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| Title | Existing and transition circuits of recyclable collection | | |
| Code | 060623 Potential of Recycling E.doc | Date Redaction | 23/06/06 |
| Index of Revision | | Emitter | Philippe FICHAUX |

# Existing and transition circuits of recyclable collection

# 1. Problems

## 1.1. Stake

We were wondering why so many people want to make a business in recycling, as if it was a gold mine. On the other hand, the question arose of the definition of the transfer stations: should they include or not a sorting of the waste?

We know what households put in the bin (waste composition study of 2003-2004) but we don't know what arrives on the landfill. The containers in the yard are systematically sorted by several ragmen, picking plastic bottles and beer and soda bottles. Then the containers are loaded in the collection trucks, which download on the landfill where scavengers sort again the waste. The waste of the refuse chutes cannot be sorted by ragmen so this part may be recovered only on the landfill (in fact it exists cases the yard cleaners (employees of the ZHEKs) sort the waste before the arrival of the truck).

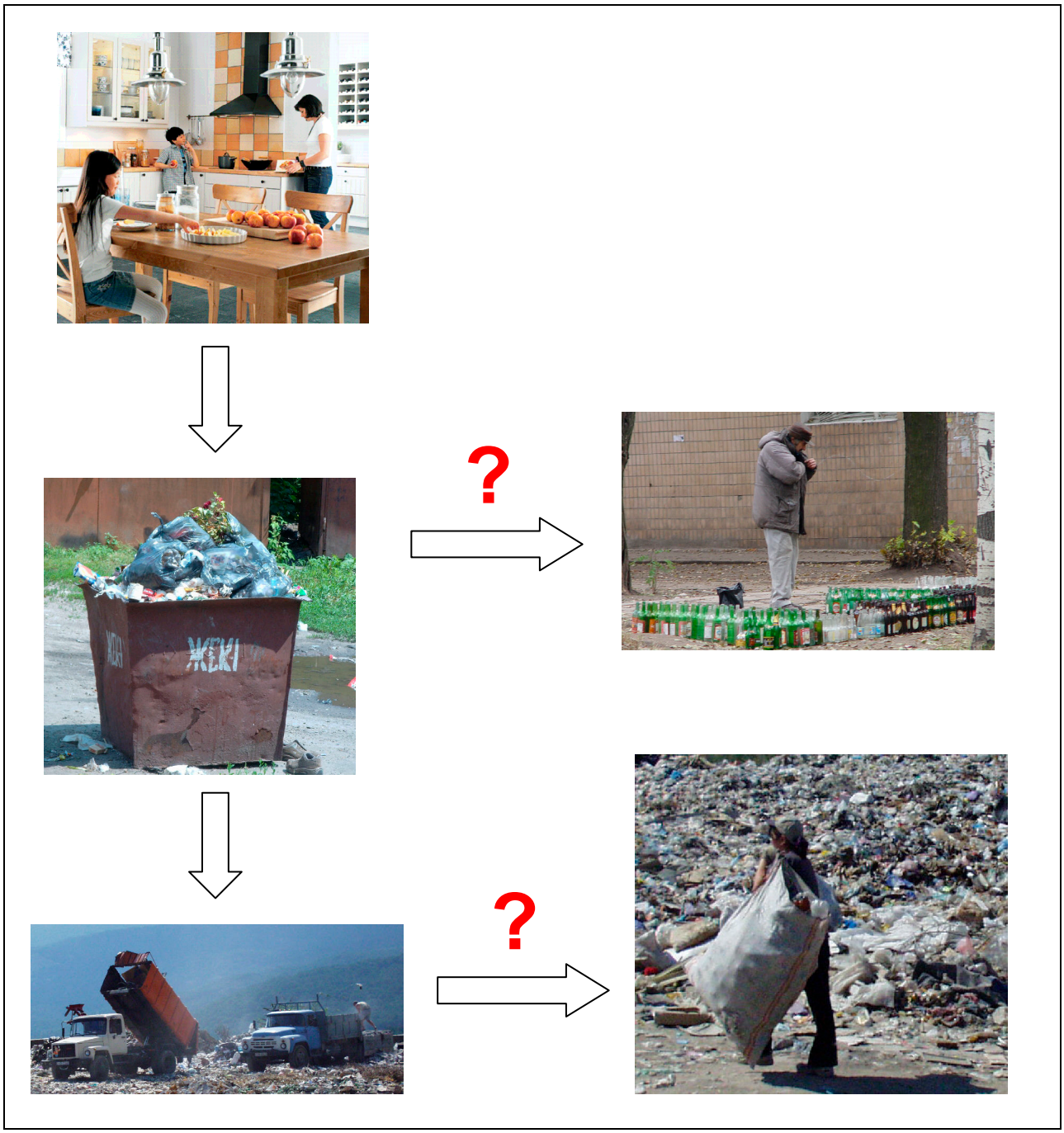


***Figure 1***

As follows, a first estimation of the job of the scavengers gives that they recover a part of materials of the produced household waste:

| Material | Recovered / Produced |
|---|---|
| Metals | 58% |
| Glass | 10% |
| PET | 5% |

## 1.2. Streams of recyclable

The question is: where goes the rest? We have some elements about glass and PET.

### 1.2.1. Glass

The Ukrainian breweries impose to the shops and cafés a condition to be delivered: 90% bottles must be returned. It's an excellent condition for the minimization of the produced waste and it should never be abandoned. As the shops and cafés cannot do themselves, and as there's a lot of pensioners and jobless people trying to earn some money, they buy the empty bottles to ragmen who sort the containers in the yards.

If scavengers can recover 10% of the glass waste, it's mainly because the rest has already be collected and remain only broken glass, wine bottles, fantasy bottles, and mainly included in broken the glass from refuse chutes.

### 1.2.2. PET

It's the gold mine. World rates are so high that a lot of people invested in recycling facilities. Now the plants are operational, they discover they need material to sort. Several shadow markets appeared for PET bottles.

#### 1.2.2.1. Yards

The bottles are always picked by ragmen in the containers. Trucks are passing to buy the bottles. There are several systems of management:

- The ragman stores himself at home and sells directly to the truck (rare)
