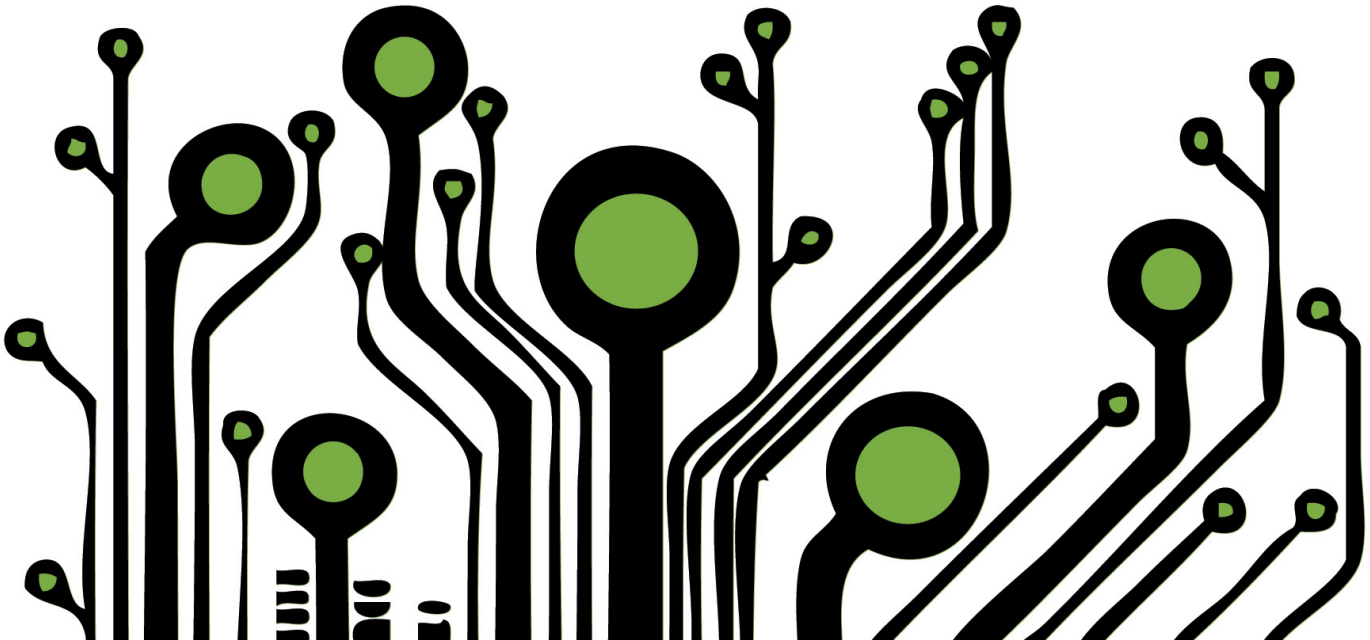
balkan e-waste management advocacy network

electronics and e-waste

a booklet for advocacy



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Foreword

Waste electrical and electronic equipment (WEEE), or 'e-waste', is a growing policy challenge for governments the world over. The United Nations Environment Programme[1] estimates that some 50 million tonnes of e-waste are generated globally each year. Current trends in electronics design and manufacture that drive artificially rapid replacement cycles suggest that waste generation is not going to slow down any time soon.

The lack of safe methods to deal with e-waste in many countries mean that communities and the environment will continue to pay the price for toxic, wasteful design. Also, electronics manufacture is a materials- and energy-intensive business, with significant environmental and social impact up and down the product chain. This impact is exacerbated by the fact that many materials vital to modern electronics are scarce and under increasing supply risk.

Clearly, the way we design, manufacture, use, and manage electronics at their end-of life needs to change if we want to continue to reap the benefits brought by technological advancement in ways that cause no harm to people and the planet.

Policy moves are being made in this direction, such as with the European Unions Waste Electrical and Electronic (WEEE) Directive that sets up a regime for e-waste management with producer responsibility for end-of-life management costs at its core. However, some countries are yet to define similar legislation, and we continue to see the flow of e-waste from wealthier countries with the capacity to deal with e-waste safely and fairly, to countries without. Photographs of piles of burning cables and e-waste right next to where families live and children play (or often, work) in countries without e-waste legislation or safe management capacities provide unsettling evidence of the unfair distribution of costs of the digital revolution.

This booklet provides information and tools to enable civil society actors to push for change to minimise the environmental, health and social impacts of electronics and e-waste.

Whilst some of the content is specific to countries that are part of the Balkans E-Waste Management Advocacy Network (BEWMAN), much of the content is applicable to any group(s) wanting to make positive changes to e-waste policy and practice in their countries.

Balkan E-Waste Management Advocacy Network (BEWMAN) is a two year project, initiated by Metamorphosis Foundation (www.metamorphosis.org.mk) and co-financed by the European Union's IPA 2008 Programme of the Civil Society Facility, with overall objective to improve the legal and institutional framework that will contribute to proper e-waste management in Macedonia, Serbia, Croatia and Bulgaria, in accordance with relevant with the EU legislation and standards. Project partners are Computer Aid International (United Kingdom), ZaMirNet (Croatia), the association Center for civil society development PROTECTA (Serbia), and Bluelink Foundation (Bulgaria). This booklet is developed within the Balkan E-Waste Management Advocacy Network Project (www.bewman.eu).

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[1]UNEP 2005

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1. Introduction

Those of you unfamiliar with the concepts of advocacy, lobbying and campaigning may be asking: What is advocacy? How do we approach it? This section provides a brief introduction to the concept of advocacy and to the various steps in the advocacy planning cycle. It also outlines the aims and structure of the booklet.

1.1. What is advocacy

Advocacy is the action of trying to produce positive change. As Chandler explains, the primary purpose of advocacy is to achieve one or more of the following:

- influence public or corporate policy and practice
- influence public attitudes and behavior
- influence decision-making processes so that affected communities are involved
- empower affected communities to influence the decisions that affect their lives

So advocacy – and associated campaigning – is more than simply raising awareness about a problem; it is about promoting and trying to achieve positive change.[2]

Advocacy can take many forms, including:

Wherever change needs to occur, advocacy has a role to play.[3]

- Participation in (established) policy consultation processes
- Participation in policy networks outside of the formal decision-making process
- Lobbying decision-makers and/or those that influence them
- Changing public opinion
- Activism: mobilising supporters to push their concerns to decision-makers

The process by which advocacy is carried out varies broadly, depending on numerous factors. These include:

- How well understood is the issue?
- Is the issue a technical one or is it politicised?
- Is the debate polarised or is there a well-supported middle ground?
- Are there strong vested interests in a particular outcome? How much influence do these interests have over decision makers?
- What capacity do you have to influence different audiences?
- What is the legal position on campaigning in your country?[4]

Your choice of approach will therefore depend on considering the answer to these questions.

To be effective and make positive change, we need to adopt a rigorous and systematic planning process to analyse the context of our advocacy, understand the process of change and develop a clear influencing strategy.[5]

Figure 1 1, adapted from WaterAid,[6] outlines the steps in the advocacy planning cycle, which also reflects the sections in Chapter 2.

Box 1-1. How is advocacy different to campaigning? Or to lobbying?

The words '**advocacy**' and '**campaigning**' can be confusing, as they are often used differently by different people and organisations.[1] For instance, some see advocacy and campaigning as synonymous terms for all sorts of influencing (e.g. lobbying and public campaigning). Others have **advocacy** as a way of working to change policies and practice, with a **campaign** as a specific plan for advocacy action, focusing on a particular issue, with a limited time-span.[2] In this booklet, the latter distinction will be used.

'**Lobbying**' and advocacy are also frequently used interchangeably. While **advocacy** refers to all those activities that attempt to enact positive change, which have a number of targets, including government, business and citizens, **lobbying** 'refers specifically to advocacy efforts that attempt to influence legislation'.[3]

Sources: 1 Chandler 2010:2, 2 WaterAid 2003:11, 3 CTNonprofits 2003:1

[2]Chandler 2010: 2
[3]Sharma 1997: 1
[4]Chandler 2010:4
[5]Chandler 2010:4
[6]WaterAid 2003

A successful advocacy project needs clear objectives to work towards. First, we must identify the main issues and problems. Further analysis is needed, not only of the advocacy issue, but also of the context and timeframe in which change in your issue occurs. This will help to form your project's specific aims and objectives. Different organisations may have varying skills and abilities or targets, therefore objectives will vary. Once the objectives are set, your planning of the advocacy work will become more focused.

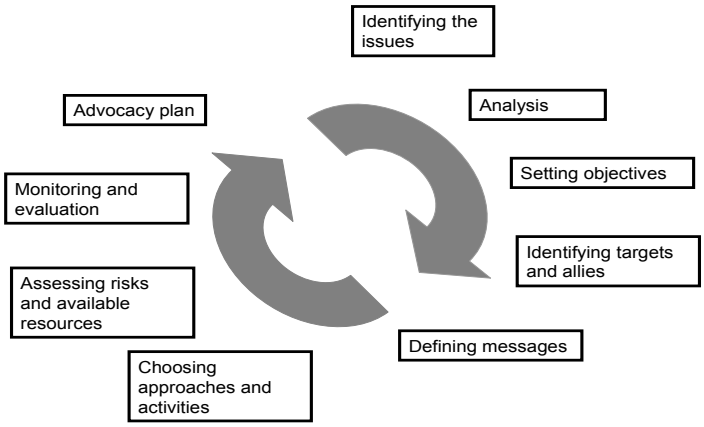


Figure 1-1. The advocacy planning cycle. (Adapted from Wateraid)

To define how to reach the specific objectives, targets will need to be identified: who are the decision makers able and likely to make a change, how can they be influenced, and what techniques would be most effective to do so? Allies–organisations and individuals that are sympathetic to your advocacy issue and objectives–can be identified and approached to help make the change you are seeking.

Once targets and allies are identified, we can develop messages that define what we want to change, why and how. It is then necessary to define what activities we need to undertake. It is helpful here to examine a diverse range of advocacy tools and case studies of how organisations have used them. From this booklet you can assess and select tools that will help reach your objectives.

Successful advocacy requires an assessment of what resources are needed and an awareness of how realistic your aims are according to your organisation's capacity. It is also vital to build monitoring and evaluation into the project, to assess the progress and impact of your efforts, and to keep on track with your advocacy objectives.

Once you have worked through all of these steps you will be able to draw up a comprehensive advocacy plan. It needs to be acknowledged, however, that throughout the project and by ongoing evaluation, adjustments may need to be made to reflect new developments and external changes. Therefore the planning cycle, and advocacy itself, should be understood as an iterative process.

1.2. What is the aim of this booklet?

This booklet's primary audiences are NGOs and civil society organisations working to minimise the environmental, health and social impacts of end-of-life electronics ('e-waste'). It aims to introduce both the concept of advocacy, and the steps needed to develop an effective campaign for positive changes in policy and practice about electronics and e-waste.

While a number of examples in the booklet are tailored to NGO audiences in the West Balkans, many of the issues covered and solutions offered are universal, and could equally be applied by NGOs and civil society organisations working in other countries, also.The booklet is organised in such a way that you should be able to develop a plan by the time you have worked through the booklet.

Following this introductory chapter, the sections in Chapter 2 correspond to the various steps in the advocacy planning cycle. The sections incorporate both generic advocacy tools to assist your planning, and concrete examples relating to electronics and e-waste. These include examples from other organisations working on similar issues. This booklet does not pretend to be an exhaustive account of the e-waste issue; so a collection of key resources and further information and reading (including details of key initiatives and legislation) is provided in Chapter 3. A glossary and reference list follows in Chapters 4 and 5.

Box 1-2. The "seven deadly sins" of advocacy

1. Unclear aims and objectives
2. Activity planning happening before (or without) developing an influencing strategy
3. Action plans that run to an internal timetable
4. Lack of innovation
5. Messages that do not get noticed and move people
6. Poor monitoring and evaluation
7. Failing to focus

Source: Chandler 2010: 4

2. Planning for change: How to advocate for e-waste management

How do we go about planning for change in electronics and e-waste management? This chapter explains the various steps in planning an advocacy strategy. Some of the information and tools will be generic (i.e. applicable to strategy development on any advocacy issue), though most will be tailored specifically with information and resources relevant to electronics and e-waste issues, and where applicable, to the context of the West Balkans.

2.1. Identifying the issues: E-waste – what do we want to change?

As stated in the advocacy planning cycle, before taking any action it is first necessary to have an understanding of the issue at hand: *What is e-waste? Why does it need attention? What are we trying to change?*

2.1.1. What is e-waste?

E-waste is a generic term used to describe various old, end-of-life or discarded appliances that contain electrically powered components.[7] It incorporates a large amount of waste equipment, not just those connected to the mains supply, but also battery powered, wind-up and solar powered products.[8] This covers everything from household appliances like refrigerators and toasters, to ICT equipment like laptops and smartphones, consumer goods like televisions and mp3 players, to tools like electric drills and sewing machines – the list goes on.

A commonly-used technical definition is provided in e-waste legislation for the European Union (EU). For this, and a list of categories of e-waste as defined by the EU's 2002 Waste Electrical and Electronic Equipment (WEEE) Directive, see Section 3.1.1.1.

2.1.2. What's the problem? Why electronics and e-waste need special attention

There are unique characteristics to electronics that make their production and consumption a source of high environmental and social impact, and that make them problematic and challenging as wastes.

Problem #1. Poor design and aggressive marketing by electronics companies drive rapid waste generation and high environmental and social impact

Problem #2. Electronics contain many toxic substances, making e-waste toxic

Problem #3. Electronics contain many valuable and increasingly scarce materials

Problem #4. Most e-waste is managed badly, meaning communities and the environment pay the costs for toxic, wasteful design

Problem #1: Small life spans, big impacts

The electronics industry is characterised by, on the one hand, rapid technological advancement, and on the other, a widespread failure of manufacturers to design their goods in ways that consider the impacts of products over their full lifecycle, including when they become waste.

Because electronics are quickly obsolete and discarded, and are difficult to reuse and recycle, e-waste is one of the fastest growing waste streams in the world.

This has resulted in gadgets that are incredibly complex in their design and composition, incorporating a staggering array of materials, some of them hazardous and not easily handled when they become waste.[9] Their manufacture, too, requires huge amounts of energy, materials, and water, and generates large amounts of waste emissions (see Box 2-1).

Box 2-1. Semiconductors: a case study in complexity and intensity

Electronics manufacture is a materials- and energy-intensive business. For instance, the tiny semiconductors (also known as microchips or integrated circuits) that are used in almost all gadgets and that have revolutionised electronics in terms of application and functionality, need a staggering amount of materials and energy to create.

As well as the silicon (or other material) used to make their wafer-like layers, the chemical load to produce these vital components is huge – one individual semiconductor producer may use as many as 500 to 1000 different chemicals, and a 2002 analysis estimated that the manufacture of one 2g microchip can generate some 26kg of waste, some of which is highly toxic.

Source: Grossman 2006: 59, fn 8

[7]Empa 2009
[8]Environment Agency
[9]Grossman2010

The inputs into the manufacturing process also have their own impacts. Raw materials used in electronics are primarily supplied through mining, which demands large amounts of land and energy and generates many harmful emissions. ***For instance, 10,000 tonnes of carbon dioxide emissions are generated to produce one tonne of gold, palladium or platinum.***[10] Additionally, the social impacts associated with the extraction of materials that are used in electronics are a significant concern.[11] Modern electronics are quickly obsolete and discarded.[12] Innovations like miniaturisation have resulted in ever-smaller and more functional devices, but ones that are increasingly difficult to upgrade or disassemble for recycling. Also, there have been few incentives for the types of modular, repairable, easily upgraded design that would make disassembly easier and enable consumers to extend product life (see Box 2-2).[13]

Box 2-2. Modern electronics: the short path to obsolescence

Some of the ways in which poor design and other practices make modern electronics rapidly obsolete include:

- Hardware failures – A recent report showed that 24% of laptops will fail within their first three years due to hardware failures.
- Software upgrades – New software may increase e-waste volumes dues to incompatibility with older computers. For instance, many computers did not meet the memory or processing speed requirements to run the new Windows Vista.
- Digital conversions – The switch of TV from analogue to digital has resulted in more e-waste in the form of analogue TVs. The development of HD TVs has also impacted this.
- Batteries – Many smaller electronics with rechargeable batteries have a limited number of charge cycles before the battery needs replacing. With designs that make replacing batteries difficult, many consumers often simply buy a new device.
- Mobile phone 'upgrades' – Companies often offer free or low-cost phone upgrades to customers at regular intervals, encouraging frequent replacement of old but functional phones.

Source: ETBC 2010a

In fact, many consumer-grade electronics products are cheaper to replace than to fix, even if you can find someone to fix it.

Also, in addition to technological advancement that can make products actually obsolete, aggressive marketing by electronics companies means working equipment can appear obsolete after just one or two years' use. This results in artificially rapid replacement cycles.[14]

All of this means that in practice, rather than creating more efficient, long-lasting and environmentally-friendly equipment, rapidly evolving technology has resulted in an actual decrease in product life spans – and more waste. Even where product or process efficiency gains have been made, improvements have done little to reduce overall volumes of e-waste being generated, as we are buying ever more electronics.[16]

'Everything… is designed for you to throw away when you are finished with it. But where is 'away'? Of course, 'away' does not really exist!' [15]

Every country consumes hundreds of thousands, if not hundreds of millions, of items of electrical and electronic equipment every year. By 2008 the billionth PC was installed, a figure that could double by 2014.[17] Globally, the UN estimates that there are 4.6 billion mobile phones in use today.[18] Add this to myriad other electrical and electronic appliances in use today, and we are easily looking at some 20 billion items (Figure 2 1), all of which will inevitably become waste.

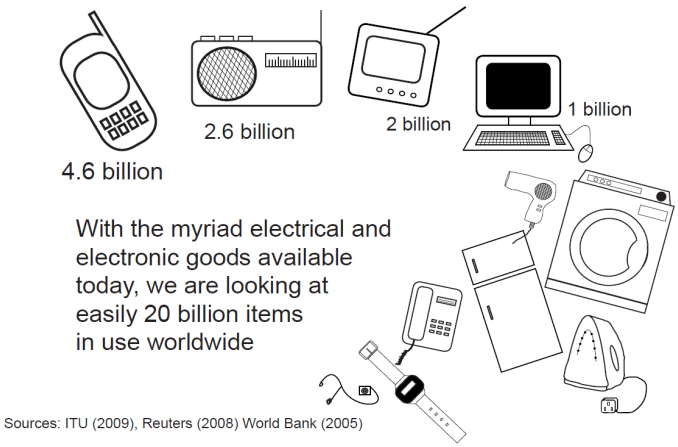


Figure 2-1. The latent e-waste billions.

