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Optimization of Precious
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Analysis of Exports of
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Devices at Hamburg Port

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Optimization of Precious Metals Recycling: Analysis of Exports of Used Vehicles and Used Electrical and Electronic Devices at Hamburg Port, FKZ 363 01 133

Summary, commissioned by Federal Environment Agency

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1 Introduction

In this study commissioned by the German Federal Environment Agency (Umweltbundesamt, UBA), Öko-Institute - with expert advice by Umicore Precious Metals Refining - analysed the export of used vehicles and electrical and electronic goods from Germany. This latest research project is based on the former study "Materials Flow of Platinum Group Metals" [PGM 2005]. Herein it was stated that an enormous amount of platinum group metals (PGM) leaves Germany by export of used goods and thus PGM are not available for the German recycling industry. A first draft estimation showed that due to these export streams a relevant amount of PGM is lost for recycling, because in the main destination countries a functioning recycling infrastructure does not exist. Littering and diffused losses of secondary resources (especially platinum, palladium and rhodium from automotive catalysts) are the non-sustainable reality in many destination countries, today.

The objective of this short-term study is to investigate the export streams from Germany on the seaway of used vehicles and used electrical and electronic-goods as relevant products with PGM-content. Furthermore, it is important to get a better understanding of the key players (shipping companies, involved trading partners etc.) and the specific market mechanisms. The West African and Middle East regions have been chosen as exemplary destination regions and the seaport of Hamburg as the largest German overseas seaport.

It should be mentioned that the effects of the export of used commodities like cars or electrical and electronic devices could be considered as two sides of one coin. On the one hand, we have to register losses of secondary resources, pollution of the environment and health risks for the people in certain extra-EU destination regions due to the lack of a proper recycling infrastructure and environmental legislation and due to backyard treatments of waste streams (metal recovery by open fire treatments etc.). On the other hand, we have to acknowledge that many people in these extra-EU destination regions live from trade and repair of used goods like cars and electronic devices. Therefore a further important objective of the study is to find out whether existing trade connections between Hamburg (as an example for a port in the developed world) and destinations like West Africa could be used to improve an international circular economy in the future. Consequently the interviews conducted in this study should enhance the transparency on the material flows and give market actors a first idea about recycling perspectives for there own businesses.

The methodology of the project is based on available statistics, secondary literature and interviews with identified important actors in the administration as well as within companies. The study was carried out in the 4th quarter of 2006 and all interviews were carried out in November 2006.

2 Data from Statistics

This chapter gives the results of the statistical investigations on the amount of used cars, exported from Hamburg Port to the main non-EU destinations West Africa and Middle East.

The availability of data on the export of used electrical and electronic goods is very poor for several reasons:

- The used electrical and electronic goods are not listed separately from the new ones in the Foreign Trade Statistics.
- The product group is much more heterogeneous than the cars: TVs, PCs, dish washers, mobile phones,
- The relevant actors are less known. It is assumed, that they are of a greater diversity.

Therefore only some general remarks on the electrical and electronic goods can be found in the conclusions (chapter 4).

2.1 West Africa

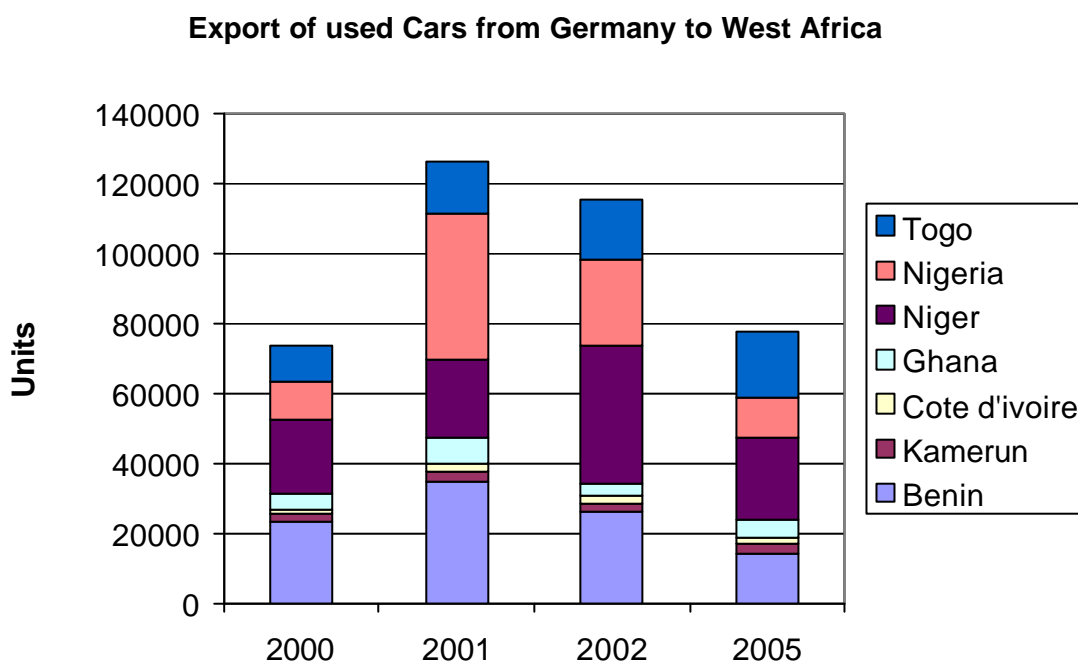
The following map shows the different export destinations for used vehicles and electronic equipment in “West Africa”. The most important countries concerning the export of used vehicles are the neighbouring countries Nigeria, Niger, Benin, Togo and Ghana.

