



## **Annex 5**

### **Financial Evaluation to the cost recovery system for port reception facilities**

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# 1 General

This financial evaluation relates to the Croatian State ports which provided most of the information for that study.

There are 6 State ports in Croatia (officially defined as “public ports open for international traffic, of special interest for the Republic of Croatia”):

- Rijeka
- Zadar
- Sibenik
- Split
- Ploce
- Dubrovnik

Each of these ports must provide facilities for collecting ship generated liquid and solid wastes or cargo residues and to develop and implement a port waste management plan which has to be approved by the Harbor Master’s Office.

To fulfill those obligations each Port Authority has contracts with concessionaires for the collection and the processing of ship generated waste. In some ports the concession for the collection of solid wastes is granted to the port company as a prime contractor, the concession contract covering various port services. That is the case of the ports of Zadar, Sibenik, Ploce and Dubrovnik.

When it comes to the financial aspect of the concession it appears that:

- None of these PA’s play a role in the cost recovery for these services
- Most of the tariffs are set by the contractors
- The concessionaires have to pay a fixed and a variable fee for the concession, the PA is in no position to control the variable amount
- For small State ports (Ploce, Sibernik , Zadar) the PA has only a minimal staff

It should be recall that pursuant to article 63 of the Maritime Domain and Sea Ports Act “those concessionaires who perform their activities in public ports shall be obliged to announce port fees for every type of activity and service. Port Authority shall fix the highest amount of the fee. In order to ensure competition in the port, if it is finds that objective circumstances indicate un-competitiveness of the port, the port authority may reduce the tariff fully or selectively, keeping in mind the concessionaire’s ability to adapt his business operations to the reduced tariff.”And according to the article 112 of the same Act “A concessionaire shall be fined ... if he fails to publish the list of port fees refer to in article 63.”The Ordinance concerning conditions and way of maintaining order in ports specify that” the fee (compensation rate) is fixed by the Minister based on suggestion from port authority and it is determined according to gross tonnage, category and type of ship. The port authority is obliged to publicize the fees in appropriate places.”

## 2 Tariffs

For each port there are separate tariffs for solid waste and for liquid waste.

### 2.1 Solid waste

The tariffs for solid waste differ per port. Some tariffs are in Kunas (HRK), some in Euros (EUR) and some in US Dollars (USD).

The tariffs are valid for each visit of a ship and the amount is dependent on the size of the ship. This means that a ship that enters the port has to pay irrespective of whether they discharge solid waste or not. However the PA has no control over this and the concessionaire is in no position to enforce this.

The level of the tariffs is also different per port, in Table 1 all tariffs have been calculated in HRK, using the following rate of exchange:

- HRK/USD 5
- HRK/ Euro 7.1

**Table 1 Current tariffs for solid waste per call (2009)**

All ports	Rijeka	Zadar	Sibenik	Split local	Split foreign	Ploce	Dubrovnik
GT	HRK/ port call	HRK/ port call	HRK/ port call	HRK/ port call	HRK/ port call	HRK/ port call	HRK/ port call
0-500	363	435	170	75	320	575	284
501-1000	475	575	227	105	420	767	284
1000-1500	475	575	227	105	420	1434	369
1500-2500	775	930	369	195	680	1434	369
2500-10000	875	1055	426	230	770	1534	675
over 10000 Passenger Ship >100	900 1115	1085	497		790	1534	1115

Source: Individual Port Authorities

Most tariffs are for 1 collection per port entry.

It is clear that there are huge differences between the tariffs per port. The concessionaires did not give their cost prices, so it is difficult to justify (and understand) the differences and it will complicate harmonization.

The other ports in the Adriatic Sea (outside Croatia) do not publish their tariffs with the exception of 2 Italian ports (Ancona and Ravenna).