- The ragman sells at specialized brokers who store and sell to the truck (common)
- The ragman is obliged to sell to the JEK who authorizes him to sort and the JEK stores in a cellar and sells to the truck (more and more often)

#### 1.2.2.2. Landfills

The bottles are always picked by scavengers at the downloading of the collection trucks. From time to time, scavengers are exploring old waste, but mainly for metals. Trucks of recycling companies are passing to buy the bottles. There are several systems of management:

- Organisation:
  - The scavengers work alone
  - The scavengers are organised in teams with a team leader
- Sales
  - The scavenger stores himself on the landfill and sells directly to the truck (very rare)
  - The team leader sells to the truck and retrocedes 50% to the scavengers (common)
  - The scavengers or the team leaders are obliged to sell to the Head of the landfill who authorizes them to sort and the Head of the landfill sells to the truck and retrocedes a part to the scavengers (more and more often)

## 1.3. Implementation of transfer stations

It's useful to implement not transfer stations but sort-transfer stations. The first objective is to pick out the undesirable waste: batteries, aerosols, solvents, tyres, etc. that can cause on the landfill problems of quality of the leachate and quality of the biogas. Usually in EU the waste are spread and 1 or 2 employees check the waste and sort the undesirable (that will be sent to specialized treatment facilities) and then push the waste in the transfer semi-trailer.

But as far the waste is sorted, why not to recover 1 or 2 materials? This sorting can be easily done with a downloading hopper and a simple conveyor. So the waste is spread and several employees on the sides of the conveyor can easily pick out the interesting waste, either undesirable, either recyclable. The refuse goes to the transfer semi-trailer, with or without an intermediary hopper.

This equipment has a cost and needs m² of premises. It's an additional investment comparing to a simple transfer station. It's interesting to recover recyclable but we cannot size the equipment and *a fortiori* we cannot recommend this solution if we don't know the quantity of PET bottles that can enter in the transfer station, so the quantity in the trucks, so the quantity in the containers.

Unfortunately, such a study (inquiry among ragmen) would cost something like 2000 UAH and the Tacis Programme cannot afford that.

# 2. Inquiry on landfills

## 2.1. Marioupol, Ordzhonikidze landfill

### 2.1.1. Collection

At the landfill there are 14 scavengers occupied with selective collection, 1 weigher and 2 keepers.