[10]Schulep et al. 2009
[11]Raise Hope for Congo 2010
[12]ETBC 2009
[13]Grossman 2010
[14]UNEP 2005
[15]McDonough and Braungart 2002
[16]Grossman 2010
[17]Reuters 2008
[18]ITU 2009

When these goods are no longer wanted, we have a significant waste challenge to meet. Whilst the consumption of computers and electronics is rising steadily in all areas of the world, it is not being matched by a corresponding growth in the necessary infrastructure to safely manage this equipment at its end-of-life.[19] There is little incentive for manufacturers to design with the end-of-life in mind, even though it is these very businesses that are the most competent to deal with this issue. As a result of this, we are seeing excessive manufacture of products designed for the digital dump at the expense of human health and the environment.[20]

Problem #2: Toxic products become toxic wastes

Behind the glossy veneer of electronics innovation lays a darker story, often ignored by the producers and retailers of these goods. ***Over 1,000 materials are used to make our electronic gadgets*** and their components – the semiconductor chips, circuit boards, disk drives, and so on. ***Many of these are toxic***, including chlorinated solvents, brominated flame retardants, PVC, heavy metals (such as lead, mercury, arsenic, cadmium and hexavalent chromium), plastics and gases. These are harmful to human health (Figure 2-2) and the environment if not managed carefully.[21]

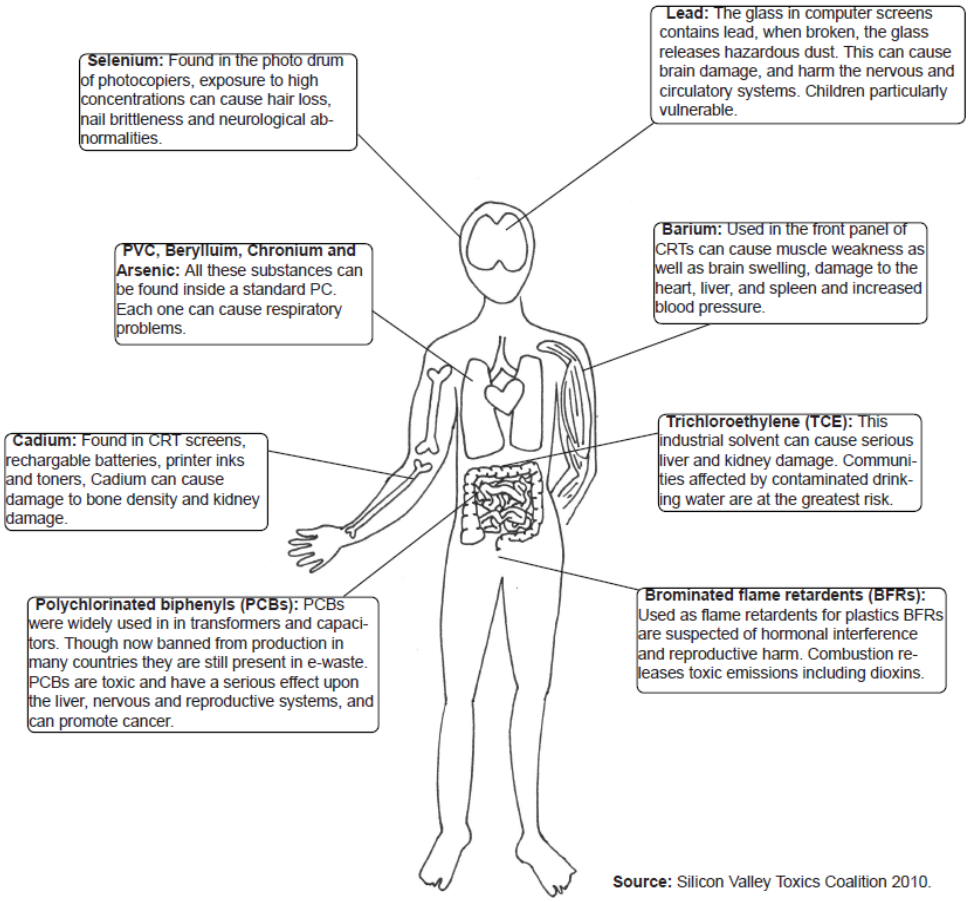


Figure 2-2. Some of the health hazards contained in electronics.

Landfilling is one of the most common e-waste disposal methods, although given the toxic content of electronics, it is a dangerous one.

All landfills, even state-of-the-art ones, leak to some extent, and the resulting 'leachate' often contains heavy metals and other toxic substances which can contaminate the soil and water sources.

About 40% of the heavy metals, including lead, mercury and and cadmium, found in US landfills come from e-waste.[22] Landfills are also prone to toxic emissions from vaporisation of volatile compounds like mercury and fumes from uncontrolled fires, which can pollute the atmosphere.[23]

Toxic materials used in electronics makes their safe recycling difficult.

[19]Williams et al. 2008: 6452
[20]Leonard 2010
[21]Widmer et al. 2005 and ETBC 2009
[22]ETBC 2009
[23]Empa 2009

For instance, materials like lead in cathode ray tube (CRT) TV monitors and mercury lamps in LCD screens (Box 2-3), as well as PVC, flame retardants, and other additives in plastic components must all be removed before recycling.[24]

'As much as 1,450 tonnes of a brominated flame retardant called TBBPA was used to manufacture 991 million mobile phones sold in 2006. This chemical has been linked to neurotoxicity' [25]

Without the end of life in mind, electronics are manufactured in a way that, when recycled, will produce polluting residues and emissions that harm people and planet, particularly when improper e-waste handling techniques are used.

The EU has acknowledged the toxic nature of substances used in electronics and is attempting to address the situation through the Restriction on Hazardous Substances (RoHS) Directive, which bans and controls the use of certain materials in electronics for all products sold in the European community. Covered by the Directive are four heavy metals (lead, cadmium, mercury and hexavalent chromium) and two categories of brominated flame retardants. (See further details in Section 3.1.1.2.)

If manufacturers embraced safer design that eliminates toxics, the end-of-life hazards presented by our electronic gadgets would be largely reduced.

Box 2-3. What's on the telly? Some hazards in your screen

There are toxics built in to your televisions that can seriously pollute if you send your old TVs to the dump.

Older cathode ray tube (CRT) televisions contain between two and four kilograms of lead, which can leach toxic chemicals when they break down in landfill, polluting groundwater sources.

LCD models are beginning to dominate the market, and contain mercury lamps to light their screens. Each LCD uses only milligrams of mercury. Yet the metal is so toxic that as little as one gram of airborne mercury deposited per year to a 20-acre lake is enough to maintain contamination levels in the water that make the fish unsafe to eat.

Source: ETBC 2009

There are a number of international organisations that advocate the cleaner production of electronic goods. For instance, Greenpeace (through its Greener Electronics campaign), the Silicon Valley Toxics Coalition and Toxics Link all push companies to clean up their acts and design their goods without toxics. (See details of these groups in Section 3.3.)

Problem #3. Electronics contain valuable and scarce materials

As well as containing many harmful, toxic substances, electronics also contain other substances that are highly valuable.

Most of the valuable substances are found in printed circuit boards, which connect and support electronic components. In a PC, these include iron, aluminium, copper, lead, nickel, tin, gold, silver, platinum and palladium. Metals and other valuable materials exist in other electronics components, such as the copper in wires, and iron and aluminium in housings.[26]

'[M]ore gold could be extracted from a metric ton of used circuit boards than could be extracted from 17 metric tons of gold ore'

Grossman 2010: 4

Many materials vital in the production of ICT equipment are extremely scarce, which contributes to their value. Scarce materials like indium and gallium are starting to play an important role, due to their application in new technologies (for example in flat and touch screens, and photovoltaics for solar energy).[27]

Figure 2-3. E-waste contains many valuable and scarce materials.

[24]ETBC 2009
[25]Greenpeace 2008a
[26]For more information about valuable materials in electronics, see www.ewasteguide.info.
[27]Empa 2009

Supply of 14 of the minerals used in modern electronics is at critical levels, with demand for these materials expected to triple by 2030.[28] Some of them, such as tantalum, tungsten and rare earths, also come from highly insecure sources, including from countries where the activities of the companies that extract them are the subject of serious concern and campaigns by human rights NGOs.[29]

Given the impacts associated with obtaining these materials in the first place, and the fact that some of them are so scarce, it is a crying shame that they go to waste when our old machines are sent to landfill or for substandard recycling. We must demand that manufacturers minimise the volume of raw materials used in manufacture and make electronics easier to reuse and recycle. We must also make sure that we keep e-waste out of landfill, to recover any if not all resources that we can from our electronics.

Problem #4. Poor e-waste management costs people and the planet

E-waste is difficult to reuse and recycle as it contains hazardous and tricky-to-handle components. Too many of our unwanted electronics end up (for some countries, illegally) in landfill or in incinerators with other municipal waste, or is otherwise unaccounted for. ***Shockingly, of the 50 million tons of e-waste generated worldwide in 2009, only 13% was recycled.***[30]

'The fate of large quantities of this so-called e-waste is unknown. This "hidden flow" is the e-waste that escapes responsible collection, reuse and recycling systems and as such is unaccounted for'

Greenpeace 2008: 5

This is a terrible waste of precious resources, especially given the impacts associated with raw materials extraction and so on involved in electronics manufacture. For instance, if done in a safe, correct way, "mining" our old gadgets to recover the contained materials needs only a fraction of the energy required to mine the ores in nature.[31] Also, given the hazardous nature of some of the materials in electronics, poor e-waste management means that communities and the environment are paying the price for manufacturers' toxic, wasteful design.

Landfill or incineration is not the only way our electronics reach a bad end. Often electronics end up being subject to substandard treatment, increasingly in developing countries, to where e-waste from rich countries is often illegally exported. Due to the toxic content in electronics, rudimentary recovery methods pose great risks to the health of workers –some of whom are children – and to the environment (Figure 2 2, Box 2-4).

For instance, lead – highly toxic to humans and the environment, but contained in significant volumes in CRT monitors and televisions, and in solders and circuit boards in older computers and mobile phones – is banned from landfill in many countries. But CRTs and old mobile phones, which require special handling techniques to recycle safely, are still dumped in countries like China and dismantled by hand.[32]

Even in the EU, in which there is arguably the most advanced regulatory regime for end-of-life electronics in the world, only one-third of e-waste is treated according to the requirements of the WEEE Directive. The rest goes either to landfill, or to substandard treatment, either inside or outside the EU.[33] This includes illegal export to developing countries, where informal recyclers process the waste in unsafe ways, risking their health and polluting the environment.[34]

Rather than taking responsibility for their own waste, companies and individuals in OECD nations are able to avoid the costs of legitimate recycling in their own countries by shipping e-waste out to places where worker and environmental health and safety regulations are low.

Under the guise of recycling, these operations ship huge amounts of hazardous equipment overseas. Studies carried out by the Basel Action Network (BAN) reveal that 'recycling' operations in developed countries like the US are often doing no more than dumping electronic waste upon poorer countries.[35]

'Market forces, if left unregulated, dictate that toxic waste will always run 'downhill' on an economic path of least resistance. If left unmonitored the developed world's hazardous waste will flood the world's poorest countries where labour is cheap, and health and environmental regulations are weak.'

Puckett and Smith 2002: 2

[28]European Commission 2010
[29]Enough Project 2011
[30]ABI in BBC 2010
[31]Schulep et al 2009: 6
[32]Greenpeace 2005
[33]European Commission 2008
[34]BBC 2010
[35]Puckett and Smith 2002

Because health and environmental controls (and thus, labour) in these poorer countries are low, the opportunities for maximising profit are high; but at the expense of people and the planet.

Not only does this unjust system discourage environmentally sound electronic recycling procedures in the same countries producing the majority of e-waste, it also presents a huge environmental and social problem for the countries where the waste ends up.

In order to retrieve precious substances within computers, individuals risk their health, exposing themselves and their environment to toxic chemicals inherent in e-waste. These hazards are heightened by the rudimentary treatment methods used in the informal recycling sector that has arisen around this toxic trash pile (Box 2-4).

Box 2-4. Exporting toxic trash: informal recycling in Guiyu, China.

Guiyu, China. Workers, often young children rummage with their bare hands through mounds of electronics, using hammers and chisels to break apart monitors, dismantling the equipment to retrieve items of value.

The most dangerous and environmentally damaging part of the 'recycling' process is thought to be the recovery of materials in electronic circuit boards, which are heated in a pool of molten lead-tin solder until the chips are removable. Daily exposure to the solder fumes is extremely damaging.

The removal of valuable metals is often carried out by open burning. In the Guiyu region, an informal village has formed at the site where wires are burnt to remove the copper, with toxic ash and residues covering where people live and cook and children play.

These informal recycling processes not only offer a direct danger to the many individuals working within them they also have a huge environmental risk to the whole community. For instance, open burning and dumping of worthless parts in the water has contaminated the drinking supply in Guiyu.

Source: Puckett and Smith 2002

Under these circumstances, developing nations are disproportionately suffering from the burden of the e-waste problem, despite the existence of global mechanisms that attempt to deal with this type of toxic trade.

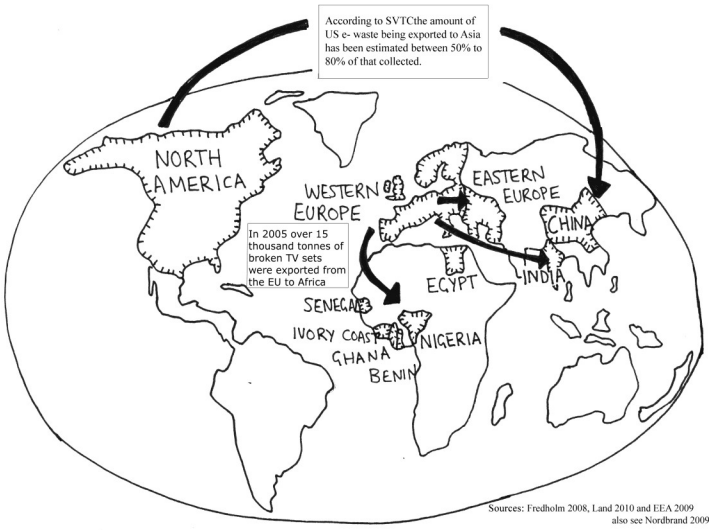


Figure 2 4. Some of the global trade routes for e-waste.

In 1989, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal was created to restrict the unjust trade in toxic waste. In 1994, the Basel Convention agreed a total ban on the export of hazardous wastes from OECD to non-OECD countries, including for recycling (for more information on the Basel Convention and Ban see Section 3.1.2.1).

The idea was to make all countries able to deal with their own waste domestically, and encourage producers to stop designing for the dump by taking responsibility for the economic and environmental costs of their goods, including when they become waste.

Despite the Basel ban thousands of tonnes of e-waste end up in developing countries every year. This is partly because one of the top exporters has not yet ratified the ban; the USA. It is predicted that 50 to 80% of the e-waste collected in the USA is not recycled domestically but is shipped abroad.[36] It is also because with little enforcement of the Convention and ban globally, this toxic trade is able to continue, and poor communities and the environment continue to suffer from toxic, wasteful design.

[36]Puckett and Smith 2002

2.1.3. What's the solution? How to minimise the impacts of electronics and e-waste

The solution:
Producers must take responsibility for their goods over their entire lifecycle, so they can design better products that last and that don't cause hazards at end-of-life
Producers must:
1. Make cleaner products
2. Make longer-lasting products
3. Take their products back for reuse and safe recycling

The *real* cost of technology includes the social and environmental impacts incurred over its whole life cycle. Current trends in electronics production and consumption, together with a lack of options for safe e-waste management in many countries, mean that both people and the planet are paying the price for toxic and wasteful design. The current situation is both unfair and completely unsustainable.

Much media and policy debate focuses on how we can reduce the environmental impact of electronics by improving their energy efficiency. While an important issue, this can obscure other, potentially more damaging parts of the product life cycle, such as when our gadgets are made and when they become wastes.

For instance, electronics like televisions and PCs are packed with energy- and material-hungry microchips (Box 2-1). This makes their production phase incredibly important. ***For PCs, as much as 80 percent of environmental impact may have already occurred before it is turned on for the very first time;*** so a focus on energy efficiency is really only dealing with 20 percent of the problem.[37]

In any case, improvements in energy efficiency can be undone by the fact that we are consuming ever more stuff.[38] Electronics companies' current ways of doing business means that the purchase of new gadgets is often easier than repairing broken ones, and more attractive than increasing the life span of functional ones. In this case, to make electronics green, we need to look beyond energy efficiency during use. ***We need to focus on manufacture,*** to find ways to minimise the materials and energy used, and to reduce unnecessary production.

We also need to focus on the end-of-life of our electronics, to avoid the pollution and squander of natural resources that occur through improper waste handling. But recycling and safe treatment of e-waste comes at a cost. The complex and hazardous composition of modern electronics makes recycling them safely challenging and expensive.[39]

Any serious attempt to minimise the impacts of electronics needs to examine the entire life-cycle, including their manufacture and end-of-life.

Safe recycling needs a system that keeps toxic e-waste separate from other wastes. The system must keep e-waste out of landfill and put it only in the hands of reputable recyclers. And someone needs to pay for – and coordinate – this. Currently, communities are shouldering the burden of dealing with e-waste. They are suffering economically (through increased taxes for authorities to set up and operate an e-waste system) or with their health and a trashed environment, when e-waste is disposed of irresponsibly.

Setting up systems to safely recycle our e-waste is one part of the puzzle. But on its own it will never be enough to minimise the impacts of electronics, especially if we keep generating unnecessary waste. Managing the impacts of electronics also needs a way to reduce the waste load – and the toxics within – in the first place. A way to do this focus attention at the source of the problem: at design and manufacture. Electronics producers have been the source of the problem, but they can also be the solution: by taking responsibility for their goods over their full life cycle – from production through to the end of their lives.[40]

Actions for producers

To prevent an e-waste crisis and to protect the environment and health of all people in the electronics product chain, producers of electronics must do three things to their products: clean them up, make them last, and take them back.

