Critical examination of strengths and limitations of international responses to environmental issues.

"The challenge of finding sustainable development paths ought to provide the impetus - indeed the imperative - for a renewed search for multilateral solutions and a restructured international economic system of co-operation. These challenges cut across the divides of national sovereignty, of limited strategies for economic gain, and of separated disciplines of science."

Gro Harlem Brundtland

Our Common Future (UN, 1987)

The responsibility of developed countries for causing environmental problems has been a key factor that influences the politics of cooperation (Brown, 2009) and thus the success of international environmental regimes.

Drawing on international responses to ozone depletion and the dumping of hazardous waste I will demonstrate that international responses to environmental issues vary in effectiveness, and why they do so.

The analytical framework that I will use to assess the strengths and limits of international environmental responses is based on three areas that can influence their effectiveness: free market politics and national self-interest; uneven development and contest over sustainable development; and values, power and knowledge.

First I will define the key concepts: environmental issues, the problems of the ozone layer and hazardous waste, and international response mechanisms. Then I will analyse in detail the strengths and limitations of international responses that address ozone depletion and the trade in and dumping of hazardous waste.

Environmental Issues

The environment is still regarded by some as peripheral or external, as in the definition: "the totality of circumstances surrounding an organism or group of organisms" (http://www.thefreedictionary.com/environment); but when anthropogenic degradation of the environment affects human well-being and livelihoods we do realise that we are very much an integral part of the environment. As Gro Harlem Brundtland said "*Environment* is where we all live; and *development* is what we all do in attempting to improve our lot within that abode. The two are inseparable." (UNEP, 2002).

I have chosen two global environmental issues to examine the effectiveness of international responses that seek to address them, namely ozone depletion and the dumping of hazardous waste. Both of these issues are tied to markets, industry and consumer practices; occur worldwide; are initiated locally; and have detrimental environmental effects that are transboundary, wide reaching, and potentially global.

Ozone Depletion

Ozone molecules form a gaseous layer in the stratosphere that absorb ultra-violet (UV-B) radiation from the Sun and protect life on Earth. Gases such as CFCs (chlorofluorocarbons) and HCFCs (hydrochlorofluorocarbons), part of a group of chemicals known as VOCs (volatile organic compounds), deplete the ozone layer by releasing chlorine and bromine atoms into the stratosphere, which destroy ozone molecules (SEPA, 2006). Ozone depletion results in increased exposure to UV-B and empirical research has linked this to an increase in skin cancer, malignant melanoma, and cataracts in humans, and the detrimental effects on plant growth and the health of marine ecosystems (Columbia University, 2002).

Hazardous Waste

According to the Basel Convention, hazardous wastes (Figure 1) “exhibit one or more hazardous characteristics, such as being flammable, oxidizing, poisonous, infectious, corrosive, or ecotoxic” (University of Joensuu, 2007, p. 57).

Toxic waste often contains carcinogens and can result in birth defects, disease, and early death (Wayman, 2013).

