

Currently, the company employs 10 registered full-time workers and five part-time workers, creating 15 jobs. The company has also targeted the most vulnerable and socially excluded as employees such as returned migrants, women, single mothers, ex-addicts and ethnic minorities. The efforts are a part of Industrijski Otpad’s core belief that business can benefit from having a positive social impact and vice versa.
Of Industrijski Otpad’s 15 employees, three are single-mothers, another three belong to the Roma ethnic minority, and one is disabled. “They offered me work when no-one else did,” said Roma employee Razim Goloman – Kismi. “Ms. Isić and her husband always treated me fairly and as [an] equal. I have health insurance here and a good wage that comes every month without any delays. It is all important for my family to survive. I have two young children that have a brighter future because of this job and I want to educate them.”

Industrijski Otpad also supports its workers by offering benefits such as a pension and health insurance—a unique business practice in the region.

As part of its business model, Industrijski Otpad also created jobs through an extensive web of more than 30 individuals hired on a part-time basis to sort waste. These contract workers are mostly poor and many also belong to the Roma ethnic minority. These workers sort through waste collected by public waste management companies, volunteer cleanup organizations, and individual collectors. They are not officially employed by Industrijski Otpad but they have a regular business relationship with the company. Many of these employees have had little formal education and thus few options for employment.

ENVIRONMENTAL RESULTS

Due to the large number of historic sites in the city, Travnik is a popular tourist destination in Bosnia and Herzegovina. The city is described as “an open air museum.” Local authorities hope to capitalize on this reputation and develop a tourism industry. To reach that goal and enhance the city’s attractiveness, however, local environmental problems have to be resolved in a sustainable manner.

“This is why we supported Industrijski Otpad,” Mayor Lendo said. “By giving it the right to sort the waste right at the beginning with the various containers, the amount of waste was reduced so much, and also a big part of this waste becomes a raw material again after it is processed. We spread the word about this to the canton committees and various ministries in Bosnia. This should be replicated around Bosnia and Herzegovina and officially supported with similar projects.”

Industrijski Otpad helps with this process by collecting waste disposed of in a scattershot manner in municipal areas, thus reducing the adverse affects on the environment and human health from open waste.

Although the numbers vary, particularly due to the global economic crisis, at its peak Industrijski Otpad processed roughly 1,000 tons of waste. More recently, the company has processed 350-380 tons, of which, 20 percent is paper, 20 percent is cardboard, 25 percent is plastics, 15 percent is nylon, 10 percent textile and 10 percent are other types of recyclable waste.
To measure the benefit of such activity on the environment, consider the example of recycled paper (compare Table IV): Statistical reports suggest that the process of recycling paper involves 65 percent less energy than the process of virgin paper manufacturing (which requires cutting down new trees and making paper pulp from the trees.\(^\text{17}\)) One ton of a recycled plastic reduces \(\text{CO}_2\) emissions by 1.5 tons.\(^\text{18}\)

Table IV: Comparison of 100 percent Virgin Forest Fiber Copy Paper to 100 percent Postconsumer Recycled Content Copy Paper (Uncoated Freesheet) – For 1 Ton of Paper Use

<table>
<thead>
<tr>
<th></th>
<th>100 percent Virgin</th>
<th>100 percent Postconsumer</th>
<th>Savings (per ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood Use</td>
<td>3 tons</td>
<td>0 tons</td>
<td>3 tons (saves around 24 trees)</td>
</tr>
<tr>
<td>Total Energy</td>
<td>(4.00921224 \times 10^{10}) joules</td>
<td>(2.32112288 \times 10^{10}) joules</td>
<td>(1.68808936 \times 10^{10}) joules</td>
</tr>
<tr>
<td>Greenhouse Gases</td>
<td>2 580.94 kg (\text{CO}_2)</td>
<td>1 624.77 kg (\text{CO}_2)</td>
<td>956.17 kg (\text{CO}_2)</td>
</tr>
<tr>
<td>Wastewater</td>
<td>72 206.73 litres</td>
<td>39 084.38 litres</td>
<td>33 122.35 litres</td>
</tr>
<tr>
<td>Solid Waste</td>
<td>1 033.28 kg</td>
<td>523.90 kg</td>
<td>509.38 kg</td>
</tr>
</tbody>
</table>

Source: www.papercalculator.org

**Outlook: The Road Ahead**

In this case study, the practical example of a small company in Bosnia and Herzegovina is explored. The company, Industrijski Otpad, collects waste, sorts it manually, presses it and packages it for further sale. Although the company has experienced growing pains, it has managed to prosper since its start in 1999.

Industrijski Otpad also has significant potential for future growth and provides a model for replication throughout the region. Through partnerships with authorities, the local community and the private sector, Industrijski Otpad's unique business model also provides employment to local people — particularly those who would otherwise have difficulty finding work. This approach encourages community participation while also creating a cleaner and healthier environment. “We are proud to lead the way in economically and environmentally sustainable recycling solutions,” Ms. Isić said.