1. **Clean them up.**

   Electronics manufacturers should design better products that are safe and easy to recycle, that will not cause hazards at end-of-life, and that require fewer raw materials and less energy to produce. This means that they must design out toxics (in many cases, safer alternatives already exist),[41] and design in fewer materials and components overall and more recycled content and reused parts.

[37]Williams 2003 and Williams 2004
[38]EEB refer to the 'rebound effect', see EEB 2009
[39]Greenpeace 2008a
[40]Greenpeace 2008b
[41]Greenpeace 2008b

2. **Make them last.**
   Electronics manufacturers must design and promote products with longer life spans. This means designing products that are easy to upgrade and repair, and that are easy to disassemble for component replacement and reuse, and end-of-life recycling. It means providing information to recyclers and repairers about the hazardous materials within their products, and proper techniques for their management. It also means providing the information and options for consumers on how to extend the life of their goods, such as details of repair and refurbishment services, and avenues for reuse of unwanted machines.
3. **Take them back.**
   Communities should not bear the environmental and health impacts of poorly-managed e-waste, nor should taxpayers bear the cost of recycling old electronics. Electronics manufacturers must take responsibility for their products over their full life and, once their goods reach the end of their useful life, take them back for reuse, and safe recycling or disposal. This means that end-of-life equipment must be subject to high treatment standards (e.g. no landfilling, shredding, or burning of e-waste, only high-quality recycling, etc) and must not be dumped, either domestically or in other countries.

Why should producers be responsible?

The life of electronics spans raw material extraction, transport, product design and manufacture, retail and distribution, use, reuse, and finally end-of-life treatment. It involves miners, manufacturers, retailers, consumers, municipalities, recyclers and others. All of these actors can influence the kinds of impacts that electronics have on people and planet. However, the best way for us to make less impacting electronics is to target the most important actors and give them clear responsibilities.[42]

It is producers that profit from the electronics that become waste, partly because communities are paying the environmental and health costs of their goods. Also, producers are most able to make changes to products at source, as they have the greatest technical know-how of their goods and influence over their design and manufacture.[43] It is producers that can choose to eliminate toxics, minimise raw materials use, prevent wasteful production, increase reuse potential and recyclability and so on.[44]

They can also encourage suppliers to adopt more sustainable practices.[45]

Targeting producers as the key actor to minimise the impacts of electronics and e-waste is based on the principle of extended producer responsibility (EPR). This requires electronics producers to take responsibility for the full life cycle of their goods, including when they become waste.

EPR is a useful approach to minimise the impact of electronics and e-waste (see Box 2-5) because it:

- ***shifts the financial and environmental burden of treating e-waste away from communities and on to manufacturers***, and begins to incorporate the real costs of technology into product price.
- ***can stimulate ecodesign,***[46] by providing financial incentives to producers to design their goods in ways that reduce their environmental impacts over the full product lifecycle. For instance, if producers have to pay for the end-of-life management of their goods, they should design them in ways that lowers this cost, such as by removing hazardous components and making them easier to reuse and recycle.[47]

Box 2-5. Why is an EPR approach suited to electronics?

Extended producer responsibility (EPR) is being widely-adopted in waste management strategies, particularly for products that require special handling and treatment at end-of-life on account of their hazardous content.

This makes EPR well-suited to e-waste management. Growing volumes of toxic e-waste, and the difficulties involved in recycling it mean that we need to look at the problem at source – design and manufacture.

EPR has been recognised as advocated for as a solution well-suited to minimise the impacts of electronics, particularly when they become waste (see campaigns by the Electronics Take-Back Coalition and Greenpeace).

Also, electronics manufacture is a material- and energy-intensive process. For instance, the production of each PC requires 22 kg of toxic chemicals, 240 kg of fossil fuels and 1,500 kg of water.1 Any strategy to reduce ICT impacts must necessarily also focus on manufacture; an EPR approach allows for this.

Source: Williams 2003

[42]EEB 2010: 14
[43]EEB 2010: 14
[44]IIIEE 2006a: 1
[45]EEB 2010: 14
[46]Ecodesign is the integration of environmental aspects to into product design with the aim of improving the products environmental performance throughout its life cycle.
[47]IIIEE 2006a

After over a decade of careful deliberation, producers and governments in the EU accepted producer responsibility as the best, and fairest, mechanism to tackle the e-waste problem in Europe.

This has been reflected in the WEEE and RoHS Directives.[48] These have been implemented in more than 20 nations across the EU. Along with legislation designed to minimise energy use and other impacts,[49] these Directives target various life-cycle impacts of electronics, all recognising that the producer is best placed address them, through ecodesign.[50]

EPR is now becoming the international standard, with similar legislation now being discussed in the US, Canada, Australia and elsewhere.

Actions for other stakeholders

To help minimise the impact of electronics and e-waste:
Governments must:
1. Ban the import and export of e-waste
2. Ban the landfill of e-waste – promote equipment reuse and make e-waste recycling compulsory
3. Enact producer responsibility and promote ecodesign
4. Monitor actors and punish criminal activity

Consumers must:
1. Buy less, then buy green
2. Give their goods back to producers for safe reuse and recycling

Any approach to minimise the impacts of electronics and e-waste needs to make producers take primary responsibility for their goods over the full product life cycle. However, this does not mean that others have no role to play. For instance, governments need to provide the right policies and laws to encourage ecodesign and ensure compliance. Also, to minimise the impact of electronics and e-waste, consumption and disposal behaviours need to be addressed, meaning consumers have a key role to play.[51]

Actions for governments

Governments have a big role to play in developing policies and regulating behaviours to encourage good practice in electronics and e-waste. We must thus demand the following of governments:

1. Don't let e-waste out – or in.

Bans on e-waste import and export are necessary to protect communities and the environment in countries without a safe e-waste management infrastructure. They are also needed to ensure that all countries can build and sustain the capacity to manage their own e-waste. Exported waste means a loss of valuable resources for recycling industries in the country of export, while imported waste can overwhelm the import countries' own e-waste management systems.[52] Also, the export of e-waste stifles the innovation needed to address the problem at source – at design and manufacture. If producers are able to continue to pass the costs of toxic, wasteful design via export to countries that are least able to deal with it, then they can delay applying their significant resources and technological know-how to make less harmful goods in the first place.[53]

Therefore, ***governments must ban e-waste import and export. Those countries that already have such bans in place must enforce them.***[54]

2. Don't let e-waste go to landfill.

E-waste in landfill – or dumped elsewhere – is not only deadly; it's a wasted opportunity. Toxic materials in e-waste can pollute the soil, water and air, and when electronics are not reused or recycled, valuable resources are lost. E-waste must be kept out of landfill (or other informal dumping sites) where it can do serious damage.[55] Instead, it must be sent to legitimate operators: if functional, the equipment should be reused, and if non-functional, safely recycled. Also, like in the case of e-waste export, landfilled e-waste stifles opportunities for innovation by allowing manufacturers to continue to pass on the costs of toxic, wasteful design to communities and the planet rather than designing cleaner, greener products in the first place.

Therefore, ***governments must implement landfill bans for e-waste. Functional equipment should be reused; all e-waste should be recycled.***

[48]Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE) and Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.
[49]Directive 2009/125/EC establishing a framework for the setting of ecodesign requirements for energy-using products (the EuP Directive).
[50]For an overview of these three instruments, see EEB 2010.
[51]EEB 2009
[52]IIIEE 2006a
[53]Puckett and Smith 2002
[54]Many countries already have legislation that governs the trade in hazardous waste. For instance, the EU's Waste Shipment Regulation (Regulation (EC) No 1013/2006) transposes the Basel Convention and ban into EU law, controlling transboundary movement of hazardous waste and forbidding its export to non-OECD countries. The fact that export continues suggests that the problem is one of implementation.
[55]ETBC 2009

3. Enact producer responsibility, encourage ecodesign

To enable electronics manufacturers to make the shift from toxic, wasteful design to design that is safe for people and the planet, governments need to:

- ***Put substance bans in place*** for manufacturers to reduce and eventually eliminate the use of toxics in electronics. Also, producers must be made to provide information about hazardous substances in their goods and the proper means for managing them by consumers and recyclers.[56]
- ***Make producers individually responsible for the end-of-life management of their own goods.*** This means making them cover all end-of-life management costs of their goods, from collection through to recycling and final disposal, to provide incentives for ecodesign and develop domestic markets for recycling.[57] For this to work, any producer responsibility programme should cover a wide product scope and include all producers operating in a country, which includes manufacturers, brand owners and importers. It should be free and convenient for consumers to use.[58]
- ***Implement ambitious collection and recovery targets*** to keep e-wastes out of landfill and to provide manufacturers with the inventive to develop a convenient and effective collection, disassembly, reuse and recycling infrastructure.[59] Any targets should be increased over time to push manufacturers to continually improve the design and end-of-life management of their electronics.
- ***Implement meaningful and enforceable treatment performance standards.*** To put an end to harmful treatment practices (e.g. landfilling, incineration and export), and to encourage continual improvements in e-waste management, all collection and treatment operators must be licensed and inspected by the relevant national environment agency. Meaningful and enforceable performance standards must apply. These include minimum treatment standards for goods that are to be traded for reuse (to prevent sham trade in e-waste disguised as used electronics) and requirements for the removal of hazardous materials and components (e.g. refrigerants, batteries, mercury back-lights) prior to further treatment.
- ***Explore further innovation policies that encourage ecodesign.*** For further incentives for improved product design and use, and to close material loops, governments should mandate minimum product standards for producers to e.g. increase the recycled content of their goods and improve their recyclability, reusability, recoverability, energy efficiency and so on.
- ***Educate and communicate.*** All actors need to know their role and responsibilities for an e-waste management system to work properly. Governments should run awareness-raising and communication campaigns to encourage wide participation and ensure compliance and best practice in e-waste management. Governments could also educate citizens in the need to reduce overall consumption, for instance promoting electronics reuse or the replacement of products by services (e.g. renting, sharing etc), to lessen the waste load, in the first place.[60]

4. Enforce it.

A safe and fair e-waste system is one where all actors follow the rules and there is no free-riding,[61] illegal export or poor treatment. For this, monitoring and enforcement are needed,[62] with strong penalties for those that break the law. This includes fines and even imprisonment for more serious offences against communities and the environment. ***Governments must dedicate sufficient resources to the bodies responsible for the effective monitoring and policing of the system.***

Actions for consumers

Being the ones that make purchasing and disposal decisions, consumers have a big role to play in minimising the impact of electronics and e-waste. They must:

1. Buy less, then buy green

Even with real improvements in electronics design, without an overall reduction in consumption, we cannot hope to reduce the growing e-waste pile over the long term.[63]

[56]GRRN/SVTC 2008
[57]GRRN/SVTC 2008 and IIIEE 2006b
[58]Greenpeace 2008b
[59]GRRN/SVTC 2008
[60]EEB 2009 and ACR 2003
[61]This refers to those manufacturers that participate in and reap the benefits of an existing EPR scheme without making a financial (or other) contribution to it, as can happen in the case of manufacturers of non-branded products and components.
[62]Widmer et al. 2005
[63]See, e.g. EEB 2009

Consumers should ***think twice before buying whether a new device is really needed*** – could the life of the old machine be extended through upgrade or repair? When new devices are needed, consumers can send industry a strong message for better design and responsible manufacture by ***only buying from green manufacturers;***[64] rankings of the good and bad performers are available (see Greenpeace Guides to Greener Electronics).

2. Give them back

Making producers incorporate the true cost of technology into their goods means not letting their products go to landfill or be sent somewhere for poor treatment. Consumers have a part to play here – when goods are no longer wanted, they should:

- ***If functional, make them available for reuse.*** There are huge environmental and social benefits to be had by giving unwanted electronics a second home. For instance, reusing working computers is up to 20 times more energy efficient than recycling them, and helps avoid unnecessary production of new machines. Also, the lower price of reuse goods provides opportunities for access to technology for those unable to afford them new.[65]
- ***If non-functional, use proper channels for safe recycling.*** Unwanted electronics should not be put in the trash, but given to responsible recyclers – ones that don't export, incinerate or dump waste – either through the national e-waste management system (if one exists), or via the manufacturers themselves, some of whom take back their goods directly. If none of these options exist, consumers could send their electronics back to the manufacturer, regardless, sending a strong message for them to 'take them back'.

2.2 E-waste: analysing the issue

Data and research are essential to both the policy-making process and advocacy planning and action. They help give your advocacy positions credibility.[66]

As Sharma[67] explains, they can be used to:

- identify issues for policy action
- identify credible solutions and alternative approaches to a problem
- influence decision makers, either directly or indirectly (e.g. via the media, public, or others
- choose an advocacy goal (and thus develop an advocacy strategy)
- support an existing advocacy position and/or counter oppositional positions
- alter the perceptions about an issue or problem – e.g. 'myth busting'
- confirm policy actions and programs that work and reconsider those that do not

Box 2-7. Research as advocacy: Highlighting a toxic trade

In 2002, the Basel Action Network (BAN), an NGO that campaigns against toxic trade, together with the Silicon Valley Toxics Coalition, published the report Exporting Harm: the high tech trashing of Asia.

In this seminal report, the authors expose the growing problem of e-waste export from developed countries for unsafe treatment in Asia and are highly critical of government policies that allowed the practice to continue.

The report highlights the import of e-waste into Guiyu, southern China, where the wastes were being dismantled and recycled using unsafe procedures without proper equipment, risking the health of the local population and damage to the environment. Samples taken from the soil and water in Guiyu indicated heavy metal contamination well in excess of global health guidelines.

As well as exposing the toxic – and illegal – trade to audiences in developed countries (where much of the e-waste originates from), the report provides credible solutions, suggesting numerous recommendations for action. These include implementing and enforcing e-waste import and export bans, reducing the amount of hazardous material used in electronics, increasing producer accountability, and designing equipment to counter the rapid obsolescence of computers through reuse and upgrading.

There are other, similar examples that show how research can be used for advocacy. For instance, BAN had produced a second report on a similar issue, highlighting illegal exports of e-waste from developed countries to Nigeria (see their 2005 report, The Digital Dump: exporting re-use and abuse to Africa). Also, Greenpeace conducted a study in 2008 (see the report, Toxic Tech: not in our backyard) on the hidden, global flows of e-waste that escape formal treatment systems.

[64] See, e.g. EEB 2009
[65] Greenpeace 2008b
[66] See Computer Aid Special Report, Computer Aid 2010
[67] Sharma 1997: 14

A sound analysis of the situation is vital to not only develop an effective advocacy strategy; it can also be an effective advocacy tool in itself. For instance, a number of environmental NGOs have used research as an advocacy tool to push for government change in e-waste policy.

Some of the most popular examples of this include work by the Basel Action Network with the Silicon Valley Toxics Coalition and Greenpeace. They have produced reports that highlight the illegal trade in e-waste and its effects on local communities and the environment in developing countries (see Box 2-7).

These reports and the associated press coverage brought these issues into the public domain, provided much-needed data on the global movement of e-waste, and gave credible solutions to the problem with a series of recommendations for action for various stakeholders.

WaterAid (2003) identifies three aspects of analysis that are necessary for effective advocacy planning: analysing the issue; analysing the context; and understanding the time frame'.[68]

1. **Analysing the issue.** The Problem Analysis Framework may be useful to you and your advocacy team when analysing the issue (see Box 2.8). When drawn up as a group during the early stages of advocacy planning, it can help form a common understanding of the problem, identify objectives and possible ways forward, and areas that may need further research.[69]

Box 2-8. The problem analysis framework – analysing the issue, identifying solutions

The Problem Analysis Framework[70] breaks up the main issue into a list of sub-issues. For each of these, consequences (health, environmental, economic, etc), causes (economic, social/cultural, technical, political, etc) and solutions (changes in policy, practice, implementation of policies, attitudes, and so on) are identified.[71]

Isssue:			
Sub-issues 1	Consequences	Causes	Solutions
Sub-issues 2			
Sub-issues 3			

For instance, an e-waste example could look like the following:

Issue: E-waste management in the United Kingdom			
Sub-issues	Consequences	Causes	Solutions
Sub-issues 1 E-waste from the UK is being illegally exported for treatment in Nigeria	Informal recyclers in Nigeria are becoming seriously ill due to unsafe treatment practices Unsafe disposal of wastes is polluting water sources UK-based recycling industries are losing out on valuable resources, undermining local markets Etc...	Lack of environmental and labour laws and standards in Nigeria making treatment cheaper there and thus more profitable Lack of appropriate investment in enforcement agencies in the UK and in Nigeria Etc…	Changes in policy, practice, laws, attitudes and behaviour, e.g.: • lobby UK Govt to increase investment in enforcement bodies • encourage users of electronics in the UK to only dispose of their e-waste through reputable recyclers • Etc...

[68]WaterAid 2003: 16, original emphasis
[69]WaterAid 2003: 35
[70]Miller and Covey 1997
[71]WaterAid 2003: 35

2 **Analysing the context.** This involves developing an understanding of how change takes place in the issue you are working on: understanding who makes decisions, as well as where and how decision-making takes place.[72]

The five basic stages in decision-making are outlined in Figure 2-5.[73] These will often have both formal and informal processes. Formal processes are the official procedures as stated by law or by documented organisational policy, while informal processes are activities and procedures that occur concurrently with the formal process, but are not required by law or organisational policy.[74]

Using these steps as a guide, a policy process mapping tool can be used to analyse the various steps in the decision-making process and identify possible areas for action. These can be presented in a table (see Table 2-1 for Stage 1; the process is then repeated for each stage). To demonstrate the use of policy process mapping in e-waste policy, some of the steps in the transposition of the EU's WEEE Directive into UK law are presented in Table 2-2.