**Table 2 Current tariffs for solid waste per day in Ancona (2009)**

Port of Ancona (Italy)	EUR per day	HRK per day
0-3000	34	241
3000-6000	48	341
>6000	87	618
passenger ship	146	1.037

Source: Port Authority of Ancona

**Table 3 Current tariffs for solid waste per day in Ravenna (2009)**

Port of Ravenna (Italy)	EUR per day	HRK per day
0-4000	14	99
4001-10000	15	107
10001-20000	28	199
>20001	40	284
passenger ship	60	426

Source: Port Authority of Ravenna

These Italian ports use a fixed tariff per day and a variable tariff for collected waste over 1 m<sup>3</sup>. The variable tariff includes possibilities of increases or reductions according to the management of the wastes on board of the ship. For cargo ships the Italian tariffs are lower than the tariffs of Croatian ports for a short stay. It seems logical that the Italian ports use a separate tariff for passenger ships.

The tariffs (table 4) for the collection of solid waste in the port of Bar in Montenegro are prescribed by the Port of Bar Authority while the service is provided by municipal waste collection company. The daily rate is not dependent on the amount of garbage delivered by ship.

**Table 4 Current tariffs for solid waste per day in Bar (2009)**

Port of Bar (Montenegro)	EUR per day	HRK per day
0-500	17,70	126
500-1500	20,70	147
1501-5000	23,65	168
5001-10000	28,00	199
10001-15000	32,50	231
15001-30000	36,95	262
30001-50000	41,45	294
50001-70000	47,50	337
70001-100000	56,10	398
>100000	64,95	461

Source: Port Authority of Bar

The port of Bar uses more categories for tariffs and the quantity of delivered waste is irrelevant. The tariffs are in the same range as in Italy and are lower than the tariffs of Croatian ports for a short stay.

The port of Koper (Slovenia) charges EUR 41,73 per m<sup>3</sup> for mixed (unsorted) municipal refuse. For secondary sorted raw materials the charges per m<sup>3</sup> vary from EUR 16,69 to EUR 1,92.

## 2.2 Liquid waste

The tariffs for liquid waste differ per port. Some tariffs are in HRK, some in EUR and some in USD.

The tariffs are given/fixed by the concessionaires, the tariffs differ per category of waste and the terminology for the categories of waste differs per port and per concessionaire.

The level of the tariffs is also different per port, in Table 5 all tariffs have been calculated in HRK, using the following rate of exchange:

- HRK/USD 5
- HRK/ EUR 7.1

**Table 5 Current tariffs for liquid waste (2009)**

HRK	Rijeka	Split	Ploce	Dubrovnik
Sewage per m <sup>3</sup>	105			
Oily waters per ton*	750	760	2768	
Hazardous refuse per ton*		1050		
Oil waste material per ton*				570
Slops per m <sup>3</sup>				190

Source: concessionaires

It is clear that there are huge differences between the tariffs per port. The concessionaires did not give their cost prices, so it is difficult to justify the differences and it will complicate harmonization.

In the port of Bar (Montenegro) the disposal of liquid waste is charged by the company providing the services on a case to case basis, but the prices charged by the same company to the shipyard in Bijela can be used as an indication. (table 5)

**Table 6 Tariffs for liquid**

Port of Bar (Montenegro)	EUR per ton	HRK per ton
Slops and bilgewater < 200 tonnes	45,00	320
Slops and bilgewater > 200 tonnes	41,00	291
Sludge	53,00	376

Source: Port Authority of Bar

Therefore the tariffs in Bar appear to be lower than the tariffs in the Croatian Ports.

### 2.3 Comparison

Due to the different cost recovery systems used in the various countries in the Adriatic sea it is very difficult to compare the level of tariffs. The system can be characterized per country as follows:

- Solid waste:
  - Italy (Ancona and Ravenna) a fixed tariff per day and a variable tariff above a certain quantity
  - Montenegro (BAR) a fixed tariff per day
  - Slovenia (Koper) a Tariff per m3
  - Croatia the published tariffs are per call, but a number of concessionaires charge their clients per m3.
- Liquid waste:
  - Montenegro a tariff per ton
  - Croatia a tariff per m3 or per ton.

Italy and Montenegro have an indirect system for cost recovery in line with European regulations. Slovenia and Croatia have a direct system for cost recovery of solid waste facilities, which is not in line with European regulations. For liquid waste Montenegro and Croatia have a direct system for cost recovery of liquid waste facilities, which is not in line with European regulations. It is clear that Slovenia and Croatia should adapt their system to an indirect system in line with European regulations.