The following materials are collected:

- scrap metal (1,5 -2 tons per day, at the price 0,7 UAH per kg)
- broken glass (1,6 – 2,8 tons per day, at the price 0,18 UAH per kg)
- plastic (only PET-bottles 150 kg per day, at the price 1,2 UAH per kg)

### 2.1.2. Organisation

#### 2.1.2.1. Organization of work

The waste truck empties the waste on the platform, teams of scavengers sort out recyclable waste, then pass over to the unprocessed parts of the dumpsite. The bulldozer pulls the waste when the platform is filled.

#### 2.1.2.2. Organization of the teams

Waste sorters are divided into 3 groups: for scrap metal, broken glass and plastic. Each group is occupied exclusively with collection of their particular kind of waste. The largest group consisting of 7 persons is occupied with scrap metal collection. The team leader works together with the other scavengers and receives premium only for organization of work (20 UAH for 1 ton). The same principle works for other teams: plastic collection team consists of 3 persons, glass collection team of 4-6 persons. Team leader weighs the collected waste and maintains records of the collection in his team. Each team leader has a mobile phone.

The collected waste is removed from the dumpsite daily.

#### 2.1.2.3. Others

At the landfill, there are 2 bulldozers and electronic truck scales.

The gatekeeper’s cabin and the weighing station are supplied with electricity; water is delivered and kept in the cistern.

### 2.1.3. Comments

Waste sorting is organized unsatisfactorily. Every day nearly 18 tons of plastic (including PVC), 25 tons of glass and 3 tons of metal are buried under the ground.

There are no wildfires at the dumpsite.

## 2.2. Marioupol, Primorsky SHW landfill

### 2.2.1. Collection

At the landfill, there are 20 scavengers, occupied with the selective collection, and 1 keeper.

The following materials are collected:

- scrap metal (2 -3 tons per day, at the price 0,7 UAH per kg)
- broken glass (4 – 6 tons per day, at the price 0,18 UAH per kg)

- plastic (only PET-bottles 200 kg per day, at the price 1,2 UAH per kg)

### 2.2.2. Organisation

#### 2.2.2.1. Organization of work

The waste truck empties the waste on the platform, teams of scavengers sort out recyclable waste, then pass over to the unprocessed parts of the dumpsite. The bulldozer pulls the waste when the platform is filled.

#### 2.2.2.2. Organization of the teams

Waste sorters are divided into 3 groups: for scrap metal, broken glass and plastic. Each group is occupied exclusively with collection of their particular kind of waste. The largest group consisting of 10 persons is occupied with scrap metal collection. The team leader works together with the other scavengers and receives premium only for organization of work. (20 UAH for 1 ton). The same principle works for other teams: plastic collection team consists of 4 persons, glass collection team of 6-7 persons. Team leader weighs the collected waste and maintains records of the collection in his team. Each team leader has a mobile phone.

The collected waste is removed from the dumpsite daily.

#### 2.2.2.3. Others

At the dumpsite there are 2 bulldozers, the gatekeeper's cabin is supplied with electricity.

### 2.2.3. Comments

Waste sorting is organized unsatisfactorily. Every day nearly 19 tons of plastic (including PVC), 27 tons of glass and 3 tons of metal are buried under the ground.

There are fire hazards at the dumpsite.

This landfill is supposed to be closed and to have stopped its operation. But on June 2006, a lot of collection trucks were downloading.

## 2.3. Makeyevka, Bazhanovsky landfill

### 2.3.1. Collection

At the landfill, there are 35 scavengers, occupied with the selective collection, and 2 keepers.

The following materials are collected:

- scrap metal (4 -5 tons per day, at the price 0,8 UAH per kg)
- broken glass (8 tons per day, at the price 0,2 UAH per kg)
- plastic (PET-bottles 700 kg per day, at the price 1,4 UAH per kg; PVC and polypropylene 500 kg per day, at the price 0,8 UAH per kg)

### 2.3.2. Organisation

#### 2.3.2.1. Organization of work

The waste truck empties the waste on the platform, teams of scavengers sort out recyclable waste, then pass over to the unprocessed parts of the dumpsite. The bulldozer pulls the waste when the platform is filled.

In the southern part of the dumpsite, waste on the old closed platform is processed by the bulldozer and magnetic crane. Only metal and glass are selected.

#### 2.3.2.2. Organization of the teams

Waste sorters have no clear organization, they sort and select all the waste. 2 team leaders control the work (there are 2 teams consisting of 30 and 5 persons), collect waste together with all the other scavengers and weigh it. Team leaders are accountable to the head of the dumpsite. Head of the dumpsite personally manages sales of the collected material.