Figure 2.1 Map of West Africa



The Foreign Trade Statistics¹ differentiates between the export of new and used cars. For selected countries the exported units of used cars from Germany are shown in figure 2.2. The increase of the total number of used cars from 2000 to the years 2001 and 2002 are caused by approaching import restrictions in Nigeria - the important final destination in West Africa - for the year 2003 (no import of cars older than 8 years). The exported units for 2005 represent the same magnitude than in 2000.

Figure 2.2 Export of used cars from Germany to selected countries in West Africa



Data: Federal Office for Statistics, Germany

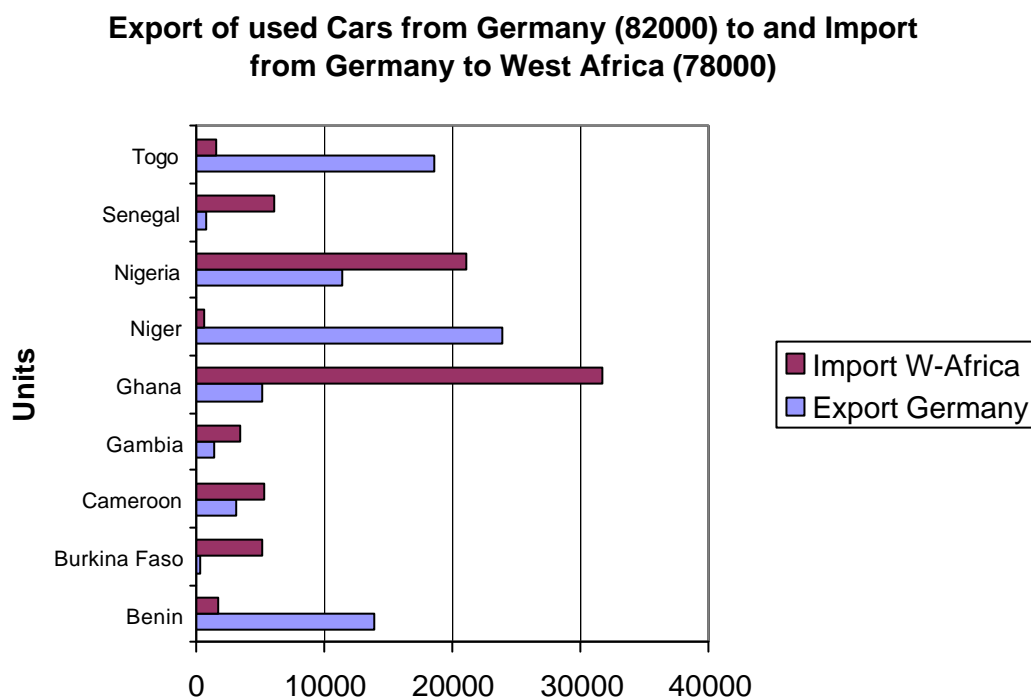
Figure 2.3 presents a comparison between the export-units of used cars from Germany (data source: Foreign Trade Statistics, Germany) and the import-units of used cars in West Africa (data source: UN-comtrade²). The total figures (82,000 and 78,000 respectively) from the two different sources are in a satisfying correspondence. The detailed figures for different countries prove that the destinations in the Foreign Trade Statistics must not necessarily reflect the final destinations of used cars. In the interviews experts clearly pointed out that – for instance - Niger and Benin are final destinations of minor

¹ Federal Office for Statistics, Wiesbaden, Germany.

² <http://unstats.un.org/unsd/comtrade/>

importance. Nigeria on the other hand is a very important destination for used vehicles due to the large population and importance of its economy for West Africa.