## 3 Revenues

For competitive reasons the concessionaires were reluctant to provide information about their revenues regarding the concession contracts for ship generated waste. In most contracts between the PA and the concessionaire there is a clause that a variable fee has to be paid to the PA. In most contracts this variable fee is set at 1% of revenue, only in Rijeka it is 3% of revenue. The revenue in tables 7 to 10 have been provided by the individual port authorities.

### 3.1 Liquid waste

The revenue regarding liquid waste is in table 7 and 8 for 2007 and 2008

**Table 7 Revenue concessionaires for liquid waste in 2007**

HRK	2007						
Revenu contractors Liquid waste	Rijeka	Zadar	Sibenik	Split	Ploce	Dubrovnik	Total
Cian		208.000	121.128	586.208	18.750	563.800	1.497.886
Platanus						445.700	445.700
Rijekatank	236.001						236.001
Ind Eko	49.848						49.848
Ecooperativa	63.519						63.519
Dezinsekcija	259.867						259.867
<b>Total</b>	<b>609.235</b>	<b>208.000</b>	<b>121.128</b>	<b>586.208</b>	<b>18.750</b>	<b>1.009.500</b>	<b>2.552.821</b>

Source: Individual Port Authorities

The revenue for the Port of Ploce is regarded by the management of the PA as too low.

**Table 8 Revenue concessionaires for liquid waste in 2008**

HRK	2008						
Revenu contractors Liquid waste	Rijeka	Zadar	Sibenik	Split	Ploce	Dubrovnik	Total
Cian		250.900	58.160	639.264	30.000	????	978.324
Platanus						????	0
Rijekatank	261.802	100.000					361.802
Ind Eko	287.981						287.981
Ecooperativa	0						0
Dezinsekcija	249.011	44.000					293.011
Ciklon		0					0
<b>Total</b>	<b>798.794</b>	<b>394.900</b>	<b>58.160</b>	<b>639.264</b>	<b>30.000</b>	<b>0</b>	<b>1.921.118</b>

Source: Individual Port Authorities

The revenue for the Port of Dubrovnik for 2008 was not available, the revenue for the Port of Ploce is regarded by the management of the PA as too low. The revenue 2008 in the port of Sibenik is less than half the revenue 2007, the reason might be that the fee 2008 is only for a half year.

### 3.2 Solid waste

The revenue regarding solid waste is in table 9 and 10 for 2007 and 2008. The tables show only the revenues of the concessionaires of the ports of Rijeka and Split. For the other ports the concessionaire being the port company these



revenues cannot be isolated from the other revenues related to the other services provided under the prime concession contract.

**Table9 Revenue concessionaires for solid waste in 2007**

HRK	2007						
Revenu contractors Solid waste	Rijeka	Zadar	Sibenik	Split	Ploce	Dubrovnik	Total
Cistoca	851.044	0		886.936			1.737.980
<b>Total</b>	<b>851.044</b>	<b>0</b>	<b>0</b>	<b>886.936</b>	<b>0</b>	<b>0</b>	<b>1.737.980</b>

Source: Individual Port Authorities

**Table10 Revenue concessionaires for solid waste in 2008**

HRK	2008						
Revenu contractors Solid waste	Rijeka	Zadar	Sibenik	Split	Ploce	Dubrovnik	Total
Cistoca	774.094	0		744.114			1.518.208
Armizador	39.945						39.945
							0
<b>Total</b>	<b>814.039</b>	<b>0</b>	<b>0</b>	<b>744.114</b>	<b>0</b>	<b>0</b>	<b>1.558.153</b>

Source: Individual Port Authorities

The source of the data regarding revenues as stated in the tables 7-10 is the individual Port Authorities.

Questionnaires were sent to all concessionaires of the State ports and most of them were visited. The questionnaires covered items such as revenue, costs and investments regarding their concession contracts with the Port Authorities. These questions were not answered, hardly any financial data was received from the concessionaires. The reason for not answering varied from:

- It is confidential for competitive reasons
- It is not available because the activities for the concessions are integrated with other activities.

