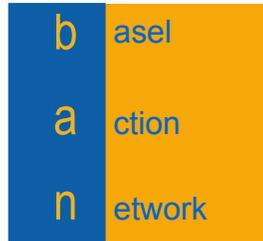


Wireless Waste: Basel Convention's Next Hazardous Waste Challenge

Prepared by the



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Executive Summary

Over 1 billion mobile phones are currently in use worldwide. In North America, particularly in the United States, the number of people using mobile phones has jumped from a mere 340,000 subscribers in 1985 to over 128 million in 2001.

Coupled with a relatively high discard rate and the intrinsic hazardousness of various mobile phone parts, the threat of waste mobile phones inundating the global waste stream is increasingly real.

Waste mobile phones poses a greater threat to developing countries, where these toxic wastes have been migrating in huge quantities over the past years. Lack of collection infrastructure, financial and technical capacities are just some of the fundamental challenges these countries face in confronting these wastes. But, the greater problem lies in the unjust transfer of toxins to these countries who are the least capable of addressing the problem.

The Basel Convention provides a ready solution to the onslaught of end-of-life phone crisis. The call for environmentally sound management, minimization of transboundary movement, prevention of the waste's generation, generator responsibility for the wastes, are just some of the crucial benefits and protection the Convention offers.

Certain sectors, however, are raising the question of whether end-of-life mobile phones can be considered wastes or even be determined hazardous wastes under the Convention, particularly if these end-of-life mobile phones will be "*reused for their original purpose*", "*reconditioned*", etc.

This paper touches on the specific provisions of the Convention that considers end-of-life mobile phones as wastes, and also, most importantly, their treatment as hazardous wastes. This paper further provides an examination of the relevant Basel provisions that highlight its spirit and intent that includes all forms of "refurbishment", "reconditioning" operations within its "disposal" definitions.

The terms "major" and "minor" repair will play a pivotal role in the solving the end-of-life mobile phones crisis, and BAN discusses a logical, legally defensible, and Basel consistent approach in the treatment of these terms.

Lastly, we examine the folly of removing end-of-life mobile phones from the coverage of the Basel Convention, and highlight the fact that rather than trying to remove mobile phones from the globally established hazardous waste control regime, it is more prudent for our partnerships in Basel to work by all means to

remove the hazards from the mobile phone itself.

I. Introduction

Over 1 billion mobile phones are currently in use worldwide. In North America, particularly in the United States, the number of people using mobile phones has jumped from a mere 340,000 subscribers in 1985 to over 128 million subscribers in 2001. Coupled with a relatively high discard rate - typically consumers hang on to the phones for 18 months before discarding them - the threat of waste mobile phones becomes apparent.

In the recently concluded OEWG3 side-event on the Mobile Phone Partnership Initiative (MPPI), several developing country representatives present during the meeting aired their concerns over the millions of mobile phones from developed countries that are being exported to their countries for re-use and refurbishment all eventually end up as wastes. Without any infrastructure to collect or manage the resulting mobile phone hazardous wastes, these countries are now looking for solutions - fast.

The tidal wave of end-of-life mobile phones is upon us. The Basel Convention provides the needed solutions and structure against the onslaught of toxic end-of-life phones, and we must closely examine what the Convention provides.

II. Discarded Mobile Phones

1. Definition of Wastes

The Basel Convention, both in letter and intent, clearly meant to cover all discarded/disposed materials that possess hazardous characteristics as well as all wastes considered hazardous on a national basis. The question that really is of importance is whether mobile phone discards

are hazardous or not – not whether they are wastes.

There are some sectors that claim that materials destined to be “*reused for their original purpose*” is not a waste. Much is left to faith or chance in this kind of a scenario. In fact, much reuse involves major repair, which will result in toxic parts being imported and disposed of in recipient countries – a clear transboundary movement (TBM) scenario. In such a scenario of de-listing wastes, the careful controls as foreseen by the Basel Convention Parties and indeed other regional agreements or multilateral treaties, such as the Organization for Economic Cooperation and Development (OECD), to monitor, control or prohibit such exports so that we can *assure*, and not just *assume*, environmentally sound management and transboundary movement minimization, are simply ignored.