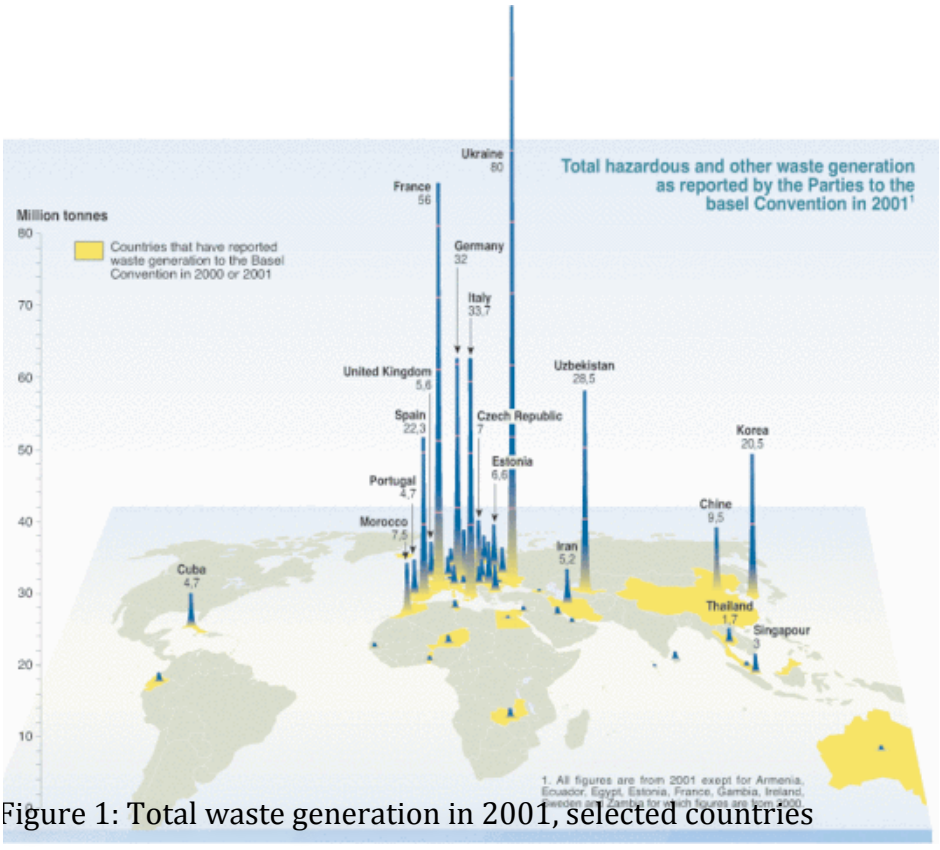

Figure 1: Total waste generation in 2001, selected countries

The toxic residues from ‘wastes of war’ (Walters, 2009) such as depleted uranium (DU), that have contaminated potable water, polluted air and land, and degraded soil, pose a threat to the health and livelihoods of people in war-torn and invaded nations.

Denial that such wastes exist and that they are detrimental to health is the norm and in Iraq the US refused to allow a team from UNEP (United Nations Environment Program) “study the environmental impact of DU contamination” (Flounders, 2003).

International response mechanisms

International responses to environmental problems relate to the governance of collective issues such as air quality or holes in the ozone layer. Whereas the concept of government concerns the formal collection of offices in a political system that can enforce rules over a given territory, governance is not limited to formal institutions, and instead relates to the processes used to establish a set of rules of conduct in order to address collective problems (Budds, 2009).

In June 1972, with emerging environmental awareness, the first global intergovernmental conference on the environment, the UNCHE (United Nations Conference on the Human Environment), was held in Stockholm. Following the Stockholm conference, the UN set up its Environment Programme (UNEP), to be a reference point for international governance and to "provide leadership and encourage partnership in caring for the environment" (UNEP, 2002, p.2).

Multilateral (involving more than three countries) and International Environmental Agreements (MEAs and IEAs) fall into two groups: framework conventions and protocols. A framework convention such as the Vienna Convention specifies principles that relate to a problem, but they are not legally binding. Follow-up protocols such as the Montreal Protocol detail commitments such as actions, obligations, and targets (Brown, 2009), and are legally binding on the signatories. It is important to note however, that parties to Conventions can agree to negotiate binding targets, as was the case with the Vienna Convention, a precursor to the Montreal Protocol. Another example is the 1973 MARPOL Convention that had not yet come into force and was absorbed by the 1978 MARPOL Protocol (IMO, 2013).

The table below (Figure 2) lists major international responses that deal with environmental problems concerning ozone depletion and hazardous waste.

	OZONE DEPLETION	HAZARDOUS WASTE MANAGEMENT	NUMBER OF PARTIES (2013)
1970-1979		1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention)	87
		1973 International Convention on the Prevention of Pollution from Ships (MARPOL) – absorbed by the 1978 MARPOL Protocol	152
		1979 UNECE Convention on Long-range Transboundary Air Pollution (CLRTAP)	51
1980-1989	1985 Vienna Convention for the Protection of the Ozone Layer (Vienna Convention)	1982 United Nations Convention on the Law of the Sea (UNCLOS) in force since 1994 (UN, 2012)	197 (Vienna) 165 (UNCLOS)
		1983 Cartagena Convention (wider Caribbean region) supplemented by the Oil Spills Protocol, the SPAW Protocol (protection of specific areas and wildlife), and the LBS Protocol concerning pollution from Land-Based Sources and Activities (UNEP, 2012)	24
	1987 Montreal Protocol The Montreal Protocol to the Vienna Convention became effective in 1989 (UNEP, 2011)	1985 Cairo Guidelines voluntary code of conduct instigated by UNEP, precursor to the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Other Wastes and their Disposal (Basel Convention) based on prior and informed consent	197 (Montreal) 179 (Basel)
1990-1999		1991 Bamako Convention	24
		1998 Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention)	180
		1996 London Protocol entered into force on 24 March 2006 and will replace the 1972 London Convention. Under the Protocol all dumping is prohibited, except for possibly acceptable wastes on the so-called "reverse list" (IMO, 2013)	153
2000-2013		2001 Stockholm Convention on Persistent Organic Pollutants (POPs)	179