In the future, Industrijski Otpad aims to adopt all relevant sustainability strategies to deliver profitable growth and long-term market leadership, while maintaining focus on preserving local natural resources. With the recent rise in prices for old paper, plans are underway for Industrijski Otpad’s expansion. The company plans to invest in 250-300 cardboard containers for collecting old paper and place them in private buildings and offices throughout Travnik. The company also sees market potential in recycling plastic bottles and aluminium cans, as well as electronics such as mobile phones, computers, monitors and other technological items. At the moment, the company is negotiating with potential future partners for recycled plastic and glass bottles. They are also selling some glass and plastic bottles to smaller buyers.

Such plans also hinge on the future development of the local and national legal/regulatory framework for recycling. For now, Industrijski opted will continue to close the recycling loop at the municipal level, moving from the concept of scattershot, unregulated waste management towards a more holistic resource management model.
INTERVIEWS

- Personal interviews co-owners, September 2009
  Ms. Zijada Isić (co-owner of Industrijski Otpad)
  Mr. Muharem Isić (co-owner of Industrijski Otpad)
- Personal interviews with local government representatives, September 2009
  Ms. Zijada Isić (co-owner of Industrijski Otpad)
  Mr. Tahir Lendo (Mayor of the city of Travnik)
- Personal interviews with partners, September 2009
  Mr. Nijaz Isaković (CEO, Agrokop)
  Ms. Alisa Grabus (Sales, Agrokop)
  Mr. Atila Kajmaković (Operations, Agrokop)
  Mr. Zoran Gazibaric (owner of Nobil)

SECONDARY SOURCES

Written sources:

Case Study • Industrijski Otpad: Turning Waste into Opportunity


INTERNET SOURCES:

- ERBD. (2010). STRATEGY FOR BOSNIA AND HERZEGOVINA 2010-2013. ERBD.

Annexes

Annex I: Quick facts about Bosnia and Herzegovina

<table>
<thead>
<tr>
<th>Bosnia and Herzegovina</th>
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<tbody>
<tr>
<td>Area:</td>
</tr>
<tr>
<td>land: 51,187 sq km</td>
</tr>
<tr>
<td>water: 10 sq km</td>
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<td>total: 51,197 sq km</td>
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<tr>
<td>(country comparison to the world: 128)</td>
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<tr>
<td>total: 19,763 sq mi</td>
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<tr>
<td>Population:</td>
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<tr>
<td>4,613,414 million</td>
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<td>(country comparison to the world: 119)</td>
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<tr>
<td>Religion:</td>
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<tr>
<td>Muslim 40 percent, Orthodox 31 percent, Roman Catholic 15 percent other 14 percent</td>
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<tr>
<td>Official currency:</td>
</tr>
<tr>
<td>Marka (BAM or KM)</td>
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<tr>
<td>Languages:</td>
</tr>
<tr>
<td>Bosnian, Croatian, Serbian (official languages)</td>
</tr>
<tr>
<td>Capital City:</td>
</tr>
<tr>
<td>Sarajevo (274,526)</td>
</tr>
<tr>
<td>Ethnic Groups:</td>
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<td>Bosniak 48 percent, Serb 37.1 percent, Croat 14.3 percent, other 0.6 percent</td>
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<td>Government:</td>
</tr>
<tr>
<td>Emerging federal democratic republic</td>
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<tr>
<td>GDP:</td>
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<td>US$ 18.47 billion</td>
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<tr>
<td>GDP per capita:</td>
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<td>US$ 6,500</td>
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Case Study • Industrijski Otpad: Turning Waste into Opportunity

Annex II: Map of Bosnia and Herzegovina.

INTERVIEWS

First Interview
Date: 25 Sept. 2009
Place: Travnik, Bosnia and Herzegovina
Participants: Mr. Mislav Ante Omazić; Ms. Zijada Isić (co-owner of Industrijski Otpad); Mr. Tahir Lendo (Mayor of the city of Travnik)

Mr. Omazić: What can you tell me about your relationship with the Isićs and their company, Industrijski Otpad?

Mayor: This company is one of the important entities in our community and is doing an important part in solving the ecological problems of our city and our community. The project is based on waste management in which the waste serves as raw material after it is recycled. The waste is separated into categories in the households already and the amount of waste was

decreased for 30 percent. They also connected with all the companies that use paper, glass, metal or wood (which can be used as raw material later) and all this made the pressure put on municipal services much smaller which is important since the process of setting up official regional waste dumps in Bosnia and Herzegovina is very slow. The City Council thinks this company is very important in this area and we helped them with supportive decisions of the council so they have the right to build what they need or gather waste at certain parts of town. Our citizens recognize this company and often bring waste on their own with cars. As I said, our municipal waste management companies have a much smaller pressure put on them in comparison to three, four or five years ago before this private company was set up. The benefit of this company lies also in the fact that it employs the most unprivileged citizens and with that takes care of them. The company is also a tax payer and contributes to the community in that sense too. Some other benefits are that it also contributes to the development of the community and employs people, which are very important facts. This is a project of high quality which should be supported in every way.