The sectors that peddle these claims certainly fail to recognize that once a waste falls outside the scope of the Basel Convention, there will be:

- No legal obligation to manage the waste in an environmentally sound manner as required by the Convention.
- Little ability for countries to control its import, export and transboundary movement.
- Little recognition of the waste’s intrinsic hazardousness and the implications of such.
- No legal obligation to minimize its transboundary movement.
- No ability to apply criminal proceedings against dumpers.
- No ability for a state to seek redress for illegal exports to their country via the Basel mechanisms including the demand

of the return of illegal shipments (as they will not be illegal!).

Even if one used as another criteria that the use is “*for its originally intended purpose*”, this would not magically guarantee that:

- the hazardousness and risks would not be exported;
- the hazardous waste would not be diverted and dumped;
- the hazardous waste would not create pollution from disposal of replaced parts following repair.

Finally, even under this refurbishment/reuse scenario no guarantee exists that such exports and the subsequent hazards stemming from them would not disproportionately burden poorer communities of the world.

The notion that because the Basel authors failed to use words “refurbishment” or “repair” or “remanufacture” in the line items of Annex IV B, hardly provides a conclusive argument that the material in question is not a waste falling under the Convention.

The chapeau of Annex IV clearly mentions “reuse” and “alternative uses” as well as “resource recovery”, “recycling”, and “reclamation”. As these terms are not defined in the Convention, our best recourse to understanding what is meant to be under the scope of Annex IV B comes in the sub-chapeau, which states:

“Section B encompasses all such operations with respect to materials legally defined as or considered to be hazardous wastes and which otherwise would have been destined for operations included in Section A.”

Thus, it is logical to conclude that despite the fact that certain terms are not defined in the

Convention, Annex IV B is meant to cover every other operation that otherwise would have been destined for Annex IV A operations. The framers of the Convention wanted Annex IV B to be inclusive – not exclusive. With this in mind, the framers clearly considered operations such as repair and refurbishment as a form of recycling or reclamation. One may even extend the operation of refurbishment for reuse as a form of reclamation of organic substances (e.g. plastics, R3) and metals (R4).

This interpretation is further made manifest by the Parties through the listings in Annexes VIII and IX. Anything listed in these annexes is presumed to be a waste. Annex VIII, contains the following waste, which is considered hazardous under Art. 1, par. 1(a) of the Convention:

A1180 Waste electrical and electronic assemblies or scrap containing components such as accumulators and other batteries included on list A, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or contaminated with Annex I constituents (e.g., cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they possess any of the characteristics contained in Annex III (note the related entry on list B1110).

Annex IX, contains the following mirror entry:

B1110 Electrical and Electronic assemblies:

- Electronic assemblies consisting only of metals or alloys
- Waste electrical and electronic assemblies or scrap (including printed circuit boards) not containing components such as accumulators and other batteries included on List A, mercury-switches, glass from cathode-ray tubes and other activated glass and PCB-capacitors, or not contaminated with Annex 1 constituents (e.g.

cadmium, mercury, lead, polychlorinated biphenyl) or from which these have been removed, to an extent that they do not possess any of the characteristics contained in Annex III (note related entry on list A A1180)

- Electrical and Electronic assemblies (including printed circuit boards, electronic components and wires) destined for direct reuse¹³, and not for recycling or final disposal¹⁴.

Footnote 13: Reuse can include repair, refurbishment or upgrading, but not major reassembly.

Footnote 14: In some countries these materials destined for direct re-use are not considered wastes.

We cite these to bring focus to what the Basel Convention actually says about electronic assemblies such as mobile phones. First, their inclusion on Annexes VIII and IX clarifies that they are to be considered as waste by the Basel Convention. Second, the mention in Annex IX and footnote 13 regarding reuse and reassembly clearly establishes that such fates are within the definitions of Annex IV. For example, footnote 13 seeks to draw a line between minor and major reassembly in terms of whether the waste is going to create a hazard or not. If the material were not a waste (e.g. if Annex IV which determines waste did not include reuse, and reassembly), such a distinction would not need to be drawn. This we will look at in greater detail below. Footnote 14 likewise serves notice that while there is a presumption that these materials are a waste, and thus their inclusion here in Annex IX, some countries may not consider them as such if they are destined for re-use.

Thus, in sum, we can see that the claim that mobile phones once discarded are not a waste, lies on very shaky ground. Indeed one would

wonder why the Basel Convention would even take up the issue of end-of-life mobile phones if they were not wastes.