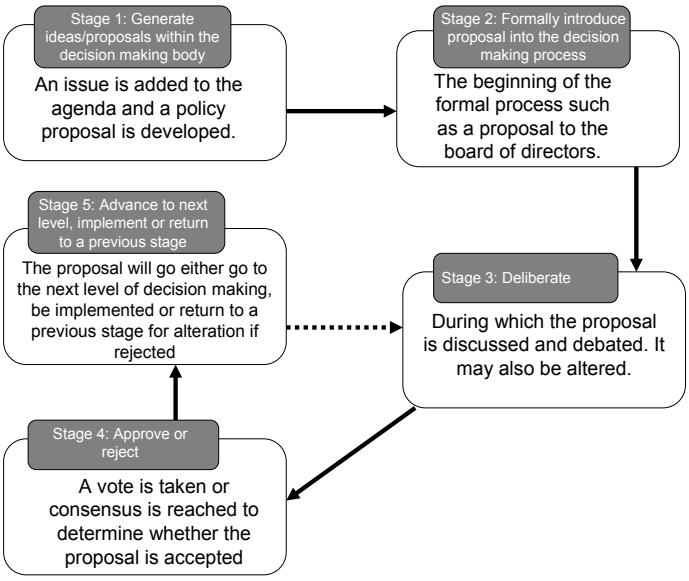


Figure 2-5. The decision-making process (Source: Adapted from Sharma 1997)

Table 2-1: Policy process map – Stage 1 (Source: Sharma 1997)

Generate proposal	
Institution/Organisation:	
Formal process	
Informal process	
Decision-makers involved	
Approximate date of action	
How we can influence the process at this stage	

[72]WaterAid 2003
[73]The stages provided are generic; the actual mechanisms and techniques will vary amongst institutions. Also, a further step – Review – could be added after Stage 5. However, the schematic provides a useful conceptualisation of the process and how advocacy teams can map their way into it.
[74]Sharma 1997

Table 2-2. Policy process map – fictitious example from the transposition of EU e-waste law in the United Kingdom

Stage One: Generate proposal	
Institution/Organisation: Department for Business Innovation and Skills (BIS. NB: At the time of the WEEE transposition, this was known as the Department for Trade and Industry)	
Formal process	BIS develops, through a WEEE Implementation Team, proposals for the draft legislation to implement the WEEE Directive. This is based on results of previous consultations in 2003 and 2004 and a review of proposals for implementing the WEEE Directive (also subject to consultation).
Informal process	Informal discussions amongst members of BIS and other government departments, members of industry, and other NGOs about the proposals
Decision-makers involved	Heads of BIS, Department of Environment, Food and Rural Affairs, and devolved administrations
Approximate date of action	March to July 2006
How we can influence the process at this stage	– Meet with BIS WEEE Implementation Team to express our support for the process – Meet with other NGOs and social enterprises to discuss proposals and form alliances if appropriate to strengthen position – Garner support for our position and proposals through media work
Stage Two: Introduce proposal	
Institution/Organisation: Department for Business Innovation and Skills (BIS)	
Formal process	BIS finalises proposal and introduces it into the stakeholder consultation process, including draft regulations, non-statutory guidance and a partial Regulatory Impact Assessment (RIA).
Informal process	Informal discussions amongst members of BIS and other government departments, members of industry, and other NGOs about the proposals
Decision-makers involved	Heads of BIS, Department of Environment, Food and Rural Affairs, and devolved administrations
Approximate date of action	July 2006
How we can influence the process at this stage	• Meet with other NGOs and social enterprises to discuss proposals and form alliances if appropriate to strengthen position • Respond to government proposals and contribute our own • Garner support for our position and proposals through media work
Stage Three: Deliberate	
Institution/Organisation: Department for Business Innovation and Skills (BIS)	
Formal process	Stakeholders (interested parties likely to be directly affected by the final regulations, including businesses, individuals and a range of representative bodies across the producer, distributor, waste management and re-use sectors, local authorities, public bodies, and government departments) are invited to provide comments on the draft package.
Informal process	Face-to-face meetings with various stakeholders (including meetings within industry organisations) and awareness-raising events (arranged by external organisations) that supplement the consultation package.
Decision-makers involved	BIS WEEE Implementation Team, minister in charge of BIS, heads of other departments (e.g. Defra)
Approximate date of action	26 July to 17 October 2006

How we can influence the process at this stage	– Initiate/attend industry meetings and awareness-raising events to communicate our position and strengthen it with other stakeholders – Submit formal contributions to the consultation rounds – Seek coalitions with similar organisations to submit joint positions – Garner support for our position and proposals through media work
Stage Four: Approve or reject proposal	
Institution/Organisation: Department for Business Innovation and Skills (BIS)	
Formal process	Workable/relevant feedback from stakeholder consultation incorporated into draft regulations.
Informal process	Ministers will talk informally with BIS and Defra staff, plus WEEE Implementation Team.
Decision-makers involved	Minister for BIS and WEEE Implementation Team.
Approximate date of action	October to December 2006
How we can influence the process at this stage	– Voice support for our inputs into the consultation process to be incorporated into the draft through informal discussions with WEEE Implementation Team and coalitions – Continue media work to express continued support and to help put pressure on BIS to include the most environmentally-sound proposals into the final regulations
Stage Five: Advance to the next level	
Institution/Organisation: Department for Business Innovation and Skills (BIS)	
Formal process	Regulations laid in front of UK Parliament that transpose the WEEE Directive. Within 40 days, if there is no objection from the House, the Regulations will be made and, thus, implemented.
Informal process	Discussions between BIS, Defra, and their head ministers, plus WEEE Implementation Team. Pressure needed (through stakeholder groups, media) to ensure regulations are approved and pass to the implementation phase.
Decision-makers involved	Minister responsible for BIS, all MPs
Approximate date of action	December 2006
How we can influence the process at this stage	– Continue to express support for the regulations to the minister's office to ensure that no objections to the regulations are laid – Highlight the importance of the regulations and the need for ongoing support and vigilance in implementation via media and own work – Provide input into review process once implementation occurs

3. **Understanding the time-frame.** An assessment of the time-frame surrounding your issue will identify key events or opportunities around which the advocacy plan can be built and help to increase the impact of your efforts. These events may be conferences, elections, deadlines for stakeholder consultations, parliamentary timetables, meetings and so on.[75] A useful exercise for advocacy teams to chart key events influencing their advocacy efforts can be seen in Box 2-9.

[75]WaterAid 2003: 30

Box 2-9. Using a timeline for advocacy planning

Constructing a time-line can help advocacy teams to chart the key events which will affect their proposed work and to time inputs for maximum effect.

'Step 1: Tape together three flip-chart sheets end-to-end and draw a horizontal line across them. This represents the time scale of your advocacy project. At the right hand end, write the anticipated end date of your advocacy project and draw a simple illustration of how the world will be when your advocacy has succeeded.

Step 2: As a group, discuss the social or political events that are likely to impact on your project through its lifetime. Mark these in sequence on your drawing, adding the expected dates if known. This gives a simple picture of the external environment in which your advocacy will unfold.

Step 3: Now brainstorm possible activities within your advocacy project. As people think of activity ideas, discuss them in the group briefly to prompt more ideas. Each individual should also write their idea/s on Post-it notes or pieces of paper or card that can be stuck on to the picture. All ideas should be included at this stage as even those that seem unrealistic may inspire great alternatives.

Step 4: When there is a good range of possible activities, group members stick them on to the line, discussing the appropriate sequence and how they would tie in with outside events. Discuss which activities should be priorities, i.e. which ones contribute best to the overall goals, are most realistic, affordable and fit in well with other events.

The chosen activities and their sequencing become the time-line for your advocacy project.'

Source: Save the Children Fund 2000: 50, WaterAid 2003: 30

2.3. Setting objectives for e-waste management

2.3.1. What is an advocacy objective? How is it different from an advocacy goal?

An advocacy goal is the subject of your advocacy efforts: it is the overall purpose of your project. It sets out in a broad statement what you are trying to do.[76]

For example, a goal related to e-waste in Serbia could be:

'The goal of the Serbian E-Waste Advocacy Network is to protect the environment and the health of all electronics users, workers and communities by: firstly, making producers responsible for their goods over their entire lifecycle so that they can design better products that last and that don't cause hazards at end-of-life; and, secondly, promoting improved management practices among all actors in the electronics and e-waste chain.'

An ***advocacy objective*** is an incremental and realistic step toward your goal: it indicates what you want to change, identifies who will make the change, by how much and when.[77] However, goals and objectives are tightly linked: without a goal, '*project objectives can easily become ends in themselves and it is possible to lose sight of what you are trying to do.*'[78]

Objectives are the most important part of an advocacy strategy and so they must be SMART:[79]

- **S**pecific – What exactly do you want to happen
- **M**easureable – Will you know when you've achieved it?
- **A**chievable – Is it possible to achieve with given resources and time?
- **R**elevant – Is it relevant to all stakeholders and the issue at hand?
- **T**ime-bound – By when do you want it to happen

For instance, an objective related to e-waste management in Serbia could be:

'To convince XX in the Environment Ministry to release funds from the EcoFund to licensed e-waste operators in Serbia by XX so that they can develop the necessary collection infrastructure for citizens to discard their end-of-life electronics'

Short-term objectives may focus on smaller policy and behaviour change or raising awareness, while long-term objectives usually focus on changing institutional policies and practices that affect whole communities or countries. An advocacy plan is likely to contain both kinds, as it may be necessary to achieve some of the short-term objectives before you can achieve the long-term ones.[80] A tool to assist you and your advocacy team to set SMART objectives is provided in Box 2-10.

[76]Tearfund 2002: 35
[77]Sharma 1997: 23
[78]Tearfund 2002: 35
[79]WaterAid 2003
[80]Tearfund 2002: 36

Box 2-10. Tool for setting SMART objectives

The following exercise may be useful for teams in the process of defining their advocacy objectives to help ensure they are SMART. It requires a group of at least 5 people.

Step 1: Each person is given 3 cards and asked to draft up to 3 objectives and write them, one each, on the cards, which are placed in a pile in the centre

Step 2: The team is then split into five groups, each of which is allocated one of the SMART criteria: for example 'Specific', 'Measurable' etc. (in a team of only 5 people, each 'group' will contain only one person).

Step 3: The first 5 cards are distributed between the 5 groups, who examine the objective written on the card and decide whether it meets the criterion of their group. If it is not sufficiently 'specific', 'measurable' etc, they edit the objective (in a different colour pen). If they consider it to be an activity, rather than an objective, they place it in a separate pile in the centre.

Step 4: When they have finished, the group passes their card to the next group, in a clockwise direction.

Step 5: When a card that they have already annotated returns to a group, they place it in a pile in the centre of the room. When a group has no card to look at, they pick a fresh one from the first pile. The process continues until each group has seen every card.

Step 6: The annotated objective cards are then stuck on the wall, with similar ones grouped together, and reviewed by the group. The group can then decide which objectives are the priorities for their work.

The 'rejected' cards that were considered to be activities rather than objectives are reviewed by the whole group and any adjustments made.

Source: WaterAid 2003:33

Box 2-11. Sample SMART objectives for e-waste advocacy

To raise the awareness, within the next 6 months, of the residents of XX community(ies)/town(s) about the lack of YY services for e-waste management and the likely impact on their health and environment.

To establish XX regional network(s) of environmental NGOs, civil society organisations, consumer associations in YY by ZZ in order to spearhead the call for improved e-waste management services that are accessible to all citizens.

To convince the XX Ministry to include a question about household ownership of electrical and electronic equipment in the 2011 census.

To convince the Environment Ministry to develop by December 2011 a law for e-waste management, defining stakeholder responsibilities and mechanisms for implementation, financing, monitoring, and enforcement.

To run an education and awareness-raising campaign by XX amongst the Roma community in YY about the dangers of unsafe e-waste management practices and provide training materials for them on safe handling procedures.

To convince the XX local/regional authority to include plans for the establishment of YY separate collection facilities for e-waste in the 2012 development plans.

To increase the visibility of electronics and e-waste issues affecting communities and the environment and the necessary solutions and stakeholder responsibilities, in the press, social media, and donor reports and organisational programming for the next year, with XX mentions in press and media articles, YY mentions in donor reports and ZZ% representation in organisational programming.

To convince the Environment Ministry to make plans in the 2012 budget to increase funding to the Environment Agency by 5% in order to improve enforcement of e-waste operators.

Some sample SMART objectives for e-waste are provided in Box 2-11.

The choice of advocacy objectives will be influenced by a number of factors, including what your goal is, the capacity of and resources available to your organisation for advocacy, and so on (see Section 2.8).

The types of objectives chosen will also depend on the stage of development of e-waste management systems and legislation in your country, and the awareness amongst decision-makers, citizens and other stakeholders of the issues surrounding electronics and e-waste.

For instance, legislation may already exist; what is lacking is enforcement. Or, there could be no legislation or systems at all; what is needed is awareness-raising about the issue to get it discussed at legislative level and to get infrastructure built. Table 2-3 provides a schematic (an e-waste management 'roadmap') to visualise this.

Table 2-3. 'Roadmap' to developing e-waste solutions

Development stage	Baseline research	Lobbying	Legislation development	Awareness raising	Capacity building	Sensitisation	Implementation	Monitoring
Description	*No formal national e-waste system exists. Research is needed to quantify the problem and identify existing practices and key stakeholders*	Key stakeholders need to be convinced of the importance of the issue and the solutions posed	*Key stakeholders have become convinced of the importance of the issue and the solutions posed, and decision-makers have thus developed and passed legislation*	With a law passed and with implementation pending, key stakeholders need to be made aware of the new law and specifically of their roles and responsibilities	*The necessary take-back infrastructure, including a finance scheme and overall system management (e.g. for administration, monitoring, enforcement etc), as well as public information collateral, needs to be developed to successfully implement the e-waste solution*	The public, media and other key actors need to be sensitised about the impending changes, their rights and responsibilities, and the options available to them	*With the legislation passed, roles and responsibilities allocated and the take-back system developed, the e-waste solution needs to be formally implemented*	Ongoing monitoring of compliance with legislation and performance against targets needs to occur
Key stakeholders to be mobilised by advocacy efforts		CSOs Media Government Producers Recyclers Opinion-formers		Media Recyclers CSOs Producers		Public Media CSOs		CSOs Media

2.4. Identifying targets and allies

Any given advocacy issue incorporates a wide and dynamic stakeholder group, which includes:[81]

- **Targets or primary audiences** – usually decision-makers, who hold the power to change, enact and influence policy directly.[82] These may be politicians, local level government officials, major electronics producers, or representatives from donor organizations
- **Adversaries** – those who oppose your position, but may not be directly responsible for decision-making
- **Allies** – those with whom you can work with on a shared advocacy goal e.g. other NGOs
- **Secondary audiences or targets**, or '**influentials**' – important groups/individuals that, on account of their influence over decision-makers, can prove an effective route to change.[83] These can include staff or officials within a target organisation, NGOs, the media, consumer groups, trade unions, foreign donors, and so on.

2.4.1. Identifying targets

A policy map[84] may be useful when identifying target audiences and influentials for each of your advocacy objectives.[85] For instance, Table 2-4 gives an example policy map for a hypothetical objective for an e-waste management advocacy project in Macedonia.

Table 2-4: Sample policy map - identifying targets (Source: Sharma 1997)

Advocacy objective: '*Pass a law by June 2012 to mandate a ban on e-waste in landfill and to enforce producer responsibility for end-of-life treatment of electronics in Macedonia*'	
Primary audience: "Targets"	Secondary audience: "Influentials"
	Ministerial staff responsible for waste international donors (e.g. EBRD) national newspapers consumer groups/NGOs producer industry groups the general public
Minister of Environment	Ministerial staff responsible for waste Media Consumer groups – *could be allies* Producer groups – *could be adversaries* Trade Ministry
Chair of Commission of Transport, Communication and the Environment	Minister of Environment Other members of the Commission Trade Minister Constituents Media Party leader Local authorities/ Municipalities
Members of Macedonian Assembly	Members of the Commission Constituents Media Party leader Producer groups Consumer groups
Producers	Consumers Environment Ministry Trade Ministry Macedonian Assembly

[81] WaterAid 2003
[82] FAN 2010
[83] Sharma 1997 and WaterAid 2003
[84] Sharma 1997
[85] These could also be visualised in an 'influence tree' – see WaterAid 2003 for an example for corporations

2.4.1.1. Electronics and e-waste: Stakeholders

In addition to those involved in the production of electronics, their import, sale, collection and recycling, there are also regulators, enforcement bodies, and so forth. Some of the key stakeholders and their roles are outlined in Table 2-5.

Table 2-5: Some stakeholders involved in electronics and the management of e-waste

Stakeholder	Role/Stake
Manufacturers (*and importers and re-branders*)	As designers and producers of electronics, manufacturers are key stakeholders in the mitigation of the environmental impacts of electronics, for example, through **eco-design** and the management of e-waste. Under the principle of extended producer responsibility, it is manufacturers that will be responsible for **financing** end-of-life management of their products, so they are **primary targets** for advocacy. Where there is no functioning mechanism for financing e-waste management, manufacturers will be a major focus of your advocacy efforts, and are likely to be **adversaries**, particularly through their industry organisations, which tend to have strong lobbying power. However, there may be some more 'enlightened' producers (e.g. those that already have take-back policies, or that incorporate eco-design principles into their products) that could be brought on board as allies or as **influentials** (e.g. garnering support amongst fellow producers through industry organisations). (*Similar to the above can be said for importers and rebranders since, under some e-waste management regimes, such as the EU WEEE Directive, they have similar responsibilities to manufacturers.*)
Local governments/ Municipalities	As waste management (particularly collection infrastructure) is usually organised at local (or regional) level, municipalities are major stakeholders in e-waste management. Also, poor waste management procedures such as, informal dumps, impact citizens and the environment on a very local level. Thus, municipalities are likely to be supportive of improved e-waste management systems, particularly if funded by manufacturers through extended producer responsibility. Consequently, they are likely to be **allies** and **influentials** (e.g. through other government departments) since traditionally it is local governments that have been footing the bill for e-waste management costs. Also, due to their high level of contact with citizens, they have a role in influencing their constituents' behaviour to maximise collection of old electronics. However, they may also be **adversaries** if their municipalities are underperforming in collection or there are instances of illegal activity e.g. through corruption in the dispersion of fees or the e-waste collected in their municipality is being traded for illegal export.
National governments	As it is national governments that will need to provide the regulatory framework for electronics production and e-waste and most probably a major part (if not all) of overall system management for end-of-life, they are major stakeholders in e-waste management. Potential roles for national governments and their departments and agencies (e.g. environment, business and innovation) include regulation and oversight, collection and administration of fees, enforcement, as well as licensing and approvals for collectors and treatment operators. Consequently, national governments as a whole are a key advocacy **targets**. Individual government departments, agencies, officials and elected representatives may take various positions; for instance, those allied to environmental issues or that have constituents suffering the consequences of illegal disposal of e-waste are likely to want improvements in e-waste management and thus would be **allies**. On the other hand, those more allied with producer groups or those who may feel threatened by the prospect of imposing fees on manufacturers could be **adversaries** to your advocacy efforts. There will be individuals within departments (and in fact, whole government departments) that have the ear of decision-makers; these **influentials** will need to be identified and attempts made to align them with your advocacy efforts.