Mr. Omazić: Do you have any exact info about some data that could help me a great deal— e.g. population of the whole town area, number of companies, GDP per capita in the area in comparison with the GDP per capita of Bosnia and Herzegovina. Are there a lot of poor people in the Travnik County your opinion?

Mayor: The whole area of Travnik is in the limits of the country's average values. You can get all that data in the canton's statistics department, including the structure and number of population, attributes of the social status of the population, unemployment etc. We can give you an insight into our strategy, which also has a part on these parameters and the state of the county is in general.

Mr. Omazić: That would be very interesting. I was meaning to ask you about your strategy in the future so this would be really useful to have. Another question, one of most important predictors of development is education. How many universities do you have here in Travnik?

Mayor: There are two private universities and one public university. The programs vary from economics and business, law to engineering, tourism, ecology etc. I think there is about 15 courses in total, and that about 5000 students are enrolled currently.

Mr. Omazić: How many citizens does the town have exactly?

Mayor: The town of Travnik itself has about 20,000 citizens but the county has about 72,000 citizens. The canton has from about 250,000 to 300,000 citizens. We had a problem, a lot of people went to other cities to live and work and the central part of Bosnia was left empty so to say. The private universities recognized the pattern, and people nowadays do really [well] in universities all over the country.
Mr. Omazić: Can we talk more about the decisions the city council was making to help the company to develop its business model to its best? You were mentioning it in the previous questions. What happens often is that these types of business, even in Croatia, don't have support from the government or the city council.

Mayor: This private company has been doing business in this region for a number of years, and does the biggest part of its business in Travnik. We recognized this company as the solver of the problems of waste management in Travnik. What happens in many transition economies is that the waste dumps aren't of a permanent nature. Bosnia still has the chance to stay unpolluted. What also always creates debates is where to locate the waste dump. The government just adopted a waste dump strategy and the actions will come in the second phase. But what we can do now? This company popped up in the right moment to do a lot for the community. And the wonderful thing is that the waste is reduced since a part of it is sold as raw material which decreases the amount of garbage by far. The city council realized this private initiative is a worthy cause and helped in the way of giving the company the right to put containers to certain points in the town area which also solved the problem of categorizing the garbage.

Ms. Isić: My problem is that public companies are involved and they are slowing me down in this business. My workers could do all the work. I even got threats that they will ban entry to my vehicles in some towns. I've never had any problems here in Travnik. I'm aware of the fact that the city council can't help me financially since this is a private company and it wouldn't be ethical.

Mr Omazić: In fact, if this business model is self sustainable, then you all get multiple returns, not just the company itself.

Mayor: In our strategy book you'll notice that we recognized this as very important. Travnik has always been a popular tourist destination in Bosnia and Herzegovina. It is called 'an open air museum' and the remains of ancient cultures are easily noticeable everywhere. One of our strategic goals is that Travnik becomes a well known tourist destination. To reach that goal, we have to sort out these ecological problems. To do that, we have to support companies like this who are in fact reaching for the same goal. This is why we supported this company so much. By giving them the right to sort the waste right at the beginning with the various containers, the amount of waste was reduced so much and also a big part of this waste becomes a raw material again after it is processed. We spread the word about this to the canton committees and various ministries in Bosnia. This should be continued with more projects.

Ms. Isić: I have already applied for financial aid, which I got. It is not so much but it helps.

Mr. Omazić: You said that the citizens have recognized the value of this project. What I would like to know more is at how many points do you gather waste etc.? How many did you get for free usage from the town council?
Ms. Isić: I'm not sure about the exact number.

Mayor: These points that you can see here are all potentially free for this kind of usage.

Ms. Isić: We have about 600 points in private ownership.

Mayor: It’s interesting the Ms. Isić got the waste processing machines in time, and created a profitable business out of nothing and at the same time it is so useful for the community, employs people and solves community issues.

Mr. Omazić: It is interesting to see that you recognized the value in this yourself as an engineer, not just as a mayor.

Mayor: Yes, it is true at both sides.

Mr. Omazić: I have to confess that Ms. Isić has been of great help to me since we started cooperating but I am sure that her business model would not be so successful without the support of the city council. The business model would develop without the support but [would be] much slower and harder. It is also very important that the public itself is cooperating very well, even sorting out the garbage into categories. I would like to know more about the legal structure in this area?

Ms. Isić: Laws haven’t been adopted yet.

