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Effects of Amendments to the Basel Convention on battery recycling

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Abstract

The Basel Convention was originally designed to prevent the uncontrolled dumping of toxic waste and focused particularly on shipments of materials from OECD countries to the developing world. Amendments to the Basel Convention now restrict trade in waste materials destined for recycling, reprocessing and reuse. There are serious consequences for the secondary lead industry and the world community if the regulations prohibit the environmentally sound reprocessing of scrap batteries. It is incumbent on the industry to understand the implications of the recent and proposed amendments, and to address the potential problems posed by the legislation.

Keywords: Basel Convention; Battery recycling; Waste materials; Recycling; Reprocessing; Reuse

1. Introduction

Secondary lead, recovered mostly from used lead-acid batteries, now accounts for more than 60% of worldwide lead consumption. This is by far the highest recycling rate amongst non-ferrous metals. As dissipative uses of lead decline more and more lead products are sold into recoverable applications. The recycling of lead-acid batteries, therefore, remains an issue of increasing importance. Indeed, the continuing development of the lead industry depends on minimising the risk of population and environmental lead exposure, and the sound recycling of lead-bearing scrap. It is essential for the lead industry that the secondary smelters achieve high collection rates for scrap batteries, maximise lead recoveries, and demonstrate stringent standards in both occupational health and environmental management.

The 1970s saw a growing awareness of environmental abuse the exhaustion of natural resources and the alteration of natures' balance. International concern led to an increase in the scope and effectiveness of environmental legislation. The 1980s saw an increasing trend towards harmonising measures taken by the European Union coupled with greater environmental regulation of business.

The 1990s have seen even more regulation that is complex and has far reaching effects.

The Basel Convention was originally conceived to safeguard developing countries from the 'dumping' of toxic wastes by developed nations and provide a global system of controls on the transfrontier movements of hazardous wastes. To date, 117 countries and the EU have ratified the Convention.

The general definition of hazardous wastes in the Basel Convention is, however, 'very broad' and there is no agreed definition of the exact demarcation between 'waste' and 'non-waste'. Whilst most countries and the recently adopted Annex VIII of the Basel Convention classify 'spent' lead-acid batteries as a 'hazardous waste', the secondary lead industry regards leaded scrap as an integral part of the commercial cycle and a valuable source of raw materials.

2. Amendments to the Basel Convention

Since coming into effect, the Basel Convention has gone through several important changes.

The main control regime of the Convention has been based on prior informed consent (PIC) for each transboundary movement of hazardous waste. PIC allows the importing and exporting nations to make a decision on consenting to or opposing a waste shipment on the basis of information on the source, nature, composition, destination, disposal/recovery method and the need for such waste as raw material.

PIC has been superseded by decisions II/12 and III/1. These decisions invoke a legally binding multilateral export ban for hazardous waste and recyclables, including lead-acid batteries.

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Decision III/1 also extends the export ban beyond the OECD states and creates Annex VII, a list of 'parties' and 'other states' which are members of OECD, the EC and Liechtenstein.

This ban assumes the form of a multilateral export ban that is enforced by the countries of Annex VII. The Ban Amendment will enter into force when 62 signatories of the Convention ratify it. At the end of June 1998, only eight parties (Denmark, Ecuador, Finland, Luxembourg, Norway, Spain, Sweden, and the UK) had ratified the Amendment.

This multilateral export ban would drastically reduce the risk of the dumping of hazardous waste and sham recycling in poor developing countries. On the other hand, however, rapidly developing countries in much need of valuable recoverable materials sourced from hazardous wastes, can no longer import these wastes from Annex VII countries after the Ban Amendment comes into effect. This Amendment does not consider whether, for specific developing countries the ban will be entirely beneficial, or have some problematic developmental effects or even result in detrimental environmental and socioeconomic consequences.