Figure 2.3 Export of used cars from Germany to West Africa and import from Germany for selected countries

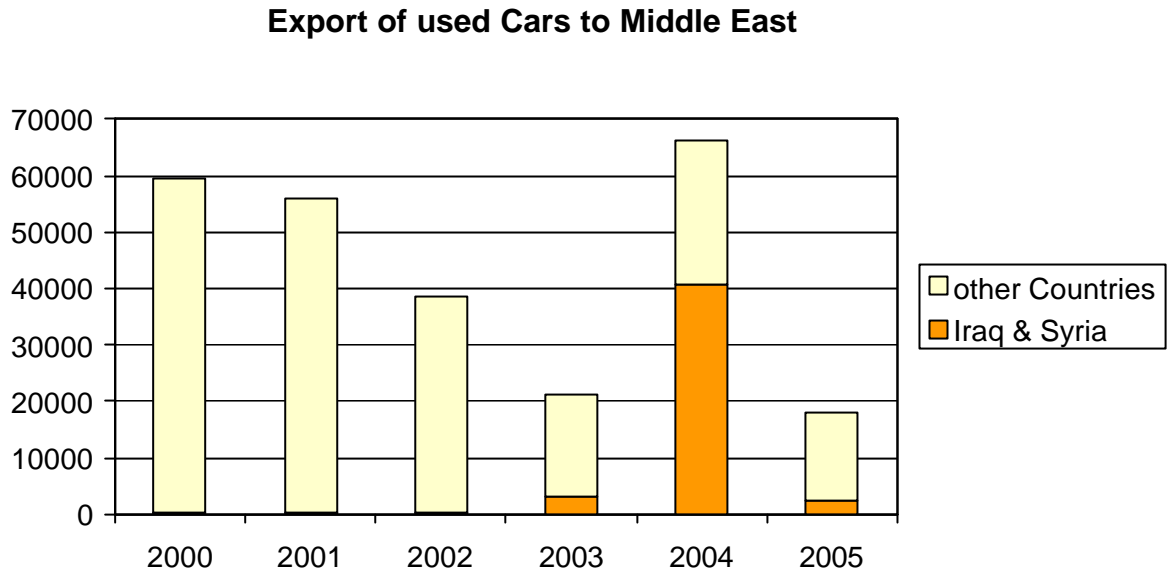


Data: Federal Office for Statistics, Germany, UN-comtrade

2.2 Middle East

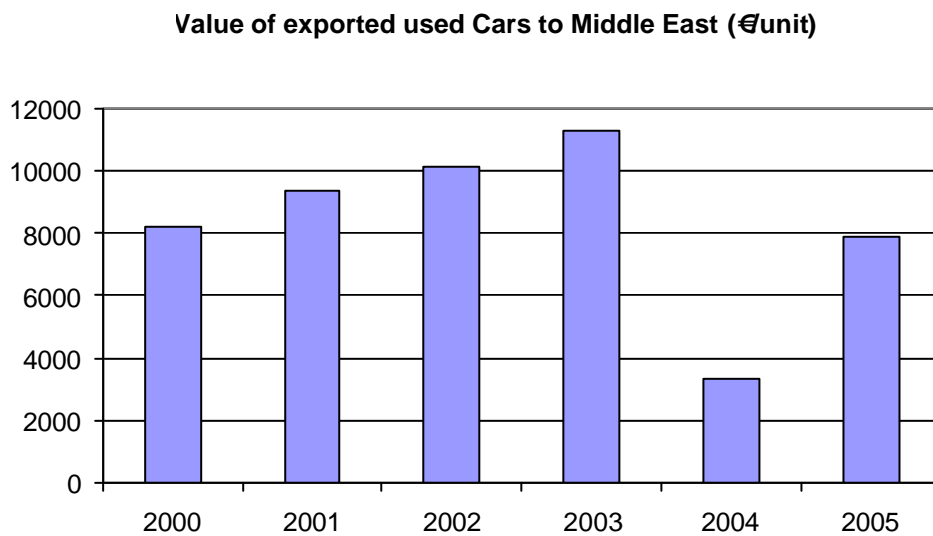
Figure 2.4 and Figure 2.5 show the development of the export of used cars from Germany to the Middle East for the years 2000 to 2005. The units of exported cars and the average value of the exported cars are shown respectively. The figures of the Foreign Trade Statistics represent the sum of exported units to Israel, Palestine, Jordan, Syria, Bahrain, Iraq, Iran, Qatar, Kuwait, Lebanon, Oman, Saudi-Arabia and the United Arab Emirates. The decrease of the total figures between 2000 and 2003 is caused by the last war in Iraq. In 2004 - after the war - Iraq (Syria reflects a transmission country to Iraq mainly) was the most remarkable import nation for used cars in the Middle East. In 2005 the figures dropped dramatically caused by import restrictions in Iraq. The second of the two figures shows that the average value of an exported used car to Iraq is much lower than the average value of exported used cars to the other countries in the Middle East.