Figure 2: Major international responses to ozone depletion and trade in hazardous waste

Due to the variety of hazardous waste products, and the ways and environments in which hazardous waste is treated or dumped, there are over five times as many major international regimes than those that address the depletion of the ozone layer.

The Vienna Convention and the Montreal Protocol made history on 16 September 2009 when they **"**became the first treaties in the history of the United Nations to achieve

universal ratification." (UNEP, 2011). So what has made these responses to ozone depletion so successful, and what are the limitations of international responses? I will start with the success story.

Relative strengths of international responses

A success story

The Montreal Protocol is being hailed as a success, a kind of 'flagship mechanism' for effective international response to an environmental problem. When the Protocol was adopted in 1987, its parties included all of the world's major developed countries and many developing nations, including major emitters like China and India, and in the 25 years since there has been a reduction of over 98 per cent in the consumption of ozone-depleting substances (UN, 2013).

Knowledge about ill health effects to UV-B exposure, through scientific research in the early 1970s, had alerted governments and the public, in particular in 1974, when two US scientists pointed out that CFCs from aerosol spray cans could seriously damage the ozone layer, and this was subsequently confirmed in 1985 by British scientists, who had been analysing Antarctic atmospheric data going back to 1957 (Australian Government, 2013).

In the 1970s the USA were innovators in domestic environmental regulation, with politicians such as the founder of Earth Day Gaylord Nelson pressing for environmental reforms and regulations, with the establishment of environmental NGOs, and with the environmental justice movement that was a result of the Love Canal pollution and subsequent protest campaigns. This is why the US government paid particular heed to public demands for action and banned CFCs in aerosol cans in 1978 (Brown, 2009).

With healthy R&D budgets for technology projects, from the space programme and war efforts such as Vietnam, research into alternatives of CFCs were underway.

DuPont, a company that had "collaborated" with the US government since 1802, when

the company's founder shook hands with Thomas Jefferson (DuPont, 2013), was developing cheap substitutes for CFCs by the time the Vienna Convention was established in 1985.

However, the US government's response to the Montreal Protocol was initially one of cautious concern, with the high costs of moving to CFC alternatives being counterbalanced by concerns about skin cancers.

In Japan and in Europe CFCs were still a major export article and CFC manufacture an important source of income. Producers such as Italian company Atochem and industry giants such as ICI therefore downplayed health concerns around ozone depletion and lobbied their governments, and countries like Italy and the UK therefore became 'Draggers' (Brown, 2009).

The 'Pushers' were regions and nations close to the Arctic and Antarctic region, where ozone depletion and the occurrence of ozone holes posed the largest problem, namely Scandinavia, Canada and Australia.