On the basis of the revenue in table 7-10 it is even impossible to give an impression on the profitability of the concession contracts.

The level of the revenue could be manipulated by the concessionaires in order to save a part of the variable concession fee and the individual Port Authorities have hardly means to control this level. The revenue of recent years could be an important indication for a new tariff system.

In a new system new measures and arrangements should be introduced to monitor and control the financial flow of the concessions.

The revenue should cover all costs of the concessionaires.

The liquid waste concessionaires in Rijeka collect the waste and deliver it at the refinery. The refinery charges the concessionaires for laboratory costs and processing. One of the concessionaires invested in an installation to separate oil and water. The installation is not in use for economic reasons (the quantities are

too low to cover even the variable costs. It is clear that the investment costs of the installation are not covered by the revenues, but the costs of the refinery should be covered.

The liquid waste concessionaire in the other ports invested in an installation to separate oil and water. The investment and maintenance costs of the installation should be covered by the revenues as well as the costs of collecting the waste from the ships.

The concessionaires for solid waste are municipal waste collectors. They collect the ship generated waste and process it together with city garbage. These concessionaires did not invest in separate assets for processing ship generated waste. In some cases they invested in ships, trucks and containers for the collection of the ship generated garbage. All costs including investment and maintenance costs of these special assets should be covered by the revenue.

In principle the recovered costs should contain the integral costs price including a part of the fixed costs and the overhead costs of the company. Only in extreme circumstances a private company could afford to cover only the marginal costs of the process. For the public companies (solid waste) it is a political decision whether to cover only marginal costs or integral costs. If these companies cover only marginal costs it is a clear subsidy.

## 4 Revenue per unit

The revenue per unit is calculated per ship call and per m<sup>3</sup> waste.

The number of ship calls is derived from the database of all ship calls after the elimination of small ships to be reconsidered and to be put in line with the category of ship subject to the prior notification requirement and ships that call in the port regularly (more than once a week).

The quantity of delivered waste for the year 2007 have been received from MSTI, the quantities of delivered waste for the year 2008 are based on the pre arrival notifications.

The quantity of delivered waste per ship call is calculated to give an impression on the reliability of the quantitative data.

### 4.1 Liquid waste

Table 11 gives the revenue per unit for the year 2008, table 12 gives the revenues per unit for the year 2007.

**Table 11 revenue per unit for the year 2008**

HRK	2008					
Liquid waste	Rijeka	Zadar	Sibenik	Split	Ploce	Total
revenu contractors	798.794	394.900	58.160	639.264	30.000	1.921.118
Number of ship calls	1.329	460	187	1.367	592	3.935
<b>Revenu per ship call</b>	<b>601,0</b>	<b>858,5</b>	<b>311,0</b>	<b>467,6</b>	<b>50,7</b>	<b>488,2</b>
oil waste in m3	468	379	109	1.075	40	2.071
<b>Revenu per m3</b>	<b>1.706,8</b>	<b>1.042,0</b>	<b>533,6</b>	<b>594,7</b>	<b>750,0</b>	<b>927,6</b>
Waste per ship call	0,35	0,82	0,58	0,79	0,07	0,53

Source: Consultants calculations

The revenue per ship call ranges from 311 HRK to 858 HRK. The revenue per ship call for Ploce is not representative.

**Table12 revenue per unit for the year 2007**

HRK	2007						
Liquid waste	Rijeka	Zadar	Sibenik	Split	Ploce	Dubrovnik	Total
Revenu contractors	609.235	208.000	121.128	586.208	18.750	1.009.500	2.552.821
Number of ship calls	1.558	424	252	1.391	558	950	5.133
<b>Revenu per ship call</b>	<b>391,0</b>	<b>490,6</b>	<b>480,7</b>	<b>421,4</b>	<b>33,6</b>	<b>1.062,6</b>	<b>497,3</b>
Liquid waste in m3	559	313	247	1.028	90	96	2.333
<b>Revenu per m3</b>	<b>1089,9</b>	<b>664,5</b>	<b>490,4</b>	<b>570,2</b>	<b>208,3</b>	<b>10.515,6</b>	<b>1.094,2</b>
Waste per ship call	0.36	0.74	0.98	0.74	0.16	0.10	0.45

Source: Consultants calculations

The revenue per ship call ranges from 391HRK to 1063 HRK. The revenue per ship call for Ploce is not representative.