Figure 2.4 Export of used cars to Middle East



Data: Federal Office for Statistics, Germany

Figure 2.5 Average value of exported used cars to Middle East



Data: Federal Office for Statistics, Germany

3 Data from Interviews

In the project the following actors were interviewed by Öko-Institute:

| | |
|----------------------------|---|
| 8 th Nov. 2006 | Federal Office for Statistics, Wiesbaden |
| 10 th Nov. 2006 | Mrs. Osyguß, Hamburg |
| 16 th Nov. 2006 | Hellmann Process Management, Osnabrück |
| 16 th Nov. 2006 | GRIMALDI Germany GmbH, Hamburg |
| 17 th Nov. 2006 | Authority for Urban Development and Environment, Hamburg |
| 23 rd Nov. 2006 | Customs Authority, Hamburg |
| 28 th Nov. 2006 | Mundial Roro Shipping Services Hamburg GmbH |
| 30 th Nov. 2006 | Harbour Police Hamburg, Department for Environmental Offences |
| 30 th Nov. 2006 | UNIKAI mbH, Hamburg |

3.1 West Africa

GRIMALDI Germany GmbH, a shipping line, which connects the most important sea-ports in West Africa with ports in Europe (Hamburg, Bremerhaven, Antwerp etc.) claims for itself a yearly volume of 80,000 units of exported used vehicles from Hamburg to West Africa. The company estimates an amount of 100,000 – 110,000 units of used cars in total, which are exported from Hamburg seaport to West Africa [GRIMALDI 2006]. Different interview partners confirmed that the average value of the exported used vehicles to West Africa is quite low (below 2,000 Euro per unit) [GRIMALDI 2006], [Unikai 2006], [Osyguß 2006a, 2006b], [WSP 2006]. The Harbour Police of Hamburg notes for the export of used cars to West Africa an average age of 12 to 16 years. Osyguß pointed out based on information from traders that about 20% of the exported used vehicles have got a malfunctioning engine [Osyguß 2006b].

3.2 Middle East

GRIMALDI Germany GmbH estimates a yearly volume of about 80,000 export-units from Hamburg seaport to the Middle East. The company emphasises the meaning of Iraq as an import-nation for used cars after the last war. About 70,000 used cars were imported from Hamburg to Iraq [GRIMALDI 2006]. But it is clear from other interviews and data from the Foreign Trade Statistics that the figures of exported used cars to the Middle East have decreased remarkably over the last two years. Mundial Roro Shipping Services Hamburg GmbH notes an amount of 15,000 – 20,000 units per year in total, which are exported from Hamburg to the Middle East [Mundial 2006]. This information fits well to the picture of developments shown by the data of the Foreign Trade Statistics (see chapter 2.2).

4 Conclusion

Concerning used vehicles the export to West Africa accounts to

- 82,000 units (from Germany) from statistics (StBA) in 2005,
- 100,000 – 110,000 units from Hamburg according to a shipping company.

The lower amount from statistics may be due to accounting procedures in Foreign Trade Statistics.

Concerning the Middle East the shipments of used cars are:

- 18,000 units from statistics (StBA) in 2005,
- 15,000 – 20,000 units according to a shipping company

Latin America is a destination of minor importance concerning Hamburg (just a few hundred used cars per year).

In total the exports amount to 100,000 to 130,000 units per year from Hamburg Port actually.