2. Definition of Hazardous Wastes

To qualify as a Basel hazardous waste the material must either be considered such by national law of a State Concerned, or it needs to possess an Annex I constituent that exhibits an Annex III characteristic. There are numerous Annex I and Annex III combinations that will apply to mobile phones due to the many hazardous substances in each one and due to the propensity for these to impact the environment or human health. We will explore but a few.

a. Lead and H-13

BAN has already submitted a short report (*Mobile Toxic Waste*, available at: <http://www.ban.org/Library/mobilephonetoxicityrep.pdf>) at the last Open Ended Working Group. This report outlined the results of recent studies that indicate that by virtue of the quantities of the toxic metal lead in a mobile phone, even with the batteries removed, the phones are more than likely to fail the most widely recognized test for leaching hazardous substances (the Toxic Characteristic Leach Procedure test or TCLP, in this case for lead) into the environment.

This research indicates that by one means of looking at the question, a discarded mobile phone is indeed a waste that possesses both a hazardous constituent (Annex 1, Y31) and a hazardous characteristic (Annex III, H13).

With respect to H13 presently, the Basel Convention has neither dismissed nor adopted a particular test or approach for leachate testing under H13. However, the latest paper on H13 (UNEP/CHW/OEWG/3/Inf/13) concludes as follows:

“It is therefore concluded that the correct interpretation of H13 is that it should address other issues than leachate formation only that for the time being its practical application is limited to leachate, due to lack of assessment approaches for other materials that may be yielded after disposal.”

The lack of a full, elaborated method as yet under the Convention, hardly indicates that H13 is to be dismissed. Rather the Basel document cited above sets forth recommendations for developing a harmonized Basel approach to leachate testing for H13 implementation. In the meantime, the body of the document advises parties on *how to* set up leachate testing similar to that undertaken by the United States, Canada, Australia and other countries and their TCLP test.

b. Annex I Constituents and H 6.1, H11, H12

However, it is misguided to put too much emphasis on H13 because it is but one hazardous characteristic. It is a certainty that mobile phones fall under the Basel definitions of hazardous waste by virtue of other characteristics based on what is already known from many references including the Guidelines produced by *MPPI group 3.1* (www.basel.int/industry/mppi3_1_draft.doc). Those guidelines indicate that Annex 1 constituents including arsenic (Y24), antimony (Y27), beryllium (Y20), cadmium (Y26), copper compounds (Y22), lead (Y31), mercury (Y29), zinc compounds (Y23), and brominated flame retardants (Y45), are present in mobile phones and the guidelines take pains to discuss in some detail the likely hazardous characteristics of such constituents. Without actually naming the H categories, these include H6.1 (poisonous), H11 (toxic), H12 (ecotoxic) -- as well as H13 (capable, by any means, after disposal, of yielding another material, e.g. leachate, which

possesses any of the characteristics listed above).

According to the literature of major beryllium producers, mobile phones are *major* users of beryllium. Beryllium is a hazardous substance that particularly becomes mobilized under heat processes or shredding, which characterize technologies in numerous recycling/reclamation operations. Beryllium and all of the other Annex 1 constituents listed above are present in mobile phones. They exhibit hazardous characteristics as detailed in the MPPI group 3.1 guidelines that can be released into the air and groundwater when burned in incinerators or disposed of in landfills, or more likely mobilized during recycling, creating threats to human health and the environment.

Wisely, the Basel definition did not rely on promises for certain types of management before attempting to control such dangerous materials. Rather they sought control over all of them based primarily on intrinsic properties so that they would not fall out of the regulatory net and indeed the legal obligations to manage them properly (ESM obligation under the Convention).

To argue at this juncture that mobile phones, once defined as waste are non-hazardous under normal circumstances stretches the limits of credibility and begs the question as to why group 3.1 saw fit to delineate known hazards. It also begs the question as to why mobile phones are considered “Waste from Electronic and Electrical Equipment” in the European Union WEEE directive and are targeted for hazardous input elimination in the European Union ROHS directive. The WEEE directive states in its preambular paragraph 7:

“The amount of WEEE generated in the Community is growing rapidly. The content of hazardous components in electrical and electronic equipment (EEE) is a major concern during the waste management phase

and recycling of WEEE is not undertaken to a sufficient extent.”

In summary, it is of course incumbent on the Parties, through the designated Basel working group, to examine all existing data with respect to Basel Y constituents and H characteristics and what is known to exist in mobile phones. Once this is fully undertaken there can be little doubt that discarded mobile phones will not “escape” a designation of hazardous waste definitions by any route other than the final question we must entertain -- the question of whether their *direct reuse* entails *minor* or *major reassembly*.