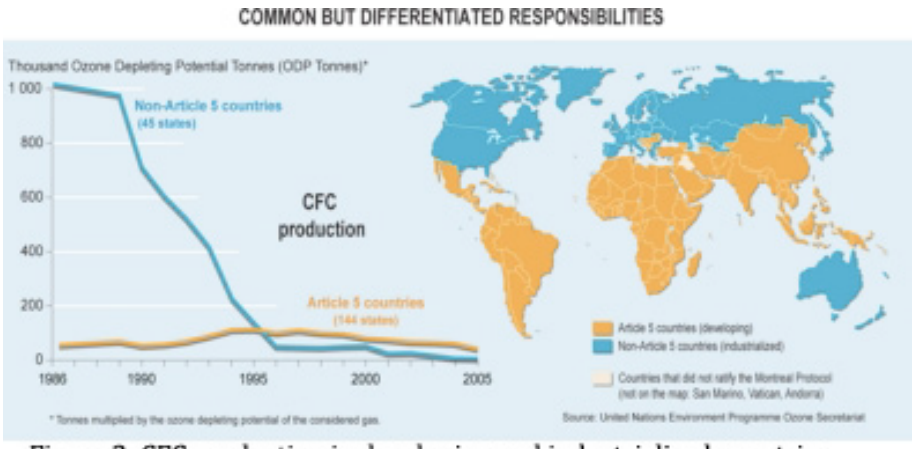

Figure 3: CFC production in developing and industrialised countries

Uneven development and equity issues were of concern to industrialising countries such as India, China, and Brazil. These countries however had a strong bargaining position due to the fact that they were capable of producing CFCs (see Figure 3). They were enticed to embrace the Montreal Protocol by a carrot and stick approach that included side payments and extended target dates for phase out of ozone depleting substances, as well as trade sanctions that were put in place against non-parties (Brown, 2009).

Even though there was resistance to adopt the Protocol due to the high costs of implementation, economic disadvantages, equity issues, self-interest and industry

pressure, in the end scientific consensus and pressure from NGOs and the public over health concerns, plus environmental activism in key European countries such as Germany, resulted in ratification of the Montreal Protocol, and adherence to the strict targets that had been set.

As an epilogue, in 2007 DuPont had developed a replacement for HCFCs and, in a thinly veiled show of economic self-interest, eagerly supported a proposal by the Bush administration to accelerate global phase-out target dates for HCFCs by ten years, down to 2020 for developed countries and to 2030 worldwide (ICIC, 2013).

The tightening of environmental regulations in industrialised countries in the 1980s led to a “dramatic rise in the cost of hazardous waste disposal” (UN, 2011), which, in turn, led those countries to export toxic waste to Eastern Europe and developing countries.

The Basel negotiation process started in response to public outrage that was caused by the discovery of this practice, and in part also due to the ‘Khian Sea’ cargo vessel’s epic voyage.

This voyage had started in 1986 with 14,000 tons of toxic incinerator ash from Philadelphia, part of it having been dumped at Gonaives beach in Haiti, after which Greenpeace alerted all likely ports and the ship plied international waters for 27 months and went through several name changes before eventually dumping the remaining toxic waste in the Atlantic and Indian Oceans (McGraw-Hill, 2004).

Conference of the Parties (COP) meetings of the Basel Convention subsequently negotiated the introduction of a total or partial ban on transboundary movements of hazardous wastes, which resulted in the adoption of an Amendment on 22 September 1995 by the COP at its third meeting. The EU have made this Basel Ban Amendment legally binding on all member states, but major players such as the USA and Australia are still blocking the entry into force of a global ban on bringing hazardous wastes to countries that may not be able to treat them in a safe manner (Basel Convention, 2011).

Success stories are scarce where it concerns international responses to transboundary trade in hazardous waste products, and I will now analyse what are the causes for

these limitations by using a case that occurred in 2006 and that still has environmental, economic, socio-political, and legal repercussions.

Limitations of international responses, the case of the Côte d'Ivoire

Figure 4: Cleaning up toxic waste dumped in Abidjan

The dumping of toxic waste in 2006 in Ivory Coast's port city of Abidjan is a dark tale of globalisation. The waste came from a "Greek-owned tanker flying a Panamanian flag and leased by the London branch of a Swiss trading corporation whose fiscal headquarters are in the Netherlands" (The New York Times, 2006). It is one of the worst cases of its kind, and demonstrates what can happen when legislation and bans are not in place for transboundary trade in toxic waste.

Trafigura is a multinational corporation (MNC) trading in commodities. The company is registered in the Netherlands, with head offices based in Switzerland, and it operates from 81 offices in 56 countries (Trafigura, 2012).

In 2005 Trafigura bought large amounts of coker naptha, an unrefined fuel, and subjected it to a process called caustic washing on board the Probo Koala, thereby creating tonnes of hazardous waste. In 2006 the ship attempted to unload this in Amsterdam but was told it would be costly, whereupon the toxic waste was taken to Abidjan, where it was dumped (The Guardian, 2012).