Mayor: Central Bosnia has some adopted laws—water and soil protection etc. The country is working on adapting the legal structures. A national strategy about landfills and waste management and processing exists. Now we have a modern waste processing plant near Zenica, which has been open for a year now and we bring a part of our waste there. The hazardous waste from hospitals is taken care of in a special processing plant too. All that waste can be taken to the landfill without any hazard. In our strategy we envisioned one more processing plant in the new business zone, where we shall try to reduce the amount of waste that is disposed at landfills. Disposing of waste in landfills is really expensive, it costs 53.5 KM per ton and Travnik disposes of 650 tons of waste per month even though paper is recycled. Our waste management company is focused on the gathering, transporting and disposal of the waste, the last stage of waste processing still isn’t the focus of our public company. We are now working on setting up a new waste processing centre located out of town where all these activities would be in one place. We are also trying to reduce the amount of waste that is disposed at our landfill and to process more waste into raw material. The amount of waste that is disposed should be around 100 tons in the future. We’re also trying to include all the rural area population in gathering and separating their own waste so that unofficial landfills are eliminated. The number of these uncontrolled landfills comes up to 80. We managed to eliminate half already and our goal is to eliminate all of them in the next five years.
Mr. Omazić: Have you considered starting some public campaign about it?

Mayor: Of course, the educational campaigns have started a while ago. They include things like TV shows and workshops.

Mr. Omazić: Great, it's a big problem all around the world so I can just imagine how it is here.

Mayor: Yes, I have to say we put in a lot of effort to the hazardous medical waste landfill. There was a lot of controversy about it and the population of the area nearby was against it but it is one of the most well organized and managed landfills of that kind in this area. It took three years to find a temporary location. Now we're working on finding a permanent solution.

Mr. Omazić: It is very interesting to hear all of this. It is a big problem in Croatia too, especially all the controversy about the locations of landfills. What people don't know is that landfills today are something completely different than in the past. Let's just mention Singapore, which builds artificial islands from the processed waste and then puts the industry on those artificially made islands. Can you please tell me if the disposal of every plastic or glass bottle is subsidised here as it is in Croatia?

Mayor: No, not yet, although as far as I know it is in preparation.

Ms. Isić: I am a member of a supervisory board of a company that is involved. The model that is conducted in Croatia would be too expensive to conduct here in Bosnia and Herzegovina. The Slovenian model isn't too good so we're trying to think of something between the Slovenian and Austrian model of subsidies for the disposal of these containers. The Croatian model is, as I already said, unfortunately too expensive.

Mr. Omazić: Is there a possibility of export of the processed raw materials to Croatia?

Ms. Isić: Maybe, there is some interest in some kinds of it.

Mayor: There is a lot of interest from all around the world; we already have a few companies that are interested in investments into these waste processing locations and also a lot of interest from the fire waste processing plants. The waste processing plants are really expensive, each about 200 million € on average. We are not very interested in those. The most rational way right now is the secondary processing of waste and the creation of raw materials for production. One company in Germany is being certified right now. They produce a lot of things, from interior decoration to pavements. I'll show you some photos of products that are produced from ordinary waste. Here is also a photo of a processing plant, it is very modern. Here is a photo of us visiting this location in Germany. You can also see clay or cement put into the mass that forms the final product, but it is just 3 percent mixed in the waste product.
We talked about arranging the production of some components that can be produced in our factories.

**Mr. Omazić:** Thank you for everything, it was very interesting.

**Mayor:** Thank you.
Second Interview

Date: 25 September 2009

Place: Turbe, Bosnia and Herzegovina

Participants: Mr. Mislav Ante Omazić; Ms. Zijada Isić (co-owner of Industrijski Otpad); Mr. Nijaz Isaković (CEO, Agrokop); Ms. Alisa Grabus (Sales, Agrokop); Mr. Atila Kajmaković (Operations, Agrokop)

Mr. Omazić: There are 10 millennium goals set up by the UN Global Compact Initiative. One of them is decreasing the gap between two layers of every society, the rich and the poor. It was discovered that with setting up of a market economy in China, over 300 million people have risen over the poverty line. I short we are looking for 50 businesses model that include the poorest population in order to replicate them all over the world. The Bosnian UNDP office has discovered Ms. Isić's company as the most appropriate business they're looking for. In Croatia, it is Mr. Mavrović's organic food company. I am here to develop the business case. Ms. Isić has recommended you for a more detailed conversation about co-operation between her and yours company.

Mr. Isaković: I have already visited Mr. Mavrović so I am familiar with his business. I have to tell that what Mr. Mavrović is doing is huge step forward for Croatian society. I agree with your choice of this waste processing company as a perfect example of what you're looking for. We're only one link in the chain that Ms. Isić is building. We are in cooperation with Zijada. We buy plastic materials from her. We're thinking about working in the area of PET containers too. We're looking for a buyer of recycled plastic for its final products. A producer from Spain recently approached us and offered us to produce plates as their final product in the amount up to 40 million pieces per year. Unfortunately, that is too expensive for us.