The Ban Amendment assumes a causal relationship between reduced trade flows of hazardous waste and improvements in population health and environmental performance. This assumption might be true for many low-income developing countries, but is not self-evident for all developing countries because it does not reflect the fact that:

- rapidly developing countries will play an increasingly significant role as generators of hazardous waste,
- there is a high demand for secondary materials in several rapidly developing countries with material-intensive growth patterns, and
- there is a very dynamic scrap trade amongst developing countries, which will not only be unaffected, but also further enhanced by the Ban Amendment.

If all hazardous waste shipments from Annex VII countries were indeed destined for final environmentally safe disposal in least developed countries only, the ban would be entirely well-conceived. International trade in hazardous waste shows, however, a very different picture, with the bulk of shipments destined for recovery or recycling in a few rapidly industrialising developing countries. Most of this trade is demand-driven and not supply-driven. It is not high waste disposal costs in developed countries that is generating this trade, but the growth of high material intense industries with a very limited supply of either primary raw materials or domestically accumulated scrap. Under these circumstances there has been a propensity in the newly industrialised countries towards the use of secondary materials.

So what is the importance of the Basel Ban Amendment for the secondary lead industry, in general, and in the rapidly developing countries, in particular?

3. The impact of the Ban Amendment

The 4th Conference of the Parties (COP) to the Basel Convention, held in February this year, adopted Annex VIII of the Convention which contains those wastes which are characterised as hazardous under the Convention and that are subject to the Ban Amendment. Annex VIII removes a good deal of uncertainty and arbitrary decision-making, which has beset the implementation of the Convention so far and their characterisation as 'hazardous waste' provides a healthy guarantee against dumping in developing countries, in particular, the low-income countries.

Indeed, most of the materials listed in Annex VIII appear to have little economic or trade significance, but a few of these hazardous wastes play a significant role as sources of recoverable materials for some 10 fast-growing developing countries. These items and countries have accounted for the bulk of all hazardous waste shipments from OECD to non-OECD countries.

By way of illustration, a recent study on the preliminary implications of an import ban on used lead-acid batteries, self-imposed by Brazil in 1995, revealed a number of undesirable socioeconomic and environmental effects [1]: (a) import volume increased by 200% for new batteries and by 35% for primary lead, (b) a drastic decline in capacity utilisation amongst licensed domestic secondary lead smelters and battery *manufacturers*, exacerbating the already severe problem of funding any improvements to environmental performance, and (c) a dramatic expansion of unregulated informal 'backyard' battery reconditioning and smelting which now accounts for almost 60% of Brazil's secondary lead production. [1]

As far as battery recycling, or for that matter any other recyclable is concerned, there is not, as yet, any reliable data which suggests that the recycling of leaded waste materials is any more sound than it was prior to Decision III/1. Insufficient lead-bearing feedstock is increasingly threatening the viability of legitimate secondary smelters in rapidly industrialising developing countries.

As the Brazilian example illustrates, unless national governments and the lead industry unite in a concerted effort, there is the real possibility that scrap battery recycling rates in the licensed sector will decline and environmentally 'unfriendly' unlicensed reconditioning and smelting activities will increase. In consequence, potentially valuable recoverable lead will find its way into the environment and primary lead and new batteries will have to

[1] In the discussion of the paper at the 7th ILZSG's Recycling Conference, the authors highlighted another undesirable side effect. The scarcity of scrap battery feedstock prompted a number of medium-sized smelters to partly resort to low lead-bearing residues as feedstock, which carry a far higher environmental and occupational health risk.

be imported instead. This scenario is contrary to the concept of sustainable development and is inconsistent with the Basel Convention objective of promoting sound waste management.

The COP IV meeting in Kuching considered amending the provisions for inclusion in Annex VII so that other countries able to accept and reprocess hazardous wastes for reclamation could be added to the list. It may be that the wrong countries put themselves forward for inclusion or that the proposition was insufficiently lobbied for in advance of the meeting. Whatever the reason the debate was heated and at times acrimonious and in the end, COP IV decided to keep Annex VII unchanged until the Ban Amendment contained in Decision III/1 enters into force, which in effect will be a number of years. The principle of adding more countries to the Annex VII list seems eminently sensible provided there are safeguards to ensure that recycling activities comply with appropriate international standards. Subsequently the Legal and Technical Working Groups of the Convention were mandated by COP IV to provide parties with a detailed and documented analysis that would highlight issues related to Annex VII.