The effects were devastating, causing a public health crisis that affected over 100,000 people. Two powerful NGOs, Amnesty International and Greenpeace published a three-year investigation into the incident in 2012. Their report concluded that, even after the scale of the Ivory Coast toxic dumping case became evident, not enough is being done to strengthen national and international regulations. The report had been presented to Achim Steiner, executive director of UNEP, who commented that toxic waste dumping underlines "the urgency of strengthening the UN treaties covering

shipping and hazardous wastes, specifically the Basel convention" (The Guardian, 2012).

In 2010 Trafigura was convicted of illegally exporting waste by a Dutch court and fined one million euros, for violating EU laws on the export of hazardous waste, which the UN says killed at least 15 people and forced thousands to be hospitalised in 2006 (Coelho, 2012).

Jurisdiction outside of the EU is a different matter however: in 2007 Trafigura had entered an agreement with the Ivory Coast government to pay nearly $200,000 in return for immunity from prosecution.

Ivory Coast was one of the signatories to the Bamako Convention that bans imports of hazardous waste into Africa (African Union, 2010). Local pressure groups are furious that Trafigura could get away with a settlement, leaving behind thousands of locals with ongoing health problems (Deutsche Welle, 2010), and Salil Shetty, secretary general of Amnesty International, called for criminal trial in the UK: "It's time that Trafigura was made to face full legal accountability for what happened. People in Abidjan were failed not just by their own government but by governments in Europe who did not enforce their own laws. Victims are still waiting for justice and there are no guarantees that this kind of corporate crime will not happen again." (The Guardian, 2012).

Where a powerful MNC such as Trafigura is at the centre of actions that cross countries' and regions borders, and where these actions damage human rights and the environment in a developing country, it becomes clear that a Basel Convention without a global Ban Amendment in force, and with no transboundary legislation and jurisdiction in place, does not work.

Looking now through the analytical lenses of free market politics and self-interest; uneven development and sustainable development; values, power and knowledge, I will critically examine the limitations of international responses to environmental issues.

Free market politics and self-interest

Neoliberalism is a doctrine that advocates self-regulating markets, with a reduced role for the state, and no political or social intervention. It was ardently embraced in the US and Europe during the Regan-Thatcher-Kohl era. When communist economies collapsed and the Eastern Bloc started to embrace capitalism in the 1980s, the US saw a way to assert its Washington Consensus, a neoliberal view of globalisation.

The Washington Consensus comprises ten policies, including deregulation and privatisation, that the US government, the WTO (World Trade Organisation), IMF, and World Bank, believed to be necessary elements of "first stage policy reform" that all countries should adopt to increase economic growth (WHO, 2013).

Neoliberal economists believe in the removal of *all* barriers to commerce, and that increased wealth can benefit the environment through technological advances. This presumes that wealth entails concern for the environment and future generations, idealism and altruism, concepts that have not yet been proven by empirical evidence.

Self-regulation is based on self-interest, and is problematic without ambitious, enforceable international regimes such as the Montreal Protocol, as shown in the case of non-ratification of the Basel Convention's Ban Amendment by key nations.

In their corporate brochure, Trafigura states: "We are guided by the principles of the United Nations Global Compact, the world's largest voluntary Corporate Social Responsibility initiative." (Trafigura, 2013, p.38). In an effort to give the company a green image, Trafigura had already set up the 'Trafigura Foundation' for sustainability projects in the developing world, in 2007, a year after the Ivory Coast case.

The Ivory Coast case also underlines the free market thinking demonstrated in the 'mock Summers memo' (Brown, 2009) to the effect that as long as the polluter pays principle (PPP) is adhered to, and an 'appropriate' price is paid by the parties, then it is less of a burden to world economy to dump waste in developing countries. This is a clear contravention of human rights and equity, and leads to the second analytical lens: uneven development.

Uneven development and contest over sustainable development

According to the neoliberal view trade benefits all through the creation of wealth, and is not deemed to have a direct effect on the environment. Whereas we have seen from the Ivory Coast case study, trade as it is currently managed can be directly damaging to the environment and perpetuates uneven development.

This is because economic benefits in trade go to large corporations like Trafigura and their associates, who save large amounts of money by paying corrupt governments in developing countries for disposing of their toxic waste. Low cost of disposal means higher profits and happy shareholders.