The collected waste is removed from the dumpsite daily.

#### 2.3.2.3. Others

At the dumpsite there are 2 bulldozers, magnetic crane, “counter” weigh scales and 200 kg weighing machine.

The gatekeeper’s cabin and the weighing station are supplied with electricity; there is no water supply.

### 2.3.3. Comments

Work on waste sorting is organized unsatisfactorily. Every day nearly 16 tons of plastic (including PVC), 19 tons of glass and 2 tons of metal are buried under the ground.

At the dumpsite, there are many fire hazards.

## 2.4. Donetsk, Larino landfill

### 2.4.1. Collection

At the landfill, there are 40 scavengers, occupied with selective collection, and 1 keeper.

The following materials are collected:

- scrap metal (4 -5 tons per day, at the price 0,8 UAH per kg)
- broken glass (10 tons per day, at the price 0,2 UAH per kg)
- plastic (PET-bottles 900 kg per day, at the price 1,4 UAH per kg; PVC and polypropylene 400 kg per day, at the price 0,8 UAH per kg)

### 2.4.2. Organisation

#### 2.4.2.1. Organization of work

The waste truck empties the waste on the platform, teams of scavengers sort out recyclable waste, then pass over to the unprocessed parts of the dumpsite. The bulldozer pulls the waste when the platform is filled.

#### 2.4.2.2. Organization of the teams

Waste sorters have no clear organization, they sort and select all the waste. The sorters are divided into groups consisting of 2-3 persons. A person authorized by the head of the dumpsite is in charge of the products’ acceptance. Head of the dumpsite personally manages sales of the collected material.

The collected waste is removed from the dumpsite daily.

#### 2.4.2.3. Others

At the dumpsite there are 2 bulldozers, “counter” weigh scales and 500 kg weighing machine.

The gatekeeper’s cabin and the weighing station are not supplied with electricity (wires were stolen and sold as scrap metal); there is no water supply.

### 2.4.3. Comments

Waste sorting is organized unsatisfactorily. Every day nearly 20 tons of plastic (including PVC), 20 tons of glass and 4 tons of metal are buried under the ground.

At the dumpsite, there are many fire hazards.

## 2.5. Yenakievo, Central Town Landfill

### 2.5.1. Collection

At the landfill, there are 12 scavengers, occupied with selective collection, and 2 keepers.

The following materials are collected:

- scrap metal (0,8 -1 tons per day, at the price 0,65 UAH per kg)
- broken glass (2 tons per day, at the price 0,2 UAH per kg)
- plastic (PET-bottles 150 kg per day, at the price 1,2 UAH per kg; PVC and polypropylene 100 kg per day, at the price 0,6 UAH per kg)
- scrap paper (300 kg per day, at the price 0,2 UAH per kg)

### 2.5.2. Organisation

#### 2.5.2.1. Organization of work

The waste truck empties the waste on the platform, teams of scavengers sort out recyclable waste, then pass over to the unprocessed parts of the dumpsite. There is no bulldozer.

#### 2.5.2.2. Organization of the teams

Waste sorters have no clear organization; they sort and select all the waste. The keeper controls the work, accepts the collected waste and weighs it. He is accountable to the head of the dumpsite. Head of the dumpsite personally manages sales of the collected material.

The collected waste is removed from the dumpsite as soon as the volume needed for transportation to the customer is accumulated.

#### 2.5.2.3. Others

At the dumpsite, there are “counter” weigh scales and 200 kg weighing machine.

The gatekeeper’s cabin is not supplied with electricity; there is no water supply.

### 2.5.3. Comments

Waste sorting is organized unsatisfactorily.

At the dumpsite, there are many fire hazards. Sewage waters are drained to the landfill without any processing.

## 2.6. Snezhnoye, town landfill

### 2.6.1. Collection

At the landfill, there are 3-5 scavengers, occupied with selective collection, and 1 keeper.

The following materials are collected:

- scrap metal (0,5 -1 tons per day, at the price 0,7 UAH per kg)
- broken glass (1 ton per day, at the price 0,18 UAH per kg)

- plastic (PET-bottles 100 kg per day, at the price 1,4 UAH per kg; PVC and polypropylene 100 kg per day, at the price 0,8 UAH per kg)

### 2.6.2. Organisation

#### 2.6.2.1. Organization of work

The waste truck empties the waste on the platform, teams of scavengers sort out recyclable waste, then pass over to the unprocessed parts of the dumpsite. The bulldozer pulls the waste when the platform is filled.