E-waste collectors and treatment operators	Collectors and recyclers and other treatment operators have obvious, key responsibilities in the development and maintenance of an e-waste management system. In many respects the success or otherwise of a successful e-waste management system is the existence of a broad collection network that is easily accessible to consumers. Likewise, any existing or potential recyclers and other treatment operators are vital to, and can profit from, improved e-waste policies. Both are likely to be **allies** given that they stand to gain financially from increased collection. Thus, e-waste collectors and treatment operators could act as secondary targets, or **influentials**, for instance via industry associations or Chambers of Commerce, through which they can exert influence on decision-makers. There may be some, though, that are opposed to your advocacy efforts; for instance, informal collectors and recyclers may be **adversaries** if their livelihood is threatened by a change in policy that outlaws collection and treatment of e-waste by unregistered individuals or organisations.
Retailers	In some e-waste management systems, retailers have some operational responsibility as take-back sites for consumers' unwanted electronics. Also, they have a high level of contact with consumers and thus have a strong informational role. Thus, they are important **influentials** as they could exercise influence on decision-making (e.g. through the Chambers of Commerce or retail industry associations). However, retailers could also be **adversaries** since they may need to make financial and infrastructural outlay to meet collection obligations.
Consumers (household and business/institutional)	Consumers, both private/household and corporate/business, are key stakeholders since their purchasing, use and disposal practices contribute to reducing the impact of electronics and e-waste. Ultimately, to minimise impact, consumers should: only purchase from those manufacturers that are serious about ecodesign and electronics take-back; maximise the use phase of their goods; and ensure they return their unwanted goods, and only to reputable collection and treatment operators. Messaging to consumers will have to be carefully thought through; consumers may prove to be **allies** if they can see and understand the benefits of an improved e-waste management system. Alternatively, they could prove to be **adversaries** if they only see such a system as a burden (e.g. through increased product price or difficulty in accessing collection points). Where strong consumer groups exist, they could be **influentials**.
Citizens	Citizens have traditionally borne the economic, health and environmental costs of electronics and e-waste, for instance through increased taxes for municipal waste infrastructure or harmful emissions. Thus, they would likely be supportive of advocacy efforts aimed at improving the management of electronics and e-waste, particularly when management based on extended producer responsibility, and can be considered **allies**. As constituents, they could also be **influentials** to the extent that they put pressure on their elected local and national officials to change policy.
Civil society	Civil society has a big role to play in reducing the impacts of electronics and e-waste in terms of organising citizens, highlighting injustices, holding politicians, officials and other actors to account, and putting pressure on decision-makers. Those civil society organisations (CSOs) with an environmental protection remit are likely to be **allies** and, depending on how the issue is framed, other CSOs are also likely to be supportive.
International donors and multi-lateral organisations	In developing and transitional countries, international donors and multi-lateral organisations are potentially major stakeholders in emerging e-waste management systems. As funders of large infrastructural projects like waste management systems or as a source of funds for accession (e.g. through the EU IPA system) and so on, they can be key **targets** for your advocacy efforts. They are also **influentials** to the extent that they provide advice to decision-makers.

2.4.2. Identifying allies (and opponents)

Allies are individuals or other organisations (NGOs, industry associations etc.) that support your advocacy efforts or could be easily convinced to do so. It is often useful to identify an ally within an organisation or close to a policy-maker that you want to influence, as they can help persuade decision-makers to support your position. ***Adversaries or opponents*** are those who may stand in the way or try to prevent you from reaching your advocacy goal, possibly due to their vested interests in maintaining the status quo. You will need to prepare and research the kinds of opposition you are likely to face, in order to develop your arguments and be able to offer alternative solutions to your adversaries.[86]

It is important to recognise that allies and opponents are not fixed positions – individuals and organisations are open to change. As well as trying to move opponents to your side, you also want to bring those that not currently stakeholders on as allies, and to continue to work with allies so that they do not become opponents.[87]

2.4.2.1. Forming alliances

Collaborating with other organisations through networks, coalitions, alliances, partnerships and other structures can be a useful way to exploit a shared pool of resources, expertise, knowledge and lessons learned. Furthermore, one collective voice may be louder than many single voices and can increase the likelihood of being heard by decision-makers.[88]

Alliances may involve collaboration with governments, the private sector, and various other stakeholders, such as in multi-stakeholder processes. Caution must be exercised, however, as forming alliances is not without risk. This is particularly the case for alliances involving the private sector, where a major challenge is how to avoid commercial self-interest dominating the joint advocacy agenda.[89]

Some of the alliances that have formed around the e-waste issue are:

- The StEP (Solving the E-waste Problem) Initiative – a global example of a multi-stakeholder process which brings together various UN organisations, industry, governments, NGOs, and the science sector (for more details, see Section 3.2.1.1)
- IPR Works – a Europe-based alliance of environmental NGOs and industry that aims to encourage individual producer responsibility in the management of e-waste
- Electronics TakeBack Coalition (ETBC) – a US-based alliance of environmental NGOs that promotes green design and responsible recycling in the electronics industry (for more details, see Section 3.3.2.4)

2.4.3. Analysing targets

Once targets – and their influentials – have been identified, it is important to build on this and analyse the extent of their knowledge, beliefs, opinions and attitudes regarding your advocacy goal and objectives. You should also find out what will convince them to support your cause, e.g. economic benefits, political survival, and so on.[90] This analysis will enable you to select the most appropriate messages, approaches and activities for your advocacy objectives.[91] This information can be gathered by, for instance:

- assessing organisations' public statements, press releases and policy papers
- conducting focus groups or surveys of sectors of the general public
- face-to-face meetings with industry groups or decision-makers

Table 2-6 gives an example target analysis for our hypothetical objective for an e-waste management advocacy project in Macedonia. Next to each target is listed in columns: what do they know about the issue; what is their attitude towards it; and what do they really care about. The last column includes any particular influentials that can put pressure on your target.[92]

Box 2-12. Checklist for identifying and analysing target audience

- Who is in a position to bring about the change required?
- What is their attitude towards the issue?
- What are their main concerns?
- What is their power base?
- Who can influence them?
- Regarding the issue, what is their/ the organisation's position, economic or political interest?
- Who are your allies and opponents?

Source: FAN 2010

[86]FAN 2010
[87]Tearfund 2002
[88]WaterAid 2003
[89]WaterAid 2003
[90]FAN 2010
[91]WaterAid 2003
[92]WaterAid 2003

Table 2-6: Analysis of targets - sample table (Source: adapted from WaterAid 2003)

Advocacy objective: *'Pass a law by June 2012 to mandate a ban on e-waste in landfill and to enforce producer responsibility for end-of-life treatment of electronics in Macedonia'*				
Target/Influential	**What do they know about the issue?**	**What is their attitude towards the issue?**	**What do they really care about?**	**Who has influence over them?**
Minister of Environment	Has reasonable level of knowledge, as Ministry is drafting a law for e-waste	Has some concern about e-waste, though it is relatively low down on the agenda. *Likely to be an ally*	Regulatory priorities tied to EU accession process and funding constraints in the Ministry	Ministry officials, party leaders, funding organisations (e.g. through EU IPA process)
Chair of Commission of Transport, Communication and the Environment	Very little – e-waste is very new on the political agenda in Macedonia and there seems to be little communication between Ministry and Commission	When made aware of the issue, seems concerned as it comes under the Committee's remit. *Likely to be ally* (either chair or member(s) of Commission)	Political party priorities, political survival, issues that they see as relevant to constituents, regulatory priorities tied to EU accession process	Party leaders, electorate, other members of the Commission, Ministers of Environment and Trade, producer organisations
Members of Macedonian Assembly	Very little – e-waste is very new on the political agenda in Macedonia	More research needed, though they are likely to be concerned if their constituents are. *Likely to include both allies and opponents*	Political party priorities, political survival, issues that they see as relevant to constituents	Environment and trade ministers, electorate,
Producers	International companies would have some knowledge of the issue from a business perspective, particularly if they are operational in the EU27	E-waste largely something to be externalised. They will be responsible when forced to by regulation. *Likely to be opponents* as they will bear treatment costs	Sales, reputation amongst consumers, minimising regulatory burden	Consumers, Ministry of Environment
Media	Very little – e-waste is relatively new on the political agenda in Macedonia	*Research needed*	Circulation figures, interesting stories	Their viewers, readers and listeners (and in some countries, the government)
Citizens (and consumers)	Very little – e-waste is very new on the political agenda in Macedonia	More research needed, though when made aware, they are likely to be concerned about impact on their health and the environment. *Likely to be allies*	Their health and local environment, cost of products	Media, NGOs, producers, government

2.5. Defining messages

Developing convincing and memorable messaging is incredibly important to achieving your advocacy objectives. As Sharma[93] explains:

'A "message" is a concise and persuasive statement about your advocacy goal that captures what you want to achieve, why and how. Since the underlying purpose of a message is to create action, your message should also include the specific action you would like the audience to take.'

Effective messaging should be:

- simple and easily understandable
- culturally and socially appropriate
- technically correct
- Brief
- Relevant
- Practical
- positive[94]

It should also be backed up by an illustration (e.g. a human interest or success story) and be as localised as possible so that people can easily relate to your message and be inspired to act.[95]

While content is important, it is only one part of a message. Also important are messaging format – who delivers it, where and when.[96] Some further elements of messaging are outlined in Box 2-13. When addressing your audiences, it is important to deliver a consistent message using a variety of channels, over an extended period of time.[97] Table 2-7 outlines some suggested message contents and formats.

There may be one key, memorable message that you want to convey to all audiences, the one that '*you want to get out if you only have a five-minute interview with a journalist*', followed by supporting messages targeted at specific audiences.[98]

Box 2-13. Elements of messaging

- **Content/Ideas:** What ideas do you want to convey? What arguments will you use to persuade your audience?
- **Language:** What words will you choose to get your message across clearly and effectively? Are there words you should or should not use?
- **Source/Messenger:** Who will the audience respond to and find credible?
- **Format:** Which way(s) will you deliver your message for maximum impact? e.g., a meeting, letter, brochure, or radio ad?
- **Time and Place:** When is the best time to deliver the message? Is there a place to deliver your message that will enhance its credibility or give it more political impact

Source: Sharma, 1997: 53

The knowledge gained in the research and analysis phases is really important for framing and targeting messaging in ways that are relevant to specific audiences, without altering the key advocacy position on an issue.[99]

A key message, based on a fictitious e-waste example, framed in different ways for different audiences, is given in Table 2-8. Some facts and figures for e-waste will help give substance to messages. See for instance ETBC's 'Facts and Figures on E-waste and Recycling'.[100]

Some key themes for e-waste advocacy, from which further messaging can be developed (including short, catchy campaign slogans), are provided in Box 2-14.

[93]Sharma 1997: 52
[94]Sharma 1997: 53
[95]WaterAid 2003: 55
[96]FAN 2010
[97]Sharma 1997: 54
[98]FAN 2010: 54
[99]WaterAid 2003
[100]ETBC 2010b

Table 2-7: Some suggested contents and formats for different message audiences (Source: Sharma1997)

Suggested content	Suggested formats
Audience: decision-makers and 'influentials'	
Short, concise, and persuasive messages, which may include: • reference to how your proposal enhances their political/social standing • economic arguments e.g. potential budgetary savings • what action you want them to take • information about who else supports your proposal	• formal or informal face-to-face meetings • informal conversations at social, political, or business gatherings • letters: personal, organisational, or coalition • briefing meetings • program site visits • fact sheets, pamphlets or brochures • short video or slide presentations • newspaper articles or advertisements • broadcast commentary or coverage
Audience: broadcast media and the press	
New/groundbreaking stories and/or information, with a 'human interest' angle	• news release • press conference or media event • issue briefing for journalists • graphics or illustrations • fact sheet or background sheet • media packet/press kit • letters to the editor
Audience: general public	
Simple, clear, concise and persuasive messages that indicate how a proposal will affect/benefit them.	• promotional items, e.g., badges, t-shirts, pens • banners, pamphlets, brochures, fliers • presentations at community meetings • newspaper ads or articles • fact sheets • radio or television shows or news

Box 2-14: Key themes for e-waste advocacy messaging

1. **Producers can turn the tide on toxic, wasteful electronics design and avert an e-waste crisis.** The electronics we buy don't last very long. Toxic components and poor design make electronics hard to repair, reuse or recycle, with most e-waste ending up in landfill or other sites of unsafe and inefficient treatment. This damages the health of workers and communities, destroys the environment and wastes valuable resources. Making producers responsible for their goods over the full product life-cycle, including when they become waste, will shift the costs away from communities and the environment and will give manufacturers incentives to make cleaner, greener products without toxics and with longer lifespans that are easier and safer to recycle.
2. **E-waste can and must be treated safely – and fairly.** E-waste in landfill is a waste of valuable resources and a major health and pollution hazard; it can and must always be reused or recycled. But sending it for treatment to where health and safety controls are low, either domestically or overseas, is an unfair and ineffective way to manage e-waste as it means poor communities and the environment, rather than producers, are paying the costs for toxic, wasteful design. It also stifles the innovation necessary to address the problem at the source – at design and manufacture. Governments worldwide must ban e-waste exports and imports and enforce producer responsibility in their own countries to finance safe e-waste management over the long term. This will ensure that all countries have the capacity to safely manage their own electronics and that all communities can enjoy the right to health and a safe environment.
3. **Everyone has a role to play in making cleaner, greener electronics a reality.** Producers have control over the design of their products and so must spearhead the drive to make cleaner, greener products. Making this shift to truly sustainable electronics production and consumption is possible but everyone has a role to play. Consumers, who make purchasing and disposal decisions, have a key role. Purchasing should be guided by principles of 'buy less, then buy green' (using their goods until they reach the actual end of life or by making unwanted but functional goods available for reuse, and when buying new, by only supporting greener manufacturers). When their goods are at their true end-of-life, consumers must not send them to the dump but give them back to producers for treatment through responsible recycling.

Table 2-8: Key e-waste messages framed for different audiences (Source: based on FAN 2010 and WaterAid 2003)

Key message: *Toxic, wasteful electronics design and a lack of options for safe treatment of e-waste in XX is destroying the environment and damaging the health of workers and communities where electronics are produced and discarded. To avoid an e-waste crisis, and to minimise the environmental impacts of electronics production, use and disposal, producers must take full life-cycle responsibility for their goods, including at end-of-life, so that they can design cleaner, greener products that last and that don't cause hazards when they become waste. Improved management practices among all actors in the electronics chain will also protect people and planet from the avoidable impacts of e-waste.*	
Audience	**Message**
Decision-makers	*XX* generates *YY* tonnes of e-waste each year. Due to poor electronics design, this e-waste is toxic and difficult to recycle. This means local authorities are burdened with extra waste management costs, communities and the environment are harmed, and valuable resources are lost when e-waste is treated poorly due to limited options for safe, efficient management. Mandating that producers be responsible for their goods over the entire product life-cycle, including when they become waste, will shift the financial and environmental burden of e-waste away from communities and onto manufacturers, allow for the development of a safe and efficient management system, and provide manufacturers with incentives to design cleaner, greener products. We would like to request a meeting with you to discuss this issue further.
Media	Aishe is 8 years old. She is part of a Roma community in north-east *XX*. Her family makes a living by collecting plastic bottles, cardboard, e-waste, and other wastes that they sell on for recycling. E-waste is particularly valuable for them as it is easy to collect from illegal dump sites and out of regular rubbish bins, and contains many recyclable materials that are valuable, including aluminium, copper and gold. However, Aishe and her family handle the e-waste without any protective clothing and use unsafe procedures like burning wires on open fires to access the copper within, which produces carcinogens and other emissions that are damaging to their health and the environment. In neighbouring *YY*, where some of Aishe's cousins live, the government has implemented legal duties on producers to finance end-of-life treatment of their own products. This has enabled the development of a country-wide e-waste management infrastructure that has all collectors registered and trained in safe handling procedures. This means that any of Aishe's cousins that collect e-waste have learnt to take it directly to a recycler – who will pay a fee to them – without performing any harmful treatment on it themselves.
General public	Every household in *XX* contains at least *YY* electrical items; these will all become waste. Electronics contain many toxic substances and, without ways to reduce e-waste generation and to treat it safely, our health and the environment suffer. You can do something about this: extend the life of your electronics and, when you need new ones, only support companies that produce cleaner, greener products. Don't put your old gadgets in landfill where they can pollute; give them to charitable organisations for reuse or back to manufacturers instead, where they can be reused, recycled or disposed of safely.

2.6. Choosing approaches and activities

Advocacy can use very varied approaches and activities, from co-operating and working alongside decision-makers, to being more outwardly critical, and even confrontational, of policies.

The approach used sets the 'tone' of your advocacy activities. Approaches can be placed along a continuum, ranging from cooperative to confrontational:

Cooperation – Education – Persuasion – Litigation – Contestation[101]

Where:[102]

- Cooperation – working alongside advocacy targets as an important ally to achieve the desired change
- Education – being seen as an authority on the topic, with the expertise, the experts and the research to provide accurate, complete and trusted data and/or information to support a position
- Persuasion – using a range of strategies to gain support, e.g. education, constructive rational argument, cost benefit analysis, ethical/moral/emotional suasion
- Litigation – using legal and political systems to mount legal challenges to existing practice or interpretation of the law and to change the law
- Contestation/Confrontation – using physical and legal force to create change, such as direct action linked to media coverage/publicity or the threat of litigation or political and organisational embarrassment

It may be helpful to think of the difference between the approaches as being between insider and outsider strategies. For instance, you could either work as an insider alongside decision makers, cooperating while trying to persuade and educate, or work from the outside, using public awareness and shaming tactics to force change.

The approach used depends on a number of factors including the nature of the target, the character of the organisations involved and the advocacy objective. Also important is the country context you are working in.

Whilst some countries have a strong civil society, and thus public campaigns and the use of the media would be effective, in others the situation may dictate that only discreet influencing will be possible. It is likely that you will use more than one approach during an advocacy campaign.