3. The Question of Footnote 13: Minor or Major Reassembly?

As noted above, the Parties have concluded that electronic assemblies that are directed toward recycling or for further use destinations are to be considered wastes. Further, it is clear that the constituents of the current generation of mobile phones possess intrinsic hazards or will yield hazards (e.g. leachate) and as such will readily qualify as hazardous waste under the Convention.

The only possible exemptions that can be applied are for a Party to individually demonstrate that the particular Annex I substance is not going to present an Annex III characteristic (see chapeau of Annex VIII) as is presumed (the presumption that a substance listed under Annex VIII is hazardous is rebuttable), or if it falls under another caveat created by the Parties in footnote 13 of Annex IX.

This footnote 13 is designed to delineate between hazardousness and non-hazardousness of wastes destined for “direct reuse” using criteria that distinguishes whether the repair or refurbishment involves “*major reassembly*” or not. And yet the Parties have not given further

elaboration as to precisely what this means and how to distinguish between *major* from *minor reassembly*.

We believe that guidance on this subject is now needed, particularly when we see that currently virtually every scheme to export end-of-life electronics is justified by the virtuous sounding words of re-use, recycling, refurbishment, “bridging the digital divide” etc., regardless of the ultimate fate of the electronic waste.

Often it will be the case that the export for re-use will require replacement of hazardous components such as circuit boards or batteries. Such seemingly beneficial reuse masks a form of actual TBM of hazardous wastes via the avenue of replacement and repair. We cannot believe that was the intent of the Parties. Nor do we believe that the term *major* or *minor reassembly* refers to economic impacts or labor intensiveness because that has little to do with hazardousness, which is the core concern of Basel, and the footnote 13 distinction -- Annex VIII or IX.

Rather the Parties by use of footnote 13 wanted to distinguish between two distinct types of reuse operations:

- Operations that could result in the replacement and eventual discard, for recycling/disposal of hazardous waste components which would constitute a clear transboundary movement of hazardous waste and thus be an Annex VIII waste stream; from
- Operations which do not need to replace a hazardous component and will simply replace non-hazardous parts and/or provide cosmetic or software upgrading such that direct re-use is facilitated but no actual transboundary movement of hazardous waste component parts is likely to occur.

Therein lies a clear logical basis for differentiation between Annex VIII refurbishment and Annex IX refurbishment. Therefore, we would strongly recommend the following steps as the basis for a procedure to apply footnote 13.

- a) First, the unit is tested to determine whether it is functioning as it was meant to function. If the phone is fully functional and no further repair is needed, then it is not a hazardous waste and may even be considered a non-waste by some governments – it should be labelled accordingly.
- b) Identified failures in functioning are noted and correlated to needed repairs.
- c) If such needed repairs involve the replacement of hazardous components (e.g. mercury lamps, assemblies containing beryllium copper compounds or lead based solders, batteries) then such phones are considered hazardous wastes and should be labelled accordingly unless such parts are removed prior to export.
- d) If such needed repairs do not involve the replacement of hazardous components, then the materials are not considered hazardous wastes and should be labelled accordingly.
- e) A standardized testing, certification and labelling procedure needs to be established to ensure that materials are properly tested and labelled as hazardous or non-hazardous waste and what repairs are expected.

This approach to the question of Footnote 13 provides a logical and legally defensible means to distinguish between Annex VIII refurbishment and Annex IX refurbishment. It demands that exporters provide certified testing and labeling prior to transboundary

movement. This is indeed precisely what is seen as appropriate from a developing country perspective to control imports of junk phones or phones that are hidden carriers of toxic liability for the recipient country and for fulfilling the Basel obligations including the obligation to minimize the transboundary movement of hazardous waste.

4. Dangers of Circumventing the Basel Convention

The Basel Convention is designed both to protect the environment and human rights, particularly of developing countries. The greatest danger inherent in circumventing the Basel Convention, is that waste mobile phones and their intrinsic hazardous characteristics and associated risks will disproportionately be traded and transferred via the global market or charitable giving programs to weaker economies where there is cheaper labor, higher demand for second-hand phones, and less resources and infrastructure to ensure a high standard of environmental and occupational protection.

We have already seen the horrific result of this phenomenon in China, Pakistan and India where a free-market in electronic waste primarily from the United States and Canada –two countries that failed to control exports of hazardous e-wastes as long as a recycling destination was claimed -- resulted in a cyber-age toxic nightmare.