COP IV also took note of initial work of the Technical Working Group on draft guidance elements on Article 11 and extended their mandate to undertake further work including discussions of the Ban Amendment. The TWG have also been asked to reconsider their draft guidance notes and prepare draft regulations setting out the parameters that a country must meet to be considered for inclusion in Annex VII, for consideration at COP V. This represents a major step forward and might lead to environmental performance criteria determining a nation's inclusion in Annex VII instead of political affiliation and a realistic opportunity for developing nations to be added to Annex VII.

Contrary to well-founded fears of industry, COP IV did not constrain the possibility of concluding bilateral, multilateral or regional agreements under Article 11 of the Basel Convention. Sovereign states can still make Article 11 agreements regarding the import and export of hazardous wastes subject to the following conditions.

The terms do not derogate from the environmentally sound management of hazardous wastes and recyclables as required by the Basel Convention.

Provisions stipulated are not less environmentally sound than those provided for by the Convention and in particular take into account the interests of developing countries.

There has been much speculation about the effect of the ban extension to hazardous waste recyclables and Article 11 agreements. Developing countries which have existing Article 11 Agreements with Countries listed in Annex VII should be allowed to continue importing scrap batteries for recycling and spared from the Amendment Ban.

It would appear, however, that the Governments of EU countries are determined to eliminate Article 11 Agreements. This despite the fact that the OECD adopted a number of Acts between 1984 and 1992 when Council Decision C(92)39/FINAL was adopted as a multilateral agreement under Article 11 of the Basel Convention. This Council Decision provides a regime for OECD countries for the movement of hazardous wastes (which include many secondary metals) within the OECD.

Indeed in discussions at COP III, proposals to permit Article 11 Agreements were rejected by the European Commission and Greenpeace on the grounds that a complete prohibition of the transboundary movement of hazardous waste from Annex VII states to developing countries should be established.

Nevertheless, prior to Korea joining the OECD, its delegation argued successfully that each party to the Convention, whether developed or developing, has a sovereign right to conclude Article 11 Agreements with any other state, notwithstanding the Ban Amendment.

There has been considerable pressure to reduce the availability of Article 11 agreements, but it might be that there is at last a realisation that Article 11 agreements maintain legitimate trade in recyclables, whereas a complete ban might encourage an illegal and 'black market' trade in secondary materials.

At the present time, the lead industry's environmental performance is being monitored and scrutinised by the OECD Environment Ministers under the terms of the 1996 Declaration on Lead Risk Reduction. It is incumbent on the lead industry to encourage the sound recycling of lead-acid batteries.

Due consideration must, therefore be given to the most appropriate alternatives for the transboundary movement of lead scrap between all nation states to ensure that leaded scrap, and in particular lead-acid batteries, are collected and recycled using procedures based upon internationally recognised standards of environmental performance.

Currently, the alternatives are:

- membership of the OECD,
- inclusion in the Annex VII list, and
- Article 11 agreements.

Application for membership of the OECD is usually a long and protracted process and does not offer countries an immediate solution to transboundary trade.

As mentioned before, COP IV decided to keep Annex VII closed until the Ban Amendment enters into force. Also, debates at the COP IV meeting demonstrated that an application for inclusion in the Annex VII listing without a set of clearly defined environmental performance criteria would lead to a political debate and no guarantee that an application might be successful, whatever the technical merits of the case.

If Article 11 arrangements continue to be allowed as an exception to the recycling export ban between Annex VII listed states and those nations not listed, but party to the Convention; developing countries dependent upon imported leaded scrap can enter into bilateral or multilateral agreements to source their raw materials. The need for

Article 11 Agreements depends on whether the states of export are, or are not, parties to the Basel Convention, and furthermore whether they have ratified the Ban Amendment.