The revenue per m3 liquid waste ranges from 543 HRK per m3 to 843 HRK per m3. The revenue per m3 for the Port of Dubrovnik does not seem to be representative.

## 4.2 Solid waste

Table 13 gives the revenue per unit for the year 2008, table 14 gives the revenues per unit for the year 2007.

**Table 13 revenue per unit for the year 2008**

HRK	2008		
<b>Solid waste</b>	Rijeka	Split	Total
Revenu contractors	814.039	744.114	1.558.153
Number of ship calls	1.329	1.367	2.696
<b>Revenu per ship call</b>	<b>612,5</b>	<b>544,3</b>	<b>577,9</b>

Source: Consultants calculations

These figures were only available for Rijeka and Split. In the other ports the revenue was integrated with other port services. There are no reliable data for waste in m3 per port for the year 2008.

The average revenue per ship call was HRK 578.

**Table 14 revenue per unit for the year 2007**

HRK	2007		
<b>Solid waste</b>	Rijeka	Split	Total
Revenu contractors	851.044	886.936	1.737.980
Number of ship calls	1.558	1.391	2.949
<b>Revenu per ship call</b>	<b>546,2</b>	<b>637,6</b>	<b>589,3</b>
Solid waste in m3	1448	8022	9470
<b>Revenu per m3</b>	<b>587,7</b>	<b>110,6</b>	<b>183,5</b>
Waste per ship call	0,93	5,77	3,21

Source: Consultants calculations

The average revenue per ship call was HRK 589. The average revenue per m3 was HRK 184. This average was influenced by the relative high quantity of solid waste in Split.

## 5 Fees

The port authority for each port made contracts with concessionaires for the collection of ship generated waste. The concessionaires have to pay a fixed fee and a variable fee to the Port Authority, a summary of these fees is in table 15 for 2007 and in table 16 for 2008.

**Table 15 fee contracts ship generated waste for 2007**

HRK's	2007						
Fee Port Authority	Rijeka	Zadar	Sibenik	Split	Ploce	Dubrovnik	Total
Variable fee liquid waste	6.092	2.080	1.211	5.862	375	10.095	25.716
Fixed fee liquid waste	10.000	1.000	2.500	1.617	2.500	9.000	26.617
Variable fee solid waste	25.531	0	0	8.869	0	0	34.400
Fixed fee solid waste	2.500			4.043	2.500		9.043
<b>Total fees 2007</b>	<b>44.123</b>	<b>3.080</b>	<b>3.711</b>	<b>20.391</b>	<b>7.375</b>	<b>19.095</b>	<b>95.776</b>

Source: Individual Port Authorities

**Table 16 fee contracts ship generated waste for 2008**

HRK's	2008						
Fee Port Authority	Rijeka	Zadar	Sibenik	Split	Ploce	Dubrovnik	Total
Variable fee liquid waste	7.988	3.949	582	6.393	600	0	19.511
Fixed fee liquid waste	10.000	1.000	2.500	1.617	2.500	9.000	26.617
Variable fee solid waste	24.421	0	0	7.441	0	0	31.862
Fixed fee solid waste	5.000			4.043	2.500		11.543
<b>Total fees 2007</b>	<b>47.409</b>	<b>4.949</b>	<b>3.082</b>	<b>19.494</b>	<b>5.600</b>	<b>9.000</b>	<b>89.533</b>

Source: Individual Port Authorities

Above mentioned fees are incomplete, because the fees received from the port companies are missing, the primary contracts with these companies include many services and it is hard to recognize the relevant fees.

The fees collected by the Port Authorities are relatively low, because the role of the Port Authority in the cost recovering and the waste collection process is a limited one.

The variable fees differ per port due to the different level of activities in the port and due to the difference in tariff levels.

The fixed fees are set in the concession contracts, there are differences between ports per contract and the number of concessionaires per port is not equal.