The environmental issues and diseases borne from leaching of toxic chemicals are not felt by governments or overseas consumers, but by local populations who live close to, and are affected by toxic waste dumps.

The United Nations Conference on Environment and Development (UNCED) held in Rio in 1992, did focus attention on the inter-relationship between poverty, environmental degradation, sustainable development, social justice, and trade, but the North-South division has not altered greatly since UNCED's inception. Southern economic restructuring has quickened the pace of economic dependency in Asia, Africa, and Latin America according to studies carried out since (Byrne and Glover, 2002). According to the authors globalisation is "an indicator of loosening of the spatial and cultural barriers to multinational corporate control" rather than being an objective or desirable trend.

Uneven development and contest over sustainable development do result in fragmentation. This in turn means that in order to have effective international responses in place, incentives have to be provided for developing countries to ratify conventions and protocols that may induce an economic burden.

Uneven development at its most basic refers to the material wellbeing of populations over time and space, and is often founded on social values. This links with the third analytical lens: values, knowledge, and power.

Values, knowledge and power

Proponents and opponents of economic models and international responses can share instrumental values, a means to an end, but underlying motivators and intrinsic sub-values will differ, resulting in irreconcilable differences that can create conflict.

For example the environment can be seen as having instrumental value: as a commodity, farmland, or for tourism; but it can also be seen as an end to itself, when regarded as a trap for sediments, excess nutrients and pollutants, or as an important contributor to biodiversity, or for its benefit to society in general.

Knowledge refers to empirical evidence and scientific findings that are often key to raising public awareness about environmental issues and initiating formal international response mechanisms. In this case it can be said that science can transcend politics, where epistemic communities have priority over interest and power (Brown, 2009).

The enforcement of the Montreal Protocol and the Ivory Coast case have shown how power bases are being used, when pushing for or against ratification of protocols and conventions.

International responses to environmental issues are ratified by states, and different states with their own economic agendas make for a challenging set of actors to coordinate and convince to act in synchrony. This is further exacerbated by gaps in international policy, fragmentation of effort, and competing or incoherent decision-making structures that stem from sectoral approaches to environmental issues, and are not based on finding synergies.

Agencies such as the UN, that instigate international regimes like the Basel Convention, might benefit too by building synergies and improved cooperation with other Conventions such as Stockholm and Rotterdam.

Conclusion

International environmental cooperation is difficult because states disagree on burden sharing and have economic incentives to free ride. Future cooperation can be achieved through unilateral action, together with trade sanctions (Urpelainen, 2013) or policies that force exporters of i.e. waste products to comply with domestic environmental regulations.

A true free market would be inclined to regulate itself and welcome environmental regulations, just as it embraces regulations concerning piracy or theft where cheaters get policed and punished.

And lastly, a true free market would act upon what Gaylord Nelson pointed out in his book 'Beyond Earth Day'*:*

"*All economic activity is dependent upon that environment and its underlying resource base of forests, water, air, soil, and minerals. When the environment is finally forced to file for bankruptcy because its resource base has been polluted, degraded, dissipated, and irretrievably compromised, the economy goes into bankruptcy with it.*" (Nelson, 2002).

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Figures

Figure 1 © Philippe Rekacewicz, UNEP/GRID-Arendal, http://www.grida.no/graphicslib/detail/total-waste-generation-in-2001-selected-countries_115e

Figure 2 This table was compiled by the author drawing on module sources (Walters, 2009, p.347) and internet searches (IMO, 2011 and 2013; UN, 2012; UNEP, 2011; wikipedia)

Figure 3 © Emmanuelle Bournay, UNEP/GRID-Arendal, http://www.grida.no/graphicslib/detail/common-but-differentiated-responsibilities_c00f

Figure 4 © Candace Feit for The New York Times 'A worker helping to clean up toxic sludge last week in Abidjan, Ivory Coast. The sludge, dumped from a tanker, has been blamed for eight deaths.' http://www.nytimes.com/2006/10/02/world/africa/02ivory.html?ex=1317441600&%E2%80%A8en=289499925513d443&ei=5088&partner=rssnyt&emc=rss&_r=0