Ms. Isić: I just want to mention something about competition. There are two types of competition everywhere, the fair and the unfair. I am trying to make all of them my partners and to develop context where we could grow together. What I'm doing here is that I should be his supplier for his raw material. We are working really well together.

Mr. Omazić: Yes, the added value chain sounds great. Can you please tell me more about your company, your business model, how did it all start, number of employees etc.?

Mr. Isaković: The company was founded in 1995 with principle aim to produce local food for mass market. But then it was too expensive so we switched to agricultural machinery. We were doing business in that area until 2001 and it was going very well. In 2001 we enrolled a project where we lost everything that we had back then. It was production, packaging and placement of sauerkraut. A lot of merchandise that we sold wasn't fully paid back to us so we had to sell everything in order to pay our debt to suppliers. It was a hard time for us but we made it after all and I decided never to do business in only one field ever again. I realized that you have to diversify risk. At that point we started producing greenhouses but we stopped.
with that too. The business of agricultural necessities are still running and we're doing well there. We also started doing business in roof materials which led to construction materials and door locks production. As one thing leads to another, at the end we are now covering from top to bottom of house construction. Currently, 56 people are employed here. In the past four years we learnt a lot from the time spent with Zijada.

Ms. Isić: I know Mr. Isaković for a long, long time. Together with him and other respected members we started Association of Entrepreneurs, that I am currently member of the supervisory board. Now we have 68 different companies as members. As an NGO, we also started two projects with the World Bank and now it's about time to start enjoying the fruits of our effort.

Mr. Omazić: So what is your connection to “Industrijski Otpad”?

Mr. Isaković: Yes. Four years ago we got a job to make some material for recycling of plastic through a public tender. We didn't know much about recycling business in that moment so we established the link with one producer from Italy. We didn’t get a job but it was an interesting field to explore. After a while we got contact to one married couple from Jajce (town nearby Travnik) who [owned] a machine for recycling from some UN project and they were supposed to start a business of recycling plastics but it didn't work out in the end. What is very important, the organization that was doing the recycling project supplied buyers for the married couple's company. The buyer was a company from Zagreb and it was supposed to buy 100 tons of their processed plastic material. To me it is still hard to comprehend why their business didn't work out well. So, I decided to make offer to them. At the moment, we're meaning to spread our business into metal materials and to set up a plant for recycling. Thirty new employees are needed for this new line of production, so about 50 percent increase of employed workers. As you see on all my projects, I see Industrijski Otpad as a reliable supplier.

Ms. Isić: The government is planning to eliminate the system of cantons in the nearfuture. Right now there are five cantons but they are not economic entities, just regional communities. When the system of cantons is going to be eliminated, all the money, employees and other resources could be used for something else. For us, it would be really good if [say] Agrokop sets up a factory in our regional economic area and that all the raw materials come here for processing and are sold all around the region. It would be very helpful for the unprivileged in the sphere of employment etc., which solves a problem for the state too. The state doesn't have to pay for their social allowance anymore because they're employed. We are the ones who take account of their pay checks, health security etc. In spite of that, we tend to have problems with the state sometimes Sixty-six town counties would benefit. Can you imagine how important would be for Bosnia to solve the problem of paper waste for example? But the communication with the state is a problem sometimes because they don't show too much interest.
Mr. Omazić: Do you think there is a possibility for that to change?

Mr. Isaković: There is a possibility, our mayor is showing interest. We're trying to do something that is useful for the state too.

Ms. Isić: I can't say this in public because I would cause fury. The thing that is happening is that there are laws to be adopted but nobody is stimulated, people just sit there. I tend to say that one could make money there. What have they done for us? Instead of adopting 300 laws, seven got adopted.

Mr. Isaković: Unfortunately, some people that get funds spend it on cars. Zijada, you are the only one who made something out of the funds given.

Ms. Isić: Yes, but think about the guy who bought the state company for one KM and he got everything— machinery, infrastructure, all that's necessary. I was doing business on other people's land and paying a lot for it. Now I have 4,000 square meters, I made something out of nothing. I can fight for myself.

Mr. Omazić: It is really interesting to hear how you hit rock bottom and rose from the ashes again. I wonder how politicians would have turned out to be today if they went through something like this.

Mr. Isaković: The people applaud to politicians that are poor. But how can you do something for the people if you don't know how to make something for yourself? It's really wrong.

Mr. Omazić: It's known that in the States you can't get into Congress if you haven't earned certain amount of money.

Mr. Isaković: And our politicians are proud if they don't have anything. I had an expert with a PhD in economics working on something for me. I asked him after some time what car does he drive. After he said he has Yugo, I openly said that there's nothing for me to learn from him then.