#### 2.6.2.2. Organization of the teams

Waste sorters have no clear organization; they sort and select all the waste. The team leader controls the work and accepts the collected material. Head of the dumpsite personally manages sales of the collected material.

The collected waste is removed from the dumpsite when the required volume is accumulated.

#### 2.6.2.3. Others

At the dumpsite there are “counter” weigh scales, 200 kg weighing machine and 1 bulldozer.

The gatekeeper’s cabin is not supplied with electricity; water is delivered and kept in the cistern.

### 2.6.3. Comments

Waste sorting is organized unsatisfactorily.

At the dumpsite, there are many fire hazards.

## 2.7. Debaltsevo, Uglegorsky landfill

### 2.7.1. Collection

At the landfill, there are 7 scavengers, occupied with selective collection, and 1 keeper.

The following materials are collected:

- scrap metal (0,9 tons per day, at the price 0,5 UAH per kg)
- broken glass (1 ton per day, at the price 0,15 UAH per kg)
- plastic (PET-bottles 150 kg per day, at the price 0,8 UAH per kg; PVC and polypropylene 100 kg per day, at the price 0,5 UAH per kg)

### 2.7.2. Organisation

#### 2.7.2.1. Organization of work

The waste truck empties the waste on the platform, teams of scavengers sort out recyclable waste, then pass over to the unprocessed parts of the dumpsite. There is no bulldozer.

#### 2.7.2.2. Organization of the teams

Waste sorters have no clear organization; they sort and select all the waste. The team leader controls the work and accepts the collected material. Head of the dumpsite personally manages sales of the collected material.

The collected waste is removed from the dumpsite when the required volume is accumulated.

#### 2.7.2.3. Others

At the dumpsite, there are “counter” weigh scales and 200 kg weighing machine.

The gatekeeper’s cabin is not supplied with electricity; there is no water supply.

### 2.7.3. Comments

Waste sorting is organized unsatisfactorily.

At the dumpsite, there are no wildfires.

## 2.8. Khartsizsk, “UkrEkologia”

### 2.8.1. Collection

At the landfill, there are 25 scavengers, occupied with selective collection, and 1 keeper.

The following materials are collected:

- scrap metal (1,5 -2 tons per day, at the price 0,7 UAH per kg)
- broken glass (2 tons per day, at the price 0,2 UAH per kg)
- plastic (PET-bottles 200 kg per day, at the price 0,8 UAH per kg; PVC and polypropylene 150 kg per day, at the price 0,6 UAH per kg)

### 2.8.2. Organisation

#### 2.8.2.1. Organization of work

The waste truck empties the waste on the platform, teams of scavengers sort out recyclable waste, then pass over to the unprocessed parts of the dumpsite. The bulldozer pulls the waste when the platform is filled.

#### 2.8.2.2. Organization of the teams

Waste sorters are divided into 3 groups: for scrap metal, broken glass and plastic. Each group is occupied exclusively with selection of their particular kind of waste. Team leader controls the work of all the scavengers. The team collecting scrap metal consists of 11 persons, the plastic collection team of 5 persons and the glass collection team of 9 persons. The team leader weighs the collected waste and maintains records of the collection. The collected waste is removed from the dumpsite when the required volume is accumulated.

#### 2.8.2.3. Others

At the dumpsite there are 4 bulldozers, magnetic crane, “counter” weigh scales and 200 kg weighing machine.

The gatekeeper’s cabin and box stall are supplied with electricity; water is delivered and kept in the cistern.

### 2.8.3. Comments

Waste sorting is organized satisfactorily.

At the dumpsite, there are no wildfires.

# 2.9. Donetsk, Petrovskyi SHW landfill

## 2.9.1. Collection

At the landfill, there are 35 scavengers, occupied with selective collection, and 2 keepers.