For some time the secondary metals industry has argued persuasively but ineffectually that the Convention is a restriction of the free trade principles enshrined in the Treaty of Rome—the founding treaty of the European Union. I believe that there is a good case to be made in support of this contention and moreover that the same case can be made to the World Trade Organisation through the GATT. However, it requires a country to bring such a case and to date, no country has been prepared to do so.

One can illustrate the effects of the ban graphically. If it comes into force the international community will be divided into six distinct trading groups:

Annex VII states which are not parties to the Convention (e.g., *United States*)—developed third states,

Annex VII parties which have not ratified the Ban Amendment (e.g., *France*)—developed non-Amendment states,

Annex VII parties which have ratified the Ban Amendment (e.g., the *United Kingdom*)—developed Amendment states,

non-Annex VII states which are not parties to the Convention (e.g., *Western Samoa*)—developing third states,

non-Annex VII parties which have not ratified the Ban Amendment (e.g., *Trinidad and Tobago*)—developing non-Amendment states, and

non-Annex VII parties which have ratified the Ban Amendment (e.g., *Ecuador*)—developing Amendment states.

Transfrontier shipment of scrap lead-acid batteries between the various groups of countries is now somewhat clearer!

Trade in recyclable hazardous waste (e.g., scrap batteries) between the following states remains unaffected by the Ban Amendment:

- developed states,
- developing states,
- developing to developed states,
- third states and states not parties to the Amendment, and
- developed non-Amendment states to developing states.

Transboundary movement of recyclable hazardous waste between the following states would not be permitted by the Ban Amendment:

- developed Amendment states to developing Amendment states,
- developed Amendment states to developing non-Amendment states, and
- developed Amendment states to third states.

In summary, exports in recyclables to those countries listed in Annex VII are unaffected by the ban. Trades in recyclables between developing countries not listed in Annex VII are also unaffected.

The 1995 Ban Amendment imposes an obligation on developed Amendment states to enforce the prohibition of export of hazardous recyclables, including scrap batteries, to developing states. The language of the Ban Amendments does not, however, impose any obligation on the developing nations to prohibit imports of hazardous waste destined for recycling.

The scenario is therefore, that those states that are parties to the Convention that have not accepted the Ban Amendment might be in a better trading position than those states that are not parties to the Basel Convention. The better trading position does not, however, guarantee a satisfactory environmental performance.

A case in point is to be found in the Philippines. The Philippine Government's environmental legislation is comprehensive and detailed. The Government has ratified the Basel Convention and passed interim guidelines for the importation of materials containing hazardous substances intended for recover or recycling. Such waste can only be imported only when prior written approval is obtained from the Secretary of the Department of Environment and Natural Resources. These guidelines cover a wide range of hazardous wastes often imported into the Philippines for recycling and lists the limiting conditions required for import.

In the case of scrap lead-acid batteries the schedule states that used lead-acid batteries must be 'free of liquid and extraneous material'. No mention is made, however, of how the liquid battery acid should be disposed of prior to shipment to the Philippines. In this context, the ILMC and the United Nations Conference on Trade and Development (UNCTAD) are working on a project in the Philippines to resolve these and other issues. Together with the Government and Industry the ILMC and UNCTAD are exploring ways and means of improving environmental performance and reducing the likely adjustment costs of the Basel Ban Amendment for the battery recycling industry.

4. The challenge for the lead industry

Ultimately, the challenge for the lead industry is to ensure that the International Stewardship of Lead Products is managed in an environmentally responsible manner entirely consistent with best practice despite all the shortcomings and confusion caused either by global, regional or national protocols. Meanwhile, the Industry should remain active participants in the continuing debate with delegates to the Basel Convention and the TWG.

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References

[1] A.G. Serrão, D. Melhen, Overview of lead recycling in Brazil, Proceedings of the 7th International Recycling Conference of ILZSG, Toronto, 25–29 May 1998, pp. 35–40.