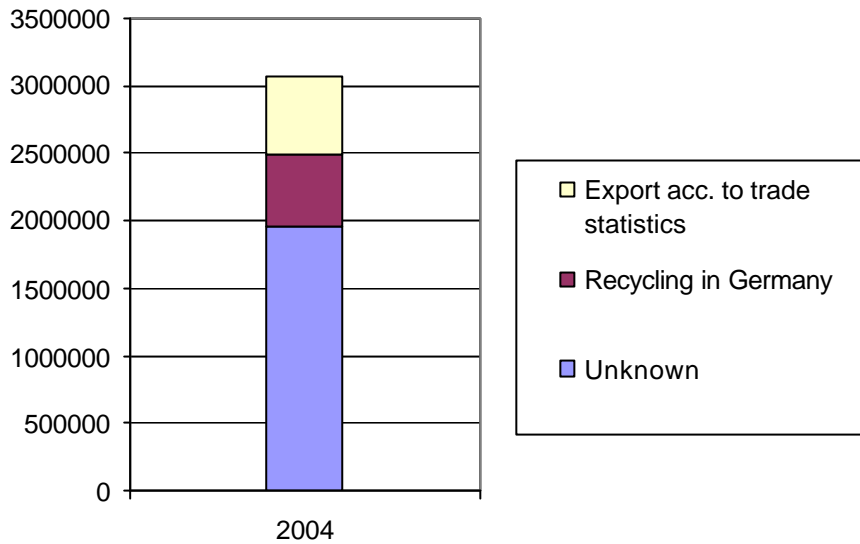
As a second port Antwerp in Belgium is of high importance for the export of used cars from Germany, too. The export from Germany to West Africa and other overseas regions via Antwerp takes place by transport over the river Rhine.

On average, more than 3 million cars are deregistered in Germany every year of which app. 540,000 are recycled in Germany itself (data of 2004) and about 580,000 are exported according to German statistics. This leaves a gap of app. 2 millions vehicles per year. The data gap of this unaccounted large amount of used cars is explained by the fact that exports of used cars from Germany to other countries of the European Union are mainly not monitored by the Foreign Trade Statistics.

The export of about 2.5 Million units of used vehicles represents a secondary material potential of about 1.3 Million tons steel, about 180,000 tons aluminium, about 110,000 tons other nonferrous metals and finally about 6.25 tons platinum group metals (PGM). The magnitude of 6.25 tons PGM means about 30% compared to the total net demand for PGM in Germany per year. So the importance of the export potential concerning secondary PGM could be considered as very relevant.

Figure 4.1 Fate of deregistered vehicles from Germany in 2004

Fate of deregistered vehicles from Germany



Data: Federal Office for Statistics, Germany, Federal Environment Agency

Electrical and electronic goods

Concerning the export streams of used electrical and electronic goods it was not possible to get an overview on the quantities in the limited project time due to complexity of these goods. Nevertheless it could be verified that electrical and electronic-goods like TVs, PCs, notebooks, printers, mobile phones etc. are exported from Hamburg in remarkable amounts to West Africa as well as to Asia. Shipment takes place via container and as by-load in trucks and other vehicles.

5 Recommendations

The results of this project indicate the following recommendations for further necessary investigations:

Clarity concerning the rate of net exported used cars out of the EU-25

A comprehensive overview is necessary on the question “How many used cars are exported to destinations outside the EU-25 (EU-27 respectively) compared to the number of de-registered cars in the EU-25 (EU-27). As this study showed for Germany (Hamburg port) it must be assumed that a remarkable share of used cars from Germany and other Member States are exported to destinations outside the EU and thus outside the regulatory scope of the ELV-Directive. To answer the research-question data from the Foreign Trade Statistics of all the EU-25 (EU-27) countries has to be investigated carefully and cross-checked with interviews in some important sea harbours like Antwerp.

Intensify of the connections with actors at Hamburg seaport

To proceed with the objective of “advanced international recycling streams”, Öko-Institute proposes to enhance the contacts to key actors (shipping companies etc.) in Hamburg. The Africa Association in Hamburg was recommended as a first starting point for this purpose. It must be the overall objective to bring actors together, like recycling and refining companies, shipping companies and traders with suitable experiences in destinations like West Africa in order to optimise the international transport and recycling structures concerning PGM and other valuable secondary materials from used goods like cars.

Improvement of the data situation concerning used electrical and electronic goods at Hamburg seaport

For the export of used cars from Hamburg to West Africa and the Middle East the study delivered reasonable data. More time for investigations is necessary to get a better picture of the streams of used goods and materials concerning the electrical and electronic sphere. Therefore further interviews in Hamburg have to be conducted (shipping companies, NGOs etc.) and the research in other information sources like statistics is recommended.

Clear and easy-to-handle criteria to distinguish used goods and waste

To ensure an appropriate distinction between used electrical and electronic equipment and waste electrical and electronic equipment (WEEE), EU-Member States worked out a “Correspondents Guidelines No 1 – Subject: Shipments of Waste Electrical and Electronic Equipment” recently. The objective of this guideline is to support port and environmental authorities all over the EU to distinguish between used goods foreseen for export and waste with the help of clear criteria, which are available for the daily work in practice. It should be investigated in further studies whether it would be useful for the concerned authorities to get a similar guideline concerning the export of used cars. The

need for clear criteria concerning export activities was underscored by authorities in Hamburg itself.

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