The following materials are collected:

- scrap metal (4-5 tons per day, at the price 0,8 UAH per kg)
- broken glass (8 tons per day, at the price 0,2 UAH per kg)
- plastic (PET-bottles 700 kg per day, at the price 1,45 UAH per kg; PVC and polypropylene 600 kg per day, at the price 0,9 UAH per kg)

## 2.9.2. Organisation

### 2.9.2.1. Organization of work

The waste truck empties the waste on the platform, teams of scavengers sort out recyclable waste, then pass over to the unprocessed parts of the dumpsite. The bulldozer pulls the waste when the platform is filled.

### 2.9.2.2. Organization of the teams

Waste sorters have no clear organization; they sort and select all the waste according to the following principle: one group collects plastic and sheet metal, and the other collects only glass. The groups consist of 2-3 persons. Waste is accepted by the people who are not occupied with the sorting, under the control of the person authorized by the head of the dumpsite. Head of the dumpsite personally manages sales of the collected material.

The collected waste is removed from the dumpsite daily.

### 2.9.2.3. Others

At the dumpsite there are “counter” weigh scales, 500 kg weighing machine and 1 bulldozer.

The gatekeeper’s cabin and box stalls are supplied with electricity and water.

## 2.9.3. Comments

Waste sorting is organized satisfactorily.

At the dumpsite, there are some fire hazards.

| Landfill | TOTAL | Average | Marioupol Ordzhonikidze | Marioupol Primorsky | Makeyevka Bazhanovsky | Donetsk Larino | Yenakievo Central | Snezhnoye | Debaltsevo Uglegorsky | Khartsizsk UkrEkologia | Donetsk Petrovsky |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Scavengers | 193 | | 14 | 20 | 35 | 40 | 12 | 5 | 7 | 25 | 35 |
| Team leaders | | 21 | | | 2 | | | | | | |
| **Recovered** | 9 018 300 | | | | | | | | | | |
| Metal | 4 968 000 | | 367 500 | 525 000 | 1 080 000 | 1 080 000 | 175 500 | 157 500 | 135 000 | 367 500 | 1 080 000 |
| kg/day | 22 050 | 2 450 | 1 750 | 2 500 | 4 500 | 4 500 | 900 | 750 | 900 | 1 750 | 4 500 |
| UAH/kg | | 0,71 | 0,7 | 0,7 | 0,8 | 0,8 | 0,65 | 0,7 | 0,5 | 0,7 | 0,8 |
| Tons/year | 6615 | 735 | 525 | 750 | 1350 | 1350 | 270 | 225 | 270 | 525 | 1350 |
| Glass | 2 287 800 | | 118 800 | 270 000 | 480 000 | 600 000 | 120 000 | 54 000 | 45 000 | 120 000 | 480 000 |
| kg/day | 39 200 | 4 356 | 2 200 | 5 000 | 8 000 | 10 000 | 2 000 | 1 000 | 1 000 | 2 000 | 8 000 |
| UAH/kg | | 0,19 | 0,18 | 0,18 | 0,20 | 0,20 | 0,20 | 0,18 | 0,15 | 0,20 | 0,20 |
| Tons/year | 11760 | 1307 | 660 | 1500 | 2400 | 3000 | 600 | 300 | 300 | 600 | 2400 |
| PET | 1 282 500 | | 54 000 | 72 000 | 294 000 | 378 000 | 54 000 | 42 000 | 36 000 | 48 000 | 304 500 |
| kg/day | 3 250 | 361 | 150 | 200 | 700 | 900 | 150 | 100 | 150 | 200 | 700 |
| UAH/kg | | 1,21 | 1,20 | 1,20 | 1,40 | 1,40 | 1,20 | 1,40 | 0,80 | 0,80 | 1,45 |
| Tons/year | 975 | 108 | 45 | 60 | 210 | 270 | 45 | 30 | 45 | 60 | 210 |
| PVC+Polypropylene | 462 000 | | | | 120 000 | 96 000 | 18 000 | 24 000 | 15 000 | 27 000 | 162 000 |
| kg/day | 1 950 | 279 | | | 500 | 400 | 100 | 100 | 100 | 150 | 600 |
| UAH/kg | | 0,71 | | | 0,80 | 0,80 | 0,60 | 0,80 | 0,50 | 0,60 | 0,90 |
| Tons/year | 585 | 84 | 0 | 0 | 150 | 120 | 30 | 30 | 30 | 45 | 180 |
| Paper | 18 000 | | | | | | 18 000 | | | | |
| kg/day | 300 | 300 | | | | | 300 | | | | |
| UAH/kg | | 0,20 | | | | | 0,20 | | | | |
| Tons/year | 90 | 90 | 0 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 0 |
| **Landfilled**[1] | | | | | | | | | | | |
| Metal | | | | | | | | | | | |
| Tons/day | 12 | 1 | 3 | 3 | 2 | 4 | | | | | |
| Tons/year | 3600 | 400 | 900 | 900 | 600 | 1200 | 0 | 0 | 0 | 0 | 0 |
| Glass | | | | | | | | | | | |
| Tons/day | 91 | 10 | 25 | 27 | 19 | 20 | | | | | |
| Tons/year | 27300 | 3033 | 7500 | 8100 | 5700 | 6000 | 0 | 0 | 0 | 0 | 0 |
| Plastics | | | | | | | | | | | |
| Tons/day | 73 | 8 | 18 | 19 | 16 | 20 | | | | | |
| Tons/year | 21900 | 2433 | 5400 | 5700 | 4800 | 6000 | 0 | 0 | 0 | 0 | 0 |