Even if developing countries were given state of the art recycling technologies, the recycling of such material is always inherently hazardous and involves substantial risk for any country. There is no reason why developing countries should bear a disproportionate burden of that risk simply because their labor is cheap. This form of cost externalization of end-of-life impacts and costs serves as a disincentive for upstream design change to eliminate the hazards at source.

Some like to claim that all that is needed is an assurance of some kind of environmentally sound management – a high standard of technology for all countries of the world. Such reasoning sounds good until one realizes the following facts:

- Without the materials in question falling within the scope of the Basel Convention there is no legally binding obligation for ESM whatsoever.
- Even in state of the art facilities there is substantial occupational and environmental risk and/or requirement of substantial infrastructure, this risk and cost is transferred to developing countries disproportionately simply because of their comparatively weaker economies.
- What usually accompanies a weaker economy are other issues that impact environmental and occupational conditions far more than technology. These include a lack of organized labor, occupational health training, infrastructure and clinics, the right to redress damages through liability law or tort law, the lack of governmental infrastructure to ensure technology is maintained and operated at optimal conditions, lack of strong regulatory infrastructure to uphold local environmental laws, lack of downstream hazardous waste residue facilities, lack of emergency response teams that can deal with plant accidents etc.
- Using weaker economies (e.g. cheap labor) to manage end-of-life impacts serves as a disincentive for upstream design change.

The factors above are the basis for the Basel Convention's particular emphasis on protecting developing countries from being victimized by

waste trade and are the basis for the Basel Ban Amendment.

5. Conclusion

It is very clear that the present generation of mobile phones once discarded or disposed of, are to be considered a hazardous waste under the Basel Convention. To presume otherwise would be throwing all prudence and precaution to the wind, and engaging in legal “loophole diving” in an effort to present a revisionist view of the Convention.

A real question that does remain to be resolved with respect to when such wastes might be considered non-hazardous revolves around the question of *minor* as opposed to *major reassembly*. We have provided a very logical and legally defensible solution to better defining that “gray” area. Such definition and other guidance are extremely important if we are to address the growing concern in developing countries.

It is sincerely hoped, however, that the future generation of mobile phones will not be considered hazardous waste. This will be a reality not because we have turned away from Basel's text, obligations and definitions, but because the mobile phones of the future will cease to contain harmful substances such as beryllium, arsenic, lead, brominated flame-retardants, and will cease to threaten the environment and health of future generations. However, such “greening of design” is not as likely to occur promptly if we continue to allow the real costs of pollution to be transferred to weaker economies and populations desperate for even toxic jobs.

African delegates in the last OEWG meeting in Geneva have confirmed their alarm over the accelerated use of their countries as dumping grounds for used, second-hand or end-of-life electronics and mobile phones while few import/export controls or infrastructure for

collection currently exist. Much of this problem is caused by a lack of *implementation* of the Basel Convention (and in the case of Africa, the Bamako Convention) for these hazardous wastes.

The Basel Convention is first and foremost a legal instrument designed to mandate controls over just such a state of waste trade anarchy that currently exists with end-of-life mobile phones. As a legal instrument, it is not designed to be wildly and widely re-interpreted or rewritten unless this is accomplished via amendment. Notions that the Basel definitions are too vague to be utilized dishonors our Convention and the great deal of work involved in creating and refining it. Rather, it is imperative that all existing work on addressing the end-of-life mobile phones issues advocate that the Basel Convention and its decisions be applied where they are meant to apply and that beyond that recommend further actions in the Basel context to provide guidance to resolve remaining issues and ambiguities that may exist. It would be a grave mistake to have existing partnerships,

such as the Mobile Phone Partnership Initiative, serve as a devious means to circumvent the Basel Convention. Surely that is not their intent.

Ultimately, it must be understood that the problem of end-of-life mobile phones stems from the hazardous content of mobile phones. Rather than trying to remove mobile phones from the globally established hazardous waste control regime, it is more prudent for our partnership and its industrial stakeholders to work by all means to remove the hazards from the phone. Part of that job is achieved by eliminating cheap and dirty cost externalizing exercises that foist end-of-life risks on the poorest most desperate persons on earth.

Hazardous waste prevention is not achieved by preventing hazardous wastes from being considered hazardous waste. Hazardous waste prevention is achieved by preventing the hazards and the wastes from being generated in the first instance.

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