Mr. Omazić: It's interesting to mention those machines, you offer those people everything, you give them machine free of charge, you give them market position, and all they did is that they've sold it. After few years, instead of having entrepreneurs and values creators, they end up poor.

Ms. Isić: I had a mill before, it is hard because prices of materials necessary and electricity are expensive. I was asked to take them out of trouble but I didn't want to.
Mr. Omazić: Does your company have a prospect or something similar?

Mr. Isaković: It is interesting. I was thinking about it yesterday but unfortunately no.

Mr, Omazić: But you do have a web page, right? Agrokop.com.ba?

Mr. Isaković: Yes, that's right.

Mr. Omazić: I’m also interested in the future cooperation between you and Ms. Isić? Are you working on a contract right now?

Mr. Isaković: No, we trust each other. For me it is more important and I feel higher level of connection. In the future our cooperation can only get stronger since we're planning to set up that factory here. Our goal is to become the strongest player in this business. Everything would go much faster if we had support from the local governance bodies.

Mr. Omazić: You’ve mentioned that you have another meeting so I will thank you now and ask you if I can contact you in future in case I need any additional information?

Mr. Isaković: Pleasure would be all mine. Please do feel free to contact me.

Third Interview

Date: 25 Sept. 2009
Place: Travnik, Bosnia and Herzegovina
Participants: Mr. Mislav Ante Omazić; Ms. Zijada Isić (co-owner of Industrijski Otpad); Mr. Muharem Isić (co-owner of Industrijski Otpad)

Mr. Omazić: Can you tell me how you got the idea about this business and how it all happened?

Ms. Isić: We were both unemployed. We had a store at home and a restaurant in the city. My husband was unemployed at that time. The president of the national waste disposal company was having lunch there one day. We decided to buy a machine that wasn't working properly, and put it in our backyard that is 100 m² big. We had a van and started gathering paper going through garbage containers around the town. It was in 2001. Many of our friends and family were judging us and looking at us like we were beggars looking for food. We were full of pride and optimism. After [the] little restaurant I worked in was closed, I wanted to officially register our paper business. I rented a place of 250 m² and that's how we started. Back then it
My husband and I, together with one employee. Our main buyer was a company from Zenica. We still had the little store and we lived from what we earned there since our new company wasn't profitable yet. We started earning when I arranged a deal with a company to supply them directly. When we were bringing the old paper to process, we had some leftovers like plastic bottles, PET containers, metal etc. Later on we decided not to bring it back to the landfill because we were hoping to sell it somehow. We found buyers for all that. Then we ran into this business location of 600 m² and bought it, set up a shabby wooden hut with electricity and started doing more and more every day. I was the driver of the van and I used to work from five in the morning until 11 in the evening. I got sick one day and my husband didn't let me drive the van and gather paper anymore after 2 years. We hired our first driver at that moment. There were no loans at that time so everything we would earn from that business we would re-invest back into it. At that point we were still living from the profit of the little store. My husband built the whole brick construction of 20 m² for one machine by himself. We started gathering paper on a bigger area, hired one more driver and we started earning some money. Eventually we made a network of suppliers and later our own garbage containers where people would dispose of their garbage. First our problem was that the people were not separating their waste into categories but after they started doing it. Then we bought 4000 m² in which I and my husband cleaned 70 trucks of garbage to get clean material for processing because we couldn't afford somebody else to do it. We're not megalomaniacs, we were doing things slowly. I had to go around and ask for old paper. Our competition was threatening to destroy us but I just got more will to do more with our business. Alba, a German company, bought the state company in Zenica and that's how they started doing business there. It's all about politics. They gave us an offer to work for them and afterwards we quit working and they had to pay us a big fee. In spite of that, I'm trying to make all our competition our partners.

Mr. Omazić: So what do you want to do in the future?

Ms. Isić: I want to make all of this into a whole, a recycling plant which is nice and clean, I wish that we finally come out of the recession and that the prices of raw materials come back to their normal level and to increase the number of suppliers and employees. Right now I have 14 employees and 20 suppliers. I have to emphasise that all of these people are extremely poor and that if they weren't working here, the state would have to take care of them.

Mr. Omazić: In what way do you create value? By your suppliers you mean people who help you to collect waste?

Ms. Isić: Our suppliers are people that live further away and where we can't come every day and collect the waste. They sort out everything they collect and we pay for everything after we collect it. Right now there are about 10 families that live just from doing that. All of those families have more children than average and don't own their own housing, basically very poor.
Mr. Omazić: What kinds of waste do you collect?

Ms. Isić: We collect paper, plastics, cardboard, textile, nylon, plastics, and metal, a bit of glass. There is not so much glass and it is not very profitable.

Mr. Omazić: Can you tell me more about your machinery?