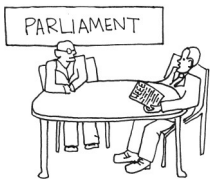
Advocacy *activities* can include the following and each activity can employ various tools (advocacy tools are covered in more depth in Section 2.7):[103]

- Consultations – participating as a stakeholder in consultations in a formal decision-making process
- Policy analysis – research and analysis of policy to prove the case for alternatives
- Demonstrating solutions – 'good practice' advocacy through positive project work
- Public awareness campaigns – mobilising public action in support of the changes you are seeking
- Partnerships – working together with others, such as fellow NGOs, to collectively push for change
- Mobilising the general public – targeting the public as 'influentials' to encourage them to put pressure on decision-makers
- Creating ways for people to act for themselves – facilitating people's participation in their own advocacy causes

As with approaches, activities chosen will be determined by the analysis of the issue and targets, and organisational resources, aims and ways of working. Some of the activities used for e-waste advocacy are provided in Table 2-9.

[101] Miller and Covey 2007
[102] CID 2003:14
[103] WaterAid 2003 and Chandler 2010

Table 2-9. Some activities used in e-waste advocacy.

Activity	Some tools used to support this activity
Consultations:	This cooperative-type approach involves participating in established consultation processes. An organisation may become involved in this because decision makers have identified it as a key stakeholder and/or a recognized expert or authority on the subject.
	– **Basel Action Network:** BAN is recognised by the UN Environment Programme (UNEP) as a leading authority on e-waste. Because of this, BAN has had the chance to influence key decisions within the department and often act as NGO experts in policy deliberations. By maintaining a positive relationship with the UNEP and not overtly criticising its processes, BAN has built a strong relationship which means that it can be consulted on issues. – **The Furniture Reuse Network:** FRN, a UK coalition of enterprises, played an active role in consultations for the transposition of the WEEE Directive into UK law. It was instrumental in having reuse of whole equipment included in recovery targets in the UK regulations.
Demonstrating solutions:	An education-based approach where, through research or project work, an organisation may be able to present viable solutions and demonstrate 'best practice' to influence the decision making process. – **The Scottish Institute of Sustainable Technology:** SISTech researches and promotes best practice in sustainable use of technology. It has produced reports highlighting best practices of the WEEE directive and made recommendations accordingly. – **Basel Action Network:** BAN has produced model national legislation on toxic waste trade for developing countries. Similarly it demonstrates best practice of how countries should respond to toxic waste. – **Computer Aid International:** As well as getting the public educated on the dangers of e-waste, awareness-raising can be used to ensure that businesses know their responsibilities. Computer Aid produced a WEEE Guide which explains the scope of the WEEE legislation and how people can best comply with the legislation. Computer Aid has also produced numerous special reports relating to e-waste and other ICT issues.
Policy analysis:	A slightly more confrontational approach involves analysing current governmental policy, highlighting faults and providing recommendations. – **Greenpeace International, Friends of the Earth and the European Environmental Bureau:** These organisations commissioned The International Institute for Industrial Environmental Economics and Lund University to study the implementation of Individual Producer Responsibility in the WEEE Directive and the impact of Extended Producer Responsibility on innovation and greening of products. These two sets of research provide an informed policy position on WEEE legislation and handling. – **The Centre for Research on Multinational Corporations (SOMO):** SOMO's e- waste policy paper seeks to provide European governments, the electronics sector and NGOs with an overview of the current practice of e-waste collection and treatment. After analysing different policies the report gives recommendations on how the WEEE Directive could be more effective.
Partnerships:	Working cooperatively with partners or within networks provides the opportunity to share expertise and knowledge, increasing the capacity of all organisations involved. A partnership between different sectors is an opportunity to reach a wider audience and give 'weight' to a policy position. Also, having more than one organisation pushing an issue may give it more urgency and attention. – **IPR Works:** IPRWorks is an EU-based partnership between a group of NGOs and some electronics manufacturers that are attempting to promote individual producer responsibility in the EU and globally, through lobby and awareness-raising work.

Awareness raising:

Changing public opinion and raising awareness on the situation can mobilise action and therefore create pressure upon decision makers. This can occur through many different activities including media work, campaigns, and events. It can be educational but can also be confrontational to varying degrees, with one of the most provocative being 'naming and shaming' initiatives' which highlight the negative behaviour by governments or corporations that you are trying to change.

- **MakeITFair:** Coordinated by the Dutch organisation SOMO, MakeITFair is a European project aimed at raising young peoples' awareness about the social and environmental issues involved with their electronic gadgets. Through various campaigns and publications it seeks to make young people active in campaigning against labour abuses and unsafe waste management, including an International Day of Action.
- **Silicon Valley Toxics Coalition:** In 2008 SVTC travelled to Delhi, India to document the lives of those living on the receiving end of the waste disposal trade. SVTC created a video of the dangerous conditions these individuals work in. 'Citizens at Risk: How Electronic Waste is Poisoning the Pathway out of Poverty for India's Recyclers' is a video that aims to create awareness and mobilise action to stop the trade in e-waste. Documenting the real conditions through film and pictures is a very effective tool, raising interest and empathy from potential supporters.
- **Greenpeace:** In a way to spotlight corporations that have negative policies for the environment, Greenpeace have produced the Guide to Green Electronics. This rates the top 18 electronics manufacturers according to their policies on toxic chemicals, recycling and climate change. Through publicising their actions and also congratulating fair policies, Greenpeace hope this will encourage all companies to clean up their products and take responsibility at the end of life stages.
- **Electronics Take Back Coalition:** ETBC have set up a grading scheme for producer recycling programs. The 'Recycling Report Card' grades each company out of a possible 100 points according to different questions. The companies are thus presented in a hierarchy of their recycling practices.

Mobilising public opinion:

This is often the intended outcome for public awareness activities; however it cannot be assumed that just by changing opinions the public will be mobilised into action. Further activities can persuade individuals to put pressure on decision makers. Mobilising large numbers of people around a specific issue may persuade decision makers to take notice and make changes.

- **Computer Aid International:** In 2008, Computer Aid submitted a petition with over 700 signatures to the UK Government to convince decision-makers to initiate tighter policing of e-waste which was illegally leaving the UK. Petitions draw attention to the number of people who believe in a specific issue. By representing the names and details of all individuals, petitions increase pressure on decision-makers to sit up and take notice.

Creating ways for people to act themselves:

This refers to the ways to engage people as actors in sharing and helping to meet your advocacy efforts. For instance, listing simple actions or examples of activities on websites and newsletters could help encourage supporters to get involved.

- **Electronics Take Back Coalition:** ETBC have a section on their website that welcomes visitors to get involved by showing them what they can do to join the campaign. Simple actions include sending a message to government representatives, finding local green recyclers, or simply just staying informed.

Lobbying:

Lobbying is the action of trying to influence decision makers on a particular issue. This can be through face–to-face meetings, letter writing or telephone calls. Effective communication is vital and should be carried out by people that are experts in the field. Some useful tips on how to lobby effectively can be found in the FAN Activist Handbook (see details in section 3.3.1)

- **National Resources Defense Council:** In New York, USA, the NRDC have been building a relationship and lobbying local government representatives to vote on a stronger e-waste recycling bill. Alongside other environmental organisations they had managed to pass a similar e-waste bill through the State Assembly.
- **Computer Aid International:** The UK was very late to transpose the EU WEEE Directive into national law. Computer Aid lobbied to get the issue of e-waste into the minds of legislators and, in 2004, gave the first public briefing on the issue in the upper house of the UK Government.

2.7. Advocacy tools

There are a number of tools that can be used to support your advocacy campaign. When choosing which tools to use, you need to think about your target audience and how best they could be influenced. In addition to the tools outlined in the previous section on advocacy approaches, some further examples that have been used in e-waste advocacy are outlined below.

- **Videos**

Although they can be expensive to produce, videos are a great tool to raise awareness and mobilise action. Nowadays, with the wide availability of video sharing sites such as YouTube, short films can be shared very easily and viewed by thousands, even millions, of individuals.

The Story of Stuff: One of the central problems of e-waste is that most consumers are unaware of the impact of their gadgets at end-of-life. The Story of Stuff Project made a short animation (Figure 2-6) to teach people about the 'design for the dump' mentality of electronics producers. With cute graphics, this video is easy to watch and very accessible, and shares a great deal of information in just a few minutes.

Figure 2-6. A screenshot from The Story of Electronics, an animated film by the Story of Stuff Project. (See www.storyofstuff.com/electronics)

Many other organisations have also used videos as a tool, including Greenpeace and BAN. If you are thinking of making a video check these out to get ideas and also read the Ecologist's guide to video activism, in Section 3.3.

- **Awareness-raising stunts**

A dramatic visual stunt is another great way to raise awareness of an issue. A public event or installation has the potential to reach a very wide audience, and if displayed in a widely-used public space (such as a shopping mall during lunchtime) it may attract many people who will take the time to find out what it is all about. The media may also pick up on stunts, publicising the cause even further.

WEEE Man: To raise public awareness of the issue of e-waste and the recent WEEE legislation, the Royal Society of the Arts in 2006 created and displayed around London 'WEEE Man', a construction of over three tones of electronic junk, standing at seven meters tall (Figure 2-7). The WEEE man is built from the amount of electrical and electronic waste the average British person creates in their lifetime.

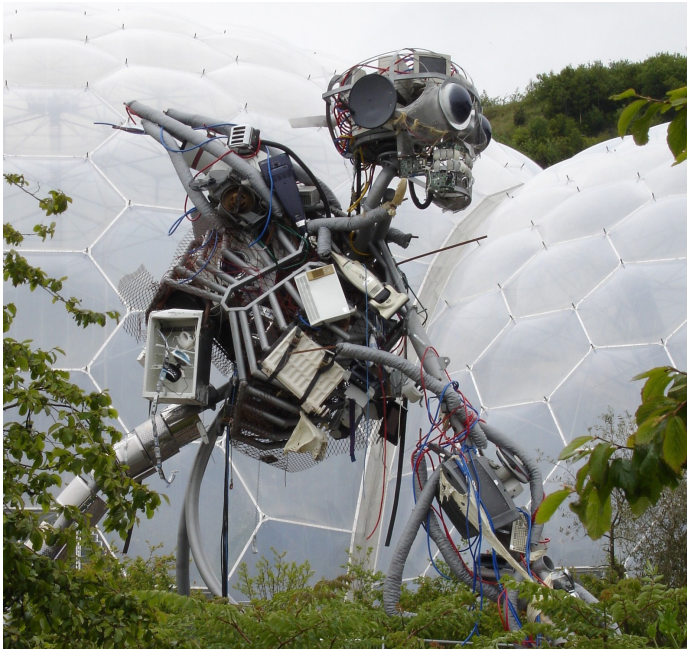


Figure 2-7. The RSA's seven-metre tall 'WEEE Man'. (See http://weeeman.org)

This dramatic stunt sought to raise awareness and change behaviour. By visually displaying the amount of waste every individual is likely to use, people are encouraged to rethink how they perceive waste, shifting from something that is 'out of sight, out of mind' to a problem that we must work hard to solve.

Although WEEE Man required quite a lot of funding, you could with a little creativity create similar awareness-raising, thought-provoking stunts, even if your resources are limited.

- **Reports**

Reports are a good tool to give specialist, authoritative opinions on a specific issue. They can be used as part of a campaign for further reading and background support, or even as policy advice for decision makers.

Computer Aid International: Computer Aid has published a series of Special Reports on ICT and the Environment that cover various issues, including reuse (*Why reuse is better than recycling*), the WEEE Directive (*WEEE ver. 2.0 – What Europe must do*) and extended producer responsibility (*Green ICT – what producers must do*). These four-page reports are meant to provide a concise overview of key topics, providing recommendations to the key stakeholders involved.

Various other NGOs working on electronics and e-waste have used reports to highlight issues and demonstrate solutions, including BAN, SVTC, Greenpeace and ETBC; see Section 3.3 for more details.

- **Media and communications**

  - **Websites and social media**

The internet and social media have become indispensable tools in advocacy. Campaign websites are a useful tool to communicate with supporters, produce opportunities for 'click' campaigns, and are useful as resource dissemination tools. Blogs enable you to bypass traditional mass media (though likely with less coverage); these can be integrated into your own website, or you could write a feature posting on another site.

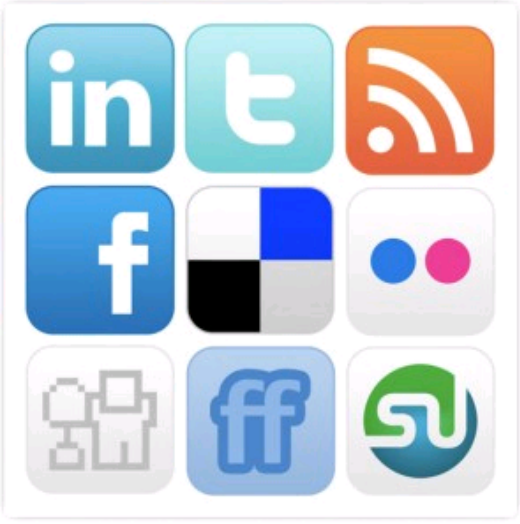


Figure 2-8. Some of the many social media options available to advocacy teams.

Integrating your internet presence with social media provides more visibility for your work. Almost every organisation conducting advocacy is a member of Facebook and Twitter, and any number of other platforms.

These media can be used to share campaigns, news and photos to a wide, tech-savvy audience. By sending out short, frequent messages to followers, you can keep them engaged and willing to help.

  - **Traditional 'mass' media**

While the internet and social media are being increasingly used by campaigners, communication through 'traditional' news outlets like newspapers, television and radio remain vital to communicating your message, changing attitudes and mobilising support for your issue. Mass media tend also to have a strong influence on key decision-makers and so will be an important influential for you to target in your advocacy efforts.

Press releases and ***press conferences*** are good tools to use to gain media attention. By promoting yourself to the media in a clear and informative way, your issue could raise a lot of coverage. It is useful to build relationships with specific journalists that have an interest in the subject. Press releases can have different roles, including giving advance notice of an event, conveying decisions, announcing new campaigns, or criticising or commenting on government decisions. (For advice on how to write a press release see the WaterAid Sourcebook.[104])

Giving ***press interviews*** on television, radio or in print is an invaluable way to get your message across. To prepare for a press interview, it is important to have a thorough understanding of your issue, your organisation's position and anticipated counter arguments. Your language and overall presentation are also vital, particularly on television and radio. The WaterAid Sourcebook[105] has a useful list of "do's and don't's" for dealing with the media. It is good practice to have a couple of '***sound bites***' at the ready. These should be catchy statements, outlining your advocacy position with a useful fact. Some examples are provided in Box 2-15.

[104]WaterAid 2003
[105]WaterAid 2003

Box 2-15. Some example 'sound bites' for e-waste advocacy

1. We need to turn back the toxic tide: the EU is predicted to produce over 12 million tonnes of e-waste per year by 2020
2. Producers must stop designing for the dump: 24% of laptops will fail within their first three years due to hardware failures
3. No more toxic exports or imports: less than 1% of e-waste is recycled safely in developing countries
4. Don't let your electronics go to waste: one tonne of PCs contains more gold than is recovered from 17 tonnes of gold ore
5. Get the toxics out of our gadgets: TVs and CRT monitors can contain in excess of two to four kilograms of lead. But lead is deadly business; exposure causes brain damage in children and has already been banned from many consumer products

Sources: 1. UN University 2007; 2. and 5. ETBC 2010a and b; 3. UNIDO 2009; 4. Grossman 2010

Other mass media tools include ***op-eds*** (opinion or comment pieces for a newspaper) and ***letters to the editor*** in newspapers.

- **Promotional materials**

Leaflets, information packs and press kits, newsletters, posters and other promotional materials are vital parts of a popular mobilisation campaign. They need to be designed for maximum impact on the audience; so they should be eye-catching, informative without being overly wordy, and should present to people in as concise a manner as possible what the issue is and what they should do about it.[106]

MakeITFair: As part of their campaign to mobilise young people to be aware of where their gadgets come from and to take action to clean up electronics supply chains, MakeITFair produced a series of leaflets on key labour and environmental issues in ICT production. The leaflets use graphics that appear like computer generated imagery, and simple but emotive language, backed up by case studies in which they provide the names and true stories of the workers who make our gadgets, often in very poor conditions and for low wages.

[106]WaterAid 2003

Details of where to find these can be found in Section NGOs working on electronics and e-waste 3.3.2

- **Celebrities**

Having celebrities endorse your campaign can raise a lot of attention and publicity. The celebrity has to be chosen extremely carefully, though, as using a celebrity with little interest in the issue, just to gain publicity, may threaten an organisation's credibility.

Raise Hope for Congo: In a clever parody of a well-known advertisement for electronics giant Apple, Raise Hope for Congo used two TV celebrities (both actors popular in the US) to tell the audience what Apple failed to include in the original – about human rights abuses in the supply chain of modern technology companies that rely on raw minerals from war-torn countries in Africa and elsewhere.

Figure 2-9. Celebrities in a 'spoof' advert for Raise Hope for Congo. (See www.raisehopeforcongo.org)

2.8. Assessing risks and available resources

Problems undoubtedly arise during advocacy projects, and most campaigns can expect to attract some form of opposition or arouse controversy. The best way to anticipate and respond to this, and to avoid risk, is to be prepared (Box 2-16): your background research should have identified adversaries and allowed you to develop solid arguments to counter their opposition. Your research should have also thoroughly assessed the social and political context in which you are working, which should help you to avoid engaging in activities that put your colleagues and allies in any danger, or put your organisation into disrepute. Using constructive, non-partisan and informed arguments that address the facts, as well as being respectful to opponents, will help you win debates.[107]

Box 2-16. Assessing risk in advocacy

FAN has developed a useful checklist that helps to assess risk in your advocacy efforts:

- Do your advocacy targets or opponents pose any danger to your organisation, your partners or communities?
- Have you assessed the cultural context, and ensured that your advocacy campaign is appropriate or sensitive to taboos?
- Are you aware of any developments that may make the context you are working in insecure?
- Are you prepared to respond to any opposition you may encounter?
- Are you well prepared to carry out your advocacy campaign?