| Landfill | TOTAL | Average | Marioupol Ordzhonikidze | Marioupol Primorsky | Makeyevka Bazhanovsky | Donetsk Larino | Yenakievo Central | Snezhnoye | Debaltsevo Uglegorsky | Khartsizsk UkrEkologia | Donetsk Petrovsky |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **SHW** | | | | [2] | | | | | | | |
| Tons/year | 456 000 | 50 667 | 75 000 | 0 | 53 000 | 175 000 | 24 000 | 5 500 | 13 500 | 20 000 | 90 000 |
| Tons/day | 1 520 | 169 | 250 | | 177 | 583 | 80 | 18 | 45 | 67 | 300 |
| Metal | | | | | | | | | | | |
| kg/day | 38 000 | 4 750 | 6 250 | 0 | 4 425 | 14 575 | 2 000 | 450 | 1 125 | 1 675 | 7 500 |
| % recovered | 58,03 | | 28,00 | | 101,69 | 30,87 | 45,00 | 166,67 | 80,00 | 104,48 | 60,00 |
| Glass | | | | | | | | | | | |
| kg/day | 112 480 | 14 060 | 18 500 | 0 | 13 098 | 43 142 | 5 920 | 1 332 | 3 330 | 4 958 | 22 200 |
| % recovered | 10,46 | | 3,57 | | 18,32 | 6,95 | 10,14 | 22,52 | 9,01 | 12,10 | 10,81 |
| PET | | | | | | | | | | | |
| kg/day | 60 800 | 7 600 | 10 000 | 0 | 7 080 | 23 320 | 3 200 | 720 | 1 800 | 2 680 | 12 000 |
| % recovered | 5,35 | | 1,50 | | 9,89 | 3,86 | 4,69 | 13,89 | 8,33 | 7,46 | 5,83 |

***Table 1 Results of the inquiry***

[1] This information was given only for 4 landfills.

[2] This landfill is supposed to be closed so there are no figures of disposed waste.

# 3. Synthesis

The Table 1 summarizes the results of the inquiry.

The first lesson is that for the 9 landfills, the business of waste sorting amounts around 9 mln UAH. As it takes into account ¼ of the waste produced on the Oblast, it may be estimated at 36 mln UAH/year.

It's efficient. If we compare the produced SHW and the average composition of household waste, we can estimate the normal production of metal waste, glass waste and PET bottles waste. The result is that the scavengers on landfills should recover 58% of the metal, 10% of the glass, and 5% of the PET bottles produced by the inhabitants.

It confirms that this job is complementary to the role of the "yards ragmen". All day and night long, the containers are visited and sorted by ragmen. Usually it's old people complementing so their pension. They are focused on PET bottles (the best value per kilogram) and glass bottles. We know containers sorted 5 times everyday between 4:00 a.m. and 8:00 a.m.! The PET bottles are sold in circuits we cannot investigate. The glass bottles are sold to the shops and cafés because they must return to the breweries 90% bottles as a condition to be delivered. So only remain in containers bottles of wine, spirits, etc. and broken glass.

For PET, around 5% are recovered on landfill and maybe 50% in the yards. If the tariffs are the same, it means that it's around 13 mln UAH/year. So the recovering of recyclable should generate for the whole Oblast something like 50 mln UAH/year. This amount must be compared to the recovery of the fees that was for 2005 20-25 mln UAH!

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