Ms. Isić: Three compressing machines, three trucks, one forklift, a lot of small tools and machinery (welding machines, grinders, drilling machines). If we need something extra done, we supply our own tools and just pay for the price of work, it is much cheaper.

Mr. Omazić: How do you plan to make this sustainable in the future? I can see you are very enthusiastic, are your children going to take over the business later on?

Ms. Isić: Yes, they will for sure. I let my son do my part of work for a few months just to see outcome and he liked it a lot but he needs to educate himself a bit more. He's a perfectionist and I appreciate that about him but he takes everything for granted and he should change that. His wife has been working in international organizations like OHR and OSC for 12 years. Already, and they get along really well. One of my principle life objectives is to [teach] my kids about responsibilities and working ethics.

Mr. Omazić: Do you get support from the local government etc.?

Ms. Isić: Well, you saw by yourself. I get all the moral support I need and nobody stands in the way, they appreciate what we do. I'm not very interested in politics. We had problems in the past with finding workers but today everybody wants to work here now when they know we pay out pay checks regularly and that they're safe with us when it comes to that. We have 10 registered workers and four unregistered. The prices of our products have decreased sharply, by half in fact.

Mr. Omazić: What is the price of paper? What is the price of other materials?

Ms. Isić: In November price of old paper was 135 KM, in December 75 KM, now it is around 110 KM. The price of metal waste per ton was around 660-680 KM, now it is 250-300 but it rose from 130 KM. Nylon prices decreased only for 70 KM per ton and its price is ranging from 400 to 330 KM per ton. Copper was 10 KM, it dropped to three, now it is 6.8 KM. Plastics used to be 500 KM, in December 2008 it dropped to 150 KM, now it is 350-400 KM. Cardboard was 140, it dropped to 65, now the price is 110 KM. It is interesting to say that
white/office paper never dropped it used to be and still is 220-230 KM. Same thing with textile it is 200 KM. I have to admit something. We have been working with a loss since last November so I had to take for the first time [a] micro-loan. Twenty-eight companies have been doing the same business in this country and now there [are] only six of us, meaning 22 have been closed. Our textile business never expanded enough. But we have never suffered from big losses. I can't pay out all the subsidies regularly but I called my workers and explained them what was happening. We decreased the workers' pay checks by 50 KM, fired one truck driver and we're using the vehicles that spend less gas than others. We've saved a lot of money on gas doing that, about 1,000 KM. We saved about 700 KM on cutting pay checks. We also saved money on reducing how much material we buy (reduction from 3,000 to 1,000 KM). We started using rope instead of wire.

Mr. Omazić: Talking about employees. Can you tell me about exact number of employees and their structure?

Ms. Isić: Currently here we have 14-15 employees but it all depends due to dynamics of business. Out of those, 10 are on permanent basis and all others are working on part-time basis. We plan to employ more people but we still have to be cautiousness about crisis. We have three single mothers working for us out of those one belongs to Roma ethnic minority. We have another two men from Roma ethnic minority working for us. Nedzad Kasumovic, who’s physically disabled person and father of four children, also works with us. We also have 3,040 suppliers out of those, some 50 percent belong to Roma ethnic minority and others are poor locals.

Mr. Omazić: What are your current stocks?

Ms. Isić: There are between 400 and 500 tons of different waste.

Mr. Omazić: So who are your buyers?

Ms. Isić: For textile it is local company Nobil, for plastics it used to be Agrokop but we just finished negotiations with Nexa from Sarajevo, for nylon it is Velplast, for paper Tehnopapir Belgrade, and for metal we sell it to Zenica. We collect and process paper and nylon mostly. All these companies transport it by themselves and nobody has ever cheated on us.

Mr. Omazić: Who are your most important partners?

Ms. Isić: Natron (carton), Velplast (nylon) and Tehnopapir (paper). Textile is not so important right now. I am very honest when it comes to doing business with them.
Mr. Omazić: Can you tell me more about those micro-credits?

Ms. Isić: We are currently not in debt, maybe our mortgage loan and 40,000 KM for the company with a payback time of 15 years. We don't have anything mortgaged. Some of our partners owe us about 12,000 KM but it's not so much. Tehnopapir Belgrade is not doing so well but we tend to stick to them. That is what partners are for. I have to tell you that they did treat us well in the past so now it is our turn.

Mr. Omazić: How did the crisis affect you?

Ms. Isić: Nothing else happened except the sharp fall in the prices of raw materials and the fall in demand. Supply is same if not better in some aspects.

Mr. Omazić: Is there any chance for export?

Ms. Isić: When it comes to Croatia, we're doing it illegally to be honest. People come here and buy it from us. I presume that they are crossing border illegally but I can also tell you that guy who starts doing it was extremely poor. He told me last time that he’s very happy because he bought land and has started to build his house.

Mr. Omazić: Are you planning to produce something new in the future?