Source: FAN 2010

You will need to carefully consider the resources (e.g. budget, human resources/ technical capacity and so on) required to fulfil an objective when planning your advocacy efforts, as well as those that are actually available to your team. Developing realistic budgets for each proposed activity is thus vital in the advocacy planning process: for guidance see WaterAid's Sourcebook.[108]

Tearfund[109] have some useful tools for assessing organisational capacities for advocacy (covering themes of vision, values and identity, strategy, structure and systems, staffing, and resources), which may assist you to know and build on your strengths and identify and reduce weaknesses. These may help you to target resources most effectively and to have realistic expectations of your advocacy efforts.

2.9. Monitoring and evaluation

Monitoring is an ongoing, periodic assessment of your advocacy efforts, while an ***evaluation*** is a one-off assessment, usually conducted when the project ends.[110] Both are important elements of your advocacy efforts; you should allocate adequate time and resources for them during the planning phase.

As WaterAid[111] explain, monitoring and evaluation involve documentation and analysis of various levels:

- *inputs* made (e.g. time, resources, staff)
- *outputs* of activities (e.g. meetings held, visits made, reports written)
- *outcomes* resulting from your outputs (e.g. press coverage or parliamentary debates on the topic, changes in policy or practice)
- *impact* of your work (e.g. effect of policy change on minimising e-waste going to landfill, or on the health of e-waste workers)

Consistent monitoring of your advocacy efforts is important as it allows you to learn from your successes and failures, and helps to keep your advocacy efforts on track with your objectives, allowing you to adapt your strategy if necessary to respond to new developments. Monitoring advocacy is, however, challenging, as achieving policy change is a slow and complex process, and often due to a wide variety of factors that are rarely attributable to a single organisation.[112]

Some guidelines for monitoring and evaluating advocacy work are outlined in Box 2-17, which includes an example e-waste objective. Also, Sharma[113] has developed a useful 'Advocacy Assessment Questionnaire' to assess advocacy efforts after 6-12 months that could be applied to e-waste advocacy efforts.

[107]FAN 2010: 38-39
[108]WaterAid 2003: 91
[109]Tearfund 2002: 49
[110]FAN 2010: 39 (emphasis added)
[111]WaterAid 2003: 93
[112]FAN 2010

Box 2-17. Monitoring and evaluating advocacy work – some pointers.

- Develop clear, measureable (SMART) objectives, and then define indicators for success (against outputs, outcomes etc) in planning phase. For example:

  E-waste advocacy objective:

  To convince the Environment Ministry to develop by December 2011 a law for e-waste management, defining stakeholder responsibilities and mechanisms for implementation, financing, monitoring and enforcement.

  Indicators:

  1. *Five key ministry officials are provided with briefing papers on the issue of e-waste and the issue is discussed with MPs, producer groups and local authorities.*
  2. *Follow-up meetings held with ministry officials.*
  3. *Our participation is sought in the official consultation rounds for drafting the legislation.*
  4. *An e-waste management law, detailing all responsibilities and mechanisms, is developed by 2011.*
- Perform monitoring on a regular basis (also helps to keep track of any changes to the external environment) – build review points into your plan (which will help to redirect your efforts, if necessary)
- Measuring impact can be quite difficult, so be sure to record whatever evidence for impact you come across, whether quantitative or qualitative
- Keep on track and on message! Periodically assess your advocacy efforts in terms of their alignment with your advocacy goal
- Good monitoring and evaluation should have both internal and external input. Tools to use for this include interviews, observation, group discussion, surveys, focus groups, and case studies

Source: WaterAid 2003: 94-5

2.10. Advocacy plan

Your advocacy plan should detail exactly what you plan to do and by when, using outputs of the various steps outlined in previous sections. An example layout is provided in Table 2-10.

A sample advocacy plan using some of the fictitious e-waste objectives from section 2.3 is provided in Table 2-11.

Plotting activities in a schedule can help you assess how well they fit together against a deadline, and how realistic your advocacy plan is to achieve.[114] Building reviews into your plan will help you assess how your efforts are progressing and whether your plan needs to be adjusted to reflect any internal and external changes.[115]

Table 2 10: Example layout for an advocacy plan (Source: WaterAid 2003)

Objectives	Activities	Target	Indicators	Timing	People responsible	Review planned
Objective 1	1a … 1b … 1c … Etc	1a … 1b … 1c … Etc	1a … 1b … 1c … Etc	1a … 1b … 1c … Etc	1a … 1b … 1c … Etc	xx/yy/zzzz
Objective 2	2a … 2b … Etc	2a … 2b … Etc	2a … 2b … Etc	2a … 2b … Etc	2a … 2b … Etc	xx/yy/zzzz

[114]WaterAid 2003, see pg. 100 for an example schedule
[115]WaterAid 2003

Table 2-11: Advocacy plan based on a hypothetical e-waste advocacy objective

Advocacy goal:	*'The goal of the Serbian E-Waste Advocacy Network is to protect the environment and the health of all electronics users, workers and communities by: firstly, making producers responsible for their goods over their entire lifecycle so that they can design better products that last and that don't cause hazards at end-of-life; and, secondly, promoting improved management practices among all actors in the electronics and e-waste chain.'*					
Objectives	**Activities**	**Target**	**Indicators**	**Timing**	**People responsible**	**Review planned**
To convince the Environment Ministry to develop by December 2011 a law for e-waste management, defining stakeholder responsibilities and mechanisms for implementation, financing, monitoring and enforcement.	1a: Lobby through direct contact – policy briefing with Ministry and other decision-makers (and then ongoing meetings and letter-writing) 1b: Stakeholder workshop to define 8-10 key elements of solution to end e-waste to inform definition of legislation 1c: Participation in formal consultation process 1d: Media work to raise the profile of the issue and support for our solutions	1a: Environment Minister plus key Ministry Officials 1b: Trade Minister plus key Ministry Officials 1c: Producer groups 1d: Recyclers and other treatment operators 1e: Media 1f: Sympathetic NGOs and CSOs (coalition-building)	1a. Five key ministry officials are provided with briefing papers on e-waste and the issue is discussed with MPs, producer groups and local authorities 1b: The 8-10 key elements of solution defined in stakeholder workshop are included in draft legislation 1c: Follow-up meetings held with ministry officials 1d: Our participation is sought in the official consultation rounds for drafting the legislation 1e: The issue and our position is included at least once in three major news outlets 1f: An e-waste management law, detailing all responsibilities and mechanisms, is developed by 2011	1a: Briefing - January 2011 (with ongoing follow-up) 1b: Workshop - February 2011 1c: Consultation - Ongoing (once law drafted) 1d: Media - Ongoing	1a: Project Manager and Project Officer 1b Communications Officer 1c Other NGOs (as network develops)	Mid-term: 30/06/2011 Final: 01/01//2012

3. Resources and further information

3.1. Key legislation and policy instruments

3.1.1. Europe

3.1.1.1. The WEEE Directive 2002/96/EC

The **Waste Electrical and Electronic Equipment Directive** (WEEE Directive) is the main European legislation on e-waste. The WEEE Directive aims to prevent waste generation and to promote reuse, recycling and other forms of recovery to reduce the quantity of WEEE to be discarded. It seeks to improve the environmental performance of all economic operators involved in the life cycle of electrical and electronic equipment (e.g. producers, retailers, consumers, collection and treatment operators, etc.).

The Directive sets specific targets for the collection of WEEE. Member states must ensure that systems are set up for consumers and retailers to return, at least free-of charge, their end-of-life WEEE.

Producers are to provide the financing for the end-of-life costs of their goods. This producer responsibility is established as one of the means to encourage positive design changes to reach the Directive's goals. To maximise these effects, the Directive makes individual brand owners directly responsible for the end-of-life costs of their *own* products.

Key points of the Directive are:

- **Article 2, Scope**: the Directive covers 10 broad categories of electrical and electronic equipment[116] (Box 3-1)

Box 3-1. WEEE Directive product categories

1. Large household appliances
2. Small household appliances
3. IT and telecommunications equipment
4. Consumer equipment
5. Lighting equipment
6. Electrical and electronic tools
7. Toys, leisure and sports equipment
8. Medical devices
9. Monitoring and control instruments
10. Automatic dispensers

- **Article 4, Product Design**: countries should encourage the production of EEE with end-of-life in mind, facilitating easy and safe recovery, reuse and recycling
- **Article 5, Separate Collection**: countries should collect WEEE separately from other waste; for WEEE from households, a provisional annual collection target of 4kg per inhabitant was set, to be reviewed in 2008. (There was no target set for non-household WEEE.)
- **Article 6 Treatment**: Countries should ensure that WEEE is treated using best available treatment, recovery and recycling techniques (Directive Annex II specifies selective treatment for materials and components that may present barriers to safe recovery and recycling)
- **Article 7 Recovery**: Countries should give priority to the reuse of whole appliances. Specific targets are set according to the categories. These were also set for review in 2008.
- **Article 8 Financial Responsibility**: For *household waste*, producers must finance at least the collection, treatment, recovery and environmentally-sound disposal of WEEE from households deposited at collection sites. Distinction is made between 'new WEEE' (products put on the market after 13 August 2005), and for 'historical WEEE' (products already on the market when the Directive came into force). For new WEEE (Article 8(2)), individual responsibility is clearly allocated: each producer must finance the end-of life management of their own products. For historical waste (Article 8(3)), all market players must pay a proportion of the costs to manage historical waste based on, for instance, their market share when those costs are incurred. To make these calculations, and to ensure that future costs are covered, Member States must set up national registers with information about new products on the market, historical WEEE collection volumes, and confirmation of financial guarantees.

  For *non-household waste*, producers have individual responsibility for new WEEE, but only have responsibility for historical WEEE when they supply new products on an old-for-new basis.

Other main obligations are that users have access to the necessary information of how to dispose of e-waste appropriately and that producers mark their goods and provide information on their products' reuse and safe treatment.

[116]Electrical and electronic equipment, or EEE, is defined as any equipment which is dependent on electric currents or electromagnetic fields to work properly and includes equipment for the generation, transfer and measurement of such currents and designed for use with a voltage rating not exceeding 1000 volts for alternating current and 1500 volts for direct current.

Countries are also obliged to inspect and monitor the situation to ensure the proper implementation, including appropriate penalties for any breaches of the Directive. A 2008 review of the Directive identified some key issues with implementation, including incorrect implementation of the individual producer responsibility provisions, and significant leakage of e-waste out of the formal WEEE system. The Directive is thus in the process of revision (a 'recast') to enforce its implementation and avoid leakages out of the official WEEE system, as well as other provisions. The main proposed changes concern collection, product scope, inspection and enforcement, producer registers and recovery targets.

For more information about the WEEE Directive, including details of the recast proposals, see http://ec.europa.eu/environment/waste/weee/.

3.1.1.2. The RoHS Directive 2002/95/EC

The Restriction of Hazardous Substances (RoHS) Directive was adopted by the European Parliament in 2003, entering into force in July 2006.

The RoHS Directive is considered as supplementary to the WEEE Directive, as it targets the manufacture stage, though has ramifications for end-of-life. It is intended to restrict the use of certain hazardous substances in electrical and electronic equipment. This increases the protection of human health and aids the environmentally-sound recovery and disposal of e-waste. The Directive requires Member States to create national legislation restricting the use of four heavy metals (lead, cadmium, mercury and hexavalent chromium) and two categories of brominated flame retardants (PBBs and PBDEs) in the manufacture of new electronics (although certain applications of these substances are exempted until substitutes can be found).

The Directive has a global impact as it applies to goods imported into the EU and not just those that have been produced within the borders.

A recent recasting of the Directive widened the scope of the Directive, ensuring that all electronic appliances are involved, unless specifically excluded.

For more information on the RoHS Directive, see http://ec.europa.eu/environment/waste/weee/.

Box 3-2. E-waste legislation in the West Balkans

The four countries involved in the Balkans E-Waste Management Advocacy Network, Bulgaria, Croatia, Serbia and Macedonia, have to various extents established legal instruments that attempt to minimise the impacts of electronics and e-waste. Briefly, these are:

- **Bulgaria**: as is required for an EU member, Bulgaria has transposed both the WEEE and the RoHS Directives, through the Ordinance for the requirements for placing EEE on the market and the treatment and transportation of WEEE (State Gazette No 36/2006). The Ordinance has been in force since 1 September 2006.
- **Croatia**: an EU candidate country, Croatia has transposed the WEEE and RoHS Directives in 2007 as the Ordinance on waste electrical and electronic devices (with amendments in 2008 and 2009). After adopting the Ordinance (OG No. 74/07, 133/08, 31/09) and carrying out the public tender procedure, the Ministry has granted concessions to companies for the collection and treatment of e-waste.
- **Macedonia**: the 2004 Macedonian Law on Waste Management has definitions about "waste electrical and electronic devices" and some specific obligations for sellers, producers or importers, and consumers of electronics. This includes the requirement that electronics companies provide recycling services for used equipment. However, most companies are not familiar with these regulations, or do not comply with them due to low levels of enforcement by the relevant authorities. Law based on the WEEE Directive is currently being drafted.
- **Serbia**: Current laws regarding hazardous and non-hazardous waste management in Serbia are outdated and do not follow the latest environmental requirements and EU standards. Since 2004 it is illegal to import any old IT or technical equipment, out of concerns that Serbia could become a location for the dumping of other countries' e-waste.

However, current legislation and/or its implementation are failing to properly address the problem of e-waste across the regions. The Balkans is often targeted for e-waste disposal by OECD countries, and practices for dealing with locally produced e-waste remain unsatisfactory. In terms of the human and financial resources dedicated to waste management, current practices in the region are substandard, with insufficient and ineffective monitoring and implementation of existing regulations. Also, there is little awareness of the issue amongst decision-makers and the general public, and official statistics related to e-waste quantities, quantities, sources and manners of disposal are limited to non-existent. These factors all compound the e-waste management problems experienced in the region. (For more information, see http://bewman.eu/.)

3.1.1.3. The EuP Directive 2009/125/EC

The directive establishing a framework for the setting of ecodesign requirements for energy-using products (the EuP Directive) defines the principles, conditions and criteria for setting ecological requirements for energy-using products. (The Directive was revised in 2009 to extend its scope to energy-*related* products.) It aims to improve the environmental performance of products throughout their life cycle through the systematic integration of environmental aspects at the design phase (i.e. ecodesign).

As a framework directive, it makes no direct provision for mandatory requirements for specific products, but rather defines the conditions and criteria for setting requirements on a product-by-product basis. Any mandatory requirements for specific products will be done at a later stage via implementing measures which will apply following a consultation process and impact assessment. Candidate products for implementing measures are those with:

- Significant environmental impact
- High volume of trade in the EU
- Clear and significant potential for environmental improvement

Implementing measures can take various forms, including mandatory regulation, voluntary industry initiatives and so on. A number of implementing measures have already been adopted, including those for PCs and computer monitors, televisions, domestic refrigerators and freezers and domestic lighting. In 2009 the incandescent lamp was found to be non-compliant of the requirements, a gradual phase-out of the product started under the rule of the Directive.

According to a study by EEB, while the EuP Directive provides scope for considering a broad range of environmental impact, most implementing measures have so far focused on energy efficiency in the use phase, which may not actually be the most environmentally-significant impact.

For more information on the EuP Directive, see http://bit.ly/EC_ecodesignEuP.

3.1.2. Global

3.1.2.1. The Basel Convention

Increasing environmental regulations implemented in industrialised countries in the early 1980's resulted in the rise in the export of hazardous waste to developing countries. Amidst global outrage at this trade, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted, in March 1989. By introducing a system for controlling the export, import and disposal of hazardous wastes, the Convention aims to reduce the overall volume of such exchanges, to protect human health and the environment.

One of the guiding principles of the Convention is that to minimise the threats to human health and the environment, hazardous wastes should be dealt with as close to where it was produced as possible. Technical assistance is to be provided to developing countries and countries in transition so that all countries may have the capacity to deal with their hazardous wastes in a safe manner.

Whilst the Convention was ostensibly designed to control the transboundary movement of hazardous waste, it was denounced by some as a legitimisation for the trade in hazardous waste rather than a prohibition. (See the Basel Action Network: www.ban.org.) In 1994, a coalition of developing countries and some Eastern and Western European nations, along with Greenpeace, managed to pass Decision II/12, which legislates a full ban on all transboundary movements of hazardous waste from OECD countries to non-OECD countries. The 'Basel Ban Amendment' came in to effect in 1998 and affects all 175 member States of the Basel Convention.

The EU has ratified the Basel Convention and the Ban Amendment, implemented by the Waste Shipment Regulations 2006/1013/EC. This means that no hazardous waste – including e-waste – should be exported from the EU for treatment to non-OECD countries.

For more information on the Basel Convention and Ban amendment, see http://www.basel.int.

3.2.1. Key initiatives

3.2.1.1. The StEP Initiative

The StEP (Solving the E-Waste Problem) Initiative arose in 2004 after the publication of a book by the United Nations University investigating the environment and computers. The book opened many more questions so it was decided to create an international initiative to analyse the problem of electronics and the environment and create a dialogue on the issues.

Together with members from various UN organisations, industry, governments, international organisations, NGOs and the science sector, the StEP initiative

seeks to establish sustainable approaches to handling E-Waste. According to their website, the objectives of StEP are to:

- optimize the life cycle of electric and electronic equipment by
  - improving supply chains
  - closing material loops
  - reducing contamination
- increase utilization of resources and reuse of equipment
- exercise concern about disparities such as the digital divide between the industrializing and industrialized countries
- increasing public, scientific and business knowledge

StEP conducts its work in five Task Forces, exploring 'feasible, just and environmentally safe solutions for the e-waste problem' through analysis, planning and pilot projects.

For more information, and to access reports and other resources from StEP, visit their website: http://www.step-initiative.org.

3.2.1.2. UNEP-PACE

The Partnership on Computing Equipment (PACE) was launched at the ninth meeting of the Conference of the Parties to the Basel Convention, 2008. It is a multi-stakeholder partnership which gives a forum for governments, industry leaders, NGOs and academia to find environmentally sound solutions to waste computing equipment. For more information, see: http://www.basel.int/industry/compartnership/.

3.2.1.3. E-Stewards programme

The E-Stewardship Initiative is a project of the Basel Action Network. In 2003 BAN launched the e-Stewards Pledge programme, which certified recyclers that use only globally-responsible, safe and environmentally-friendly means to process e-waste. They must abide by a number of criteria for e-waste management, including:

- No disposal in landfill or incinerators.
- No prison labour.
- No export to poor communities.