Ms. Isić: As things are right now, no. In near future our goal is to work like this and improve our business and our collection site. After all that crises issue pass we planned some investment in machinery and our infrastructure of about 50,000 KM.

Mr. Omazić: I thank you for the moment hoping that I can contact you in future if anything occurs.

Ms. Isić: Of course. Thank you. Let’s go and walk around.
Fourth Interview

Date: 26 Sept. 2009
Place: Bila, Bosnia and Herzegovina

Participants: Mr. Mislav Ante Omazić; Ms. Zijada Isić (co-owner of Industrijski Otpad); Mr. Zoran Gazibaric (owner of Nobil)

Mr. Omazić: You're one of Ms Isić's strategic partners so I'm interested in your relationship. I know you still haven't started using 100 percent of your capacities and I know Mr. Isić expects a lot from this partnership. How is it working at the moment?

Mr. Gazibaric: I know Zijada for a long time. We're trying to help each other. Our core business is the production of mattresses. One part of the mattress consists of cotton and the main raw material for the production of that part is textile waste. Textile waste in Bosnia and Herzegovina is mainly burned because it is too expensive to do anything else. We have started thinking about it a few years ago. We import that part as a raw material and not as waste. What was arranged with Zijada is that they produce it for us. It started out well while we were doing well something went wrong with our machine because it's very old and is not working well. Our usage of that type of cotton was more than 100 tons per year and we were importing it from Greece. Now there is more demand for a different type of mattresses but there still will be demand for this type of cotton. Since it is not very ecological to burn textile waste, it is really good to use it as raw material. Right now we have about 100 tons of that material in our storage. When it comes to the storage halls, their roof is not very good so there are many potential problems if it rains or if there is strong wind. In any case, I'm hoping that our companies Industrijski Otpad and Nobil will cooperate very well. It is too expensive for us to process this kind of material and if Zijada can do business with it, everything will be great. I've tried talking to the city council of Travnik about that kind of waste. Since Zijada's company started doing what they do, the transport costs of waste and the amount of waste have been reduced for 40 percent and the city council is still making the citizens pay the same amount of money for disposal of that waste. I'm sorry that the state didn't recognize an opportunity in this because it is a great chance.

Ms. Isić: Our mayor visited the city of Čakovec to see their waste disposal company.

Mr. Gazibaric: It is normal that there are political interests here so he can't take you as his partner because people would think he was a thief. To be objective and honest my opinion is those utility companies owned by the state are the right place to do [launder money].

Mr. Omazić: A lot of things are solved with time. It is also case with corruption and political will to solve it. In Croatia we are going right through huge chase on all politicians who did something that was illegal.
Mr. Gazibaric: I'm hoping that there will be some benefit from this what we're doing. I invested a lot. I won’t speak much about politics because I believe that politicians should do something for society and not for themselves. It is matter of evolution and unfortunately we are at the beginning.

Mr. Omazić: Can you please tell me more about the company Nobil itself? How many employees do you have, how old is it, what’s your target market, future plans, etc.?

Mr. Gazibaric: My family’s company is 20 years old and there are about 80 employees working on permanent basis in it. Fifty people are involved in the production process and the others are working in our 10 stores. We also have our own printing company. We export 35 to 40 percent of produced goods and we have indications that the percentage could increase up to 70 percent in next couple of years. For example, we are in negotiations with a Dutch company whose employees are coming here in a week, so if everything goes well we'll start producing 28,000 mattresses per year for them. We're also working with a Slovenian company named Legea, they're coming to visit us on next Wednesday. Now we have problems with state and limited number of transport permissions. So far we have the permit for one truck per week and if everything goes as planned that wouldn’t be enough. I'm a bit scared of the domestic market because we will probably feel the impact of economic recession next year. Just as an indicator we've had a decrease in income of 8 percent in June but we're still counting on foreign buyers.

Ms. Isić: Is there space here for the disposal of those textile rags?

Mr. Gazibaric: No, there's no space. That is one of reasons why we are trying to build new warehouse here.

Mr. Omazić: Mr. Gazibaric, how to you see Industrijski Otpad?

Mr. Gazibaric: It is very important that Zijada's company employs people that have nothing else to do. She’s not just entrepreneur but social entrepreneur solving some of most acute problems of this region. I admire her and her business model.

Ms. Isić: I feel sorry for every employee of mine. Sometimes I sit with some of female workers and help her. I admire her, how much she works for 250 KM but it is important that she earns for her living and her family.

Mr. Omazić: It would be great to see your production facilities.

Mr. Gazibaric: What are we waiting for?! Let’s go.
November 2010

The information presented in this case study has been made available to the company in subject to ensure its accuracy and is accurate to the best of the author’s knowledge. The views expressed in the case study are the ones of the author and do not necessarily reflect those of the UN, UNDP or their Member States.

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