Without appropriate national or international legislature this community-led action aims to set a market incentive for recyclers to use only environmentally friendly methods. For more information, see: http://e-stewards.org.

3.3. Resources for advocacy

3.3.1. Advocacy toolkits

There are many general toolkits and resources for those wanting to learn more about advocacy and campaigning on any given issue. Some of these are below.

General guides to advocacy and campaigning:

- Chandler, I. (2010) *Advocacy and Campaigning: How To Guide*. BOND
- De Toma, C. (2009) *Influencing the European Union*. BOND
- Gilligan, E. et al (2000) *How to Win: a guide to successful community campaigning*. Friends of the Earth
- Isaac, J. (2003) *Advocacy in Action*. Council for International Development
- Rose, C. (2004) *How to Win Campaigns: 100 Steps to Success*. Earthscan Publications
- Sharma, R. (1997) *An Introduction to Advocacy: Training Guide*. USAID
- Tearfund (2002) *Introduction: The Advocacy Cycle*, Tearfund Roots Resources

Campaigning on waste issues:

- Arditi, S. et al. (2010) *Campaign Guide to the Waste Framework Directive transposition – opportunities and actions for NGOs*, European Environmental Bureau

How-to guides for various advocacy tools and approaches:

- Reiss, E. (2010) *The Ecologist guide to video activism*. [html] Available at: http://bit.ly/dOw5pu
- The Activist Toolkit Wiki. Wikispace that includes guidance on media and web tools, and other resources for activists. Available: http://activist-toolkit.wikispaces.com/

3.3.2. NGOs working on electronics and e-waste

3.3.2.1. Greenpeace

Greenpeace, an international environmental organisation, has a campaign on Greener Electronics that aims to change the way electronics are produced, used and disposed of. As part of this, it produces the ranks the Greener Electronics Guide, which hopes to pressure companies to produce more environmental products, and commit to take back and recycle their products. It ranks 18 top manufacturers of electronic

equipment according to their policies on toxic chemicals, recycling and climate change. The Guide, as well as reports, videos, suggestions for actions and a suite of other resources are all available at: http://bit.ly/GreenerElectronics

3.3.2.2. BAN

The Basel Action Network focuses on ending the global trade of toxic waste, including e-waste. They promote the Basel Ban, encouraging States to ratify the amendment that prevents wealthier countries from exporting waste to poorer countries. Other campaigns include the E-Waste Stewardship Project that seeks to eliminate and replace the export of electronic waste to developing countries with producer responsibility and green design legislation, and the E-Stewards Standards for Responsible Recycling, a third-party certification scheme for US recyclers that adhere to strong environmental and social principles, including not exporting any e-waste they receive. They have links to reports and films that they have made, plus numerous other resources, on their website: http://www.ban.org/

3.3.2.3. SVTC

The Silicon Valley Toxics Coalition conducts research, advocacy and grassroots activities to promote human health and environmental justice in response to the rapid growth of the high-tech industry. They have produced a documentary in India and various reports showing the consequences of the e-waste trade. These, and other resources, can be found at:

http://svtc.org.

3.3.2.4. Electronics Take-back Coalition

This coalition promotes green design and responsible recycling in the electronics industry. They have produced many resources including an e-waste briefing book and other tools for advocates, plus numerous reports documenting the problem and investigating solutions. All of these can be accessed on their website: http://www.electronicstakeback.com/

3.3.2.5. EEB

The European Environment Bureau is a federation of environmental organisations with more than 140 member organisations. It is the environmental voice of its members and European citizens, focusing on influencing EU policymaking and implementation and assessment of its agreed policies. The EEB works on numerous environmental issues. Its policy officers use experts, scientists, EEB members, and politicians to work towards developing and protecting environmental policies. The EEB has been very active in the various EU policy instruments dealing with products and waste, writing reports and position papers, and representing members in review and consultation rounds of the WEEE, RoHS and EcoDesign Directives. It is also a member (with other European environmental NGOs) of the Coolproducts campaign, which aims to make EU Ecodesign policy much more ambitious. For more information and to access their various publications, visit: http://www.eeb.org/.

3.3.2.6. SOMO

The centre for Research on Multinational Corporations is a Dutch research and advisory bureau, investigating the globalisation of trade and waste. They coordinate MakeITFair, and have developed policy papers and hosted conferences on e-waste, which can be found at: http://somo.nl/. They also coordinate Good Electronics, an international network that focuses on human rights issues in the electronics industry, which has released a number of urgent appeals to call on companies to make better working conditions. See their website here:
http://goodelectronics.org

3.3.2.7. MakeITFair

MakeITFair is a European project encouraging young individuals to be conscious of where their electronics come from. They have resources that highlight the social and environmental issues involved in the supply chain of electronics, designed to motivate young people to take action on the issues, for example a petition for 'fair and green phones'. Factsheets, reports and other resources are available on their website: http://makeitfair.org/

3.3.2.8. Computer Aid International

Computer Aid is an international development charity, encouraging the re-use of computers. As well as ICT for Development programmes they also work on environmental advocacy issues, producing advisory reports on e-waste issues and producer responsibility and lobbying at the European level to strengthen WEEE legislation. Reports and guidance for choosing responsible IT disposal partners can be found here: http://www.computeraid.org/our-projects.asp

3.3.2.9. Procure IT Fair

Procure IT Fair is a European coalition of NGOs working to raise awareness on the working conditions and environmental pollution in the production of computers. They have a number of publications and an on-line petition to make companies take responsibility for the supply chain of their products: http://procureitfair.org/

3.3.2.10. Toxics Link

Toxics Link is an environmental NGO, dedicated to bring information of toxic substances into the public domain. Based in India they advocate strengthening legislation banning toxic substances and working with industry to achieve this. Under their Clean Industry programme, they have a number of resources relating to hazardous and e-waste, which can be found here: http://www.toxicslink.org/

3.4. Further reading

Listed below is a selection of further, relevant reading materials for those that wish to explore issues relating to electronics and e-waste in further detail.

Impacts of E-waste

- The Basel Action Network (2005) The Digital Dump: Exporting Re-use and Abuse to Africa.
- The Basil Action Network and Silicon Valley Toxics Coalition (2002) Exporting Harm: The High-Tech Trashing of Asia.
- Cobbing, M. (2008) Toxic Tech: Not in Our Backyard – Uncovering the Hidden Flows of e-Waste. Greenpeace
- Electronics Take Back Coalition (2009) E-Waste: The Exploding Global Electronic Waste Crisis – An Issue Briefing Book
- Nordbrand, S. (2009) Out of Control: E-waste trade flows from the EU to developing countries. Swedwatch
- Sepúlveda, A. et al. (2010) A review of the environmental fate and effects of hazardous substances released from electrical and electronic equipments during recycling: Examples from China and India. Environment Impact Assessment Review, 30, 28-41
- Schwarzer, S. et al. (2005) E-Waste, the hidden side of IT equipment's manufacturing and use. United Nations Environment Programme

E-waste management systems

- Association of Cities and Regions for Recycling (2003) The Management of WEEE: A Guide for Local and Regional Authorities.
- Association of Cities and Regions for Recycling (2003) Description of Initiatives undertaken by selected European Countries in the field of WEEE management.
- Gregory, J. et al (2009) E-waste Take-Back System Design and Policy Approaches. StEP White Paper
- Grossman, W. (2010) *The E-Waste Explosion and What We Can Do About It*. Dēmos
- Sayhney, P. et al. (2008) *Best practices for E-waste Management in Developed Countries*, Adelphi Research

Eco design/ zero waste

- IIIEE (2006) *Extended Producer Responsibility: an examination of its impact on innovation and greening products*. Report commissioned by Greenpeace International, Friends of the Earth and the European Environmental Bureau.
- IPR Works (2007) *Developing Practical Approaches to Individual Producer Responsibility*.
- IPR Works (2007) *Joint Statement by a group of Industry and NGOs on Producer Responsibility for Waste Electrical and Electronic Equipment*.
- IPR Works (2008) *Comments on Stakeholder Criticisms of Individual Producer Responsibility*. McDonough, W. and Braungart, M. (2002) *Cradle to Cradle*. North Point Press

WEEE Directive

- Huisman, J. et al. (2007) *2008 Review of Directive 2002/96 on Waste Electrical and Electronic Equipment (WEEE): Final Report*, United Nations University
- Huisman, J. (n.d.) *From 4% to 65%. Can WEEE Do That?* Institute for Sustainability and Peace
- IIIEE (2006) *Lost in Transposition: a study of the transposition of individual producer responsibility in the WEEE Directive*. The International Institute of Industrial and Environmental Economics.
- Savage, M. et al. (2006) *Implementation of the Waste Electric and Electronic Equipment Directive in the EU*. Institute for Prospective Technological Studies

E-waste recycling

- Hempfling, C. (2010) *Secondary Materials and Waste Recycling Commercialization in Serbia: 2009-2010 – Part 1: Assessment*. USAID
- Schuep, M. et al. (2009) Recycling – From E-Waste to Resources. United Nations Environment Programme & United Nations University
- Williams, E. et al. (2008) *Environmental, Social, and Economic Implications of Global Reuse and Recycling of Personal Computers*. Environmental Science & Technology, 42, 6446-6454

4. Glossary

Adversaries. Organisations or individuals which may attempt to prevent the reaching of a particular advocacy goal. Adversaries may be within various stakeholder groups such as manufacturers or the national government and may have differing motivations.

Allies. Organisations or individuals which may support the attempt to reach a particular advocacy goal. As with adversaries, these may be within various stakeholder groups including national or local government. Often allies may be other charitable and civil society organisations. Alliances may also be strategically formed.

Arsenic. A heavy metal used in the production of semi-conductors which can cause respiratory problems.

BAN. Basal Action Network, an NGO named after the Basel Convention which campaigns on the issue of e-waste as well as making recommendations on how the e-waste challenge can be overcome. **See also: Basel Convention**

Basel Convention. Legislation introduced in 1989 firstly to restrict the trade in toxic waste, followed by the total ban on the export of hazardous wastes from rich to poor countries, see Section 3.1.2.1.

Brominated flame retardants. These are used in the plastic housing of computers as well as circuit boards to help reduce the likelihood of fire.

Cadmium. A heavy metal which has potentially irreversible adverse effects on human health, particularly the kidneys as well as bone density. Cadmium is used in various components such as semi-conductor chips and in some older cathode ray tube monitors.

Cathode ray tube (CRT). Refers to TVs and Monitors in which visual output is generated by the use of cathode ray tubing. CRT monitors are relatively large and bulky as well as containing a high amount of toxic chemicals such as lead.

Ecodesign. The integration of environmental aspects into product design with the aim of improving the environmental performance of the product over its full life cycle, including at end of life. This may include, for example, designing computer equipment which is easily upgradeable, repairable, or recyclable.

EEE. Electrical and Electronic Equipment refers to any equipment which uses electricity to function, whether this is powered by mains electricity, battery power, solar power or other means of power generation. The components of EEE are extremely varied from computers, televisions and laptops to MP3 players, mobile phones and torches. **See also: WEEE**

EU IPA. European Union Instrument for Pre-Accession Assistance, a funding body which provides financial support for countries wishing to join the European Union.

Extended Producer Responsibility (EPR). This refers to the producer of equipment assuming responsibility for the equipment after manufacture and sale including end-of-life recovery of this equipment. Traditionally it is the consumers which assume responsibility of the equipment once it has been purchased including the end-of-life processing. As such, many consumers often have little chance to reuse or recycle equipment. **See also: Take-back systems**

Lead. A metal which is present in monitors, and also in solders in some older equipment. Lead may accumulate in the environment and has a major impact upon the nervous systems, kidneys and blood systems within humans.

Liquid Crystal Display (LCD). Refers to TVs and monitors in which visual output is generated by light travelling through liquid crystals within the screen. As a result, these TVs and monitors are thinner and more lightweight than CRT equivalents. Nevertheless, LCD TVs and monitors still contain a number of toxic chemicals such as mercury.

Manufacturer. Any individual or organisation that designs and manufactures a product with a view to marketing it under its own brand. An original **equipment manufacturer (OEM)** refers to companies that make products for others to repackage and sell under their own brand.

Mercury. A highly toxic heavy metal which may cause damage to organs such as the brain and kidneys, as well as to unborn babies. This metal is present within sensors, switches, relays and thermostats. It is estimated that 22% of the world's yearly consumption of mercury is used within electrical and electronic equipment.[118]

PRO (producer responsibility organisation). A co-operative industry effort to shoulder the responsibilities of its member companies and meet their EPR obligations. PROs bear operational responsibility for ensuring proper e-waste management, by managing

[118]Puckett and Smith 2002

the financing, collection, transportation and control systems.

Producer. According to the WEEE Directive, a producer is any individual or organisation that manufactures or imports and sells electronic equipment either under its own brand or resells branded equipment under its own brand. As such, sellers who sell equipment under other brands are not classed as producers. **See also: manufacturers.**

PVC. Polyvinylchloride is a plastic mostly used in the production of computer housing as well as in cabling. The incineration of PVC may produce dioxins which are toxic.

Reuse. This is defined by the WEEE Directive as 'any operation by which WEEE or components thereof are used for the same purpose for which they were conceived'. Reuse therefore refers to continued use of equipment that has been returned to manufacturers or other groups for their original purpose. This may be of individual components or entire pieces of equipment.

Recovery. This refers to the process of reclaiming the valuable materials from a particular piece of equipment which have been used in the construction process which then may be sold on and used for other purposes. In the case of e-waste this may include precious or heavy metals such as gold, copper or tungsten.

Recycling. This is defined by the WEEE directive as 'the reprocessing in a production process of the waste materials for the original purpose or for other purposes, but excluding energy recovery which means the use of combustible waste as a means of generating energy'. Therefore recycling involves processing waste equipment in order for it to be reclaimed. However, this differs from reuse in the fact that the equipment may be altered substantially during processing and may not necessarily be used for its original function. Likewise the process of recycling is often more energy intensive than reuse.

RoHS Directive. Restriction on Hazardous Substances Directive, this bans and controls use of certain chemicals in all electronic products sold within the European Community including heavy metals such as lead, cadmium, mercury and hexavalent chromium and brominated flame retardants (see Section 3.1.1.3).

Semi-conductor. Used in almost all electronic gadgets, they are a part of the machinery that transforms electrical current into a digital source and repository of language, information and numerical calculation.[119] (Also known as microchips or integrated circuits.)

Take-back systems. These refer to systems for the collection and processing of e-waste. They consist of four components: system management, collection, processing and a financing scheme. Take-back systems may be run by the state or by producers themselves. For example, Japan, Taiwan and South Korea have developed mandatory e-waste collection legislation.

Treatment. This is, according to the WEEE Directive, 'any activity after the WEEE has been handed over to a facility for depollution, disassembly, shredding, recovery or preparation for disposal and any other operation carried out for the recovery and/or the disposal of the WEEE'. Treatment thus refers to the processes which equipment may undergo at its end-of-life (whether actual or perceived) and may include recovery, recycling, refurbishment or other forms of treatment. **See also: Recovery, Recycling, Reuse.**

WEEE. Waste electrical and electronic equipment refers to any equipment which requires electricity to function, whether powered by mains power, battery power, solar power or other means of power generation, that has been discarded although may not necessarily by at the end of its functional life. This may include computers but also TVs, radios, MP3 players, torches and other devices. **See also: EEE, WEEE Directive**

WEEE Directive. EU Legislation regarding the treatment of electronic waste (see Section 3.1.1.1).

[119] Grossman 2006

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balkan e-waste management advocacy network

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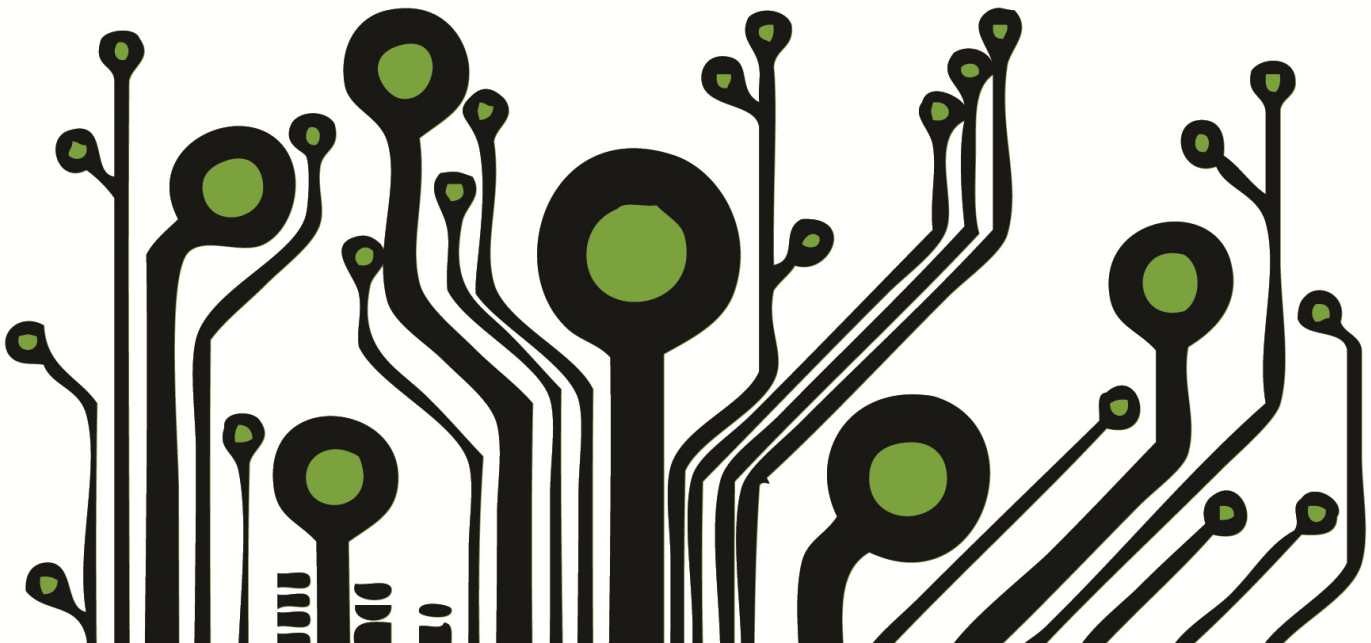
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