

U4 Expert Answer



Environmental crime and corruption: Ozone depleting substances and illegal trade in hazardous waste

Query

We are interested in the relationship between corruption and environmental crime. In particular, what are the vulnerabilities (people, policy and procedures) that could be exploited for corruption in this area? What recommendations would you make to developed countries to counter corruption in this area? Are there examples of international best practice that have been particularly effective? We are most interested in the Asia-Pacific region.

Purpose

We are currently conducting an assessment of corruption risks, including in the area of environmental crime, and are interested in your view of the threat posed by corruption and environmental crime. We are particularly interested in the areas of illegal trade in ozone depleting substances and illegal trade in hazardous waste

Content

1. Environmental crime and corruption
2. Dumping and illegal transport of hazardous waste
3. Illegal trade in ozone depleting substances
4. References
5. Additional resources

Summary

Environmental crime covers activities ranging from illegal logging, illegal trade in ozone depleting substances, dumping and illegal transport of hazardous wastes, to unreported fishing. It poses serious threats to the environment, contributing to poverty and food insecurity. Corruption can be considered a catalyst for environmental crime. In particular, corruption plays an important role in facilitating fraudulent trade, forging import/export certificates, clearing customs wrongly, ignoring illegal waste disposal, issuing licenses, among others.

At the request of the enquirer, this answer attempts to analyse the corruption vulnerabilities in the areas of ozone depleting substances and illegal trade in hazardous waste.

Author(s): Maíra Martini, Transparency International, mmartini@transparency.org

Reviewed by: Marie Chêne, Transparency International and Robin Hodess PhD, Transparency International

Date: 23 April 2012 updated 10.07.2015 **Number:** 2015:16

U4 is a resource centre for development practitioners who wish to effectively address corruption challenges in their work. Expert Answers are produced by the U4 Helpdesk – operated by Transparency International – as quick responses to operational and policy questions from U4 Partner Agency staff.

1. Environmental crime and corruption

Types of environmental criminal offences

Environmental crime typically refers to any breach of a national or international environmental law or convention that exists to ensure the conservation and sustainability of the world's environment (Elliot 2007).

More specifically, five broad areas of offences have been recognised as environmental crime by bodies such as the European Union, Interpol and the United Nations Environment Programme as environmental crime, namely (Environmental Investigation Agency 2008):

- illegal trade in ozone depleting substances (ODS) in contravention of the Montreal Protocol on Substances that Deplete the Ozone Layer
- dumping and illegal transport of hazardous waste in contravention of the Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Other Wastes and their Disposal
- illegal trade in wildlife in contravention of the Washington Convention on International Trade in Endangered Species of Fauna and Flora (CITES)
- illegal, unregulated and unreported (IUU) fishing in contravention of controls imposed by various regional fisheries management organisations (RFMOs)
- illegal logging and trade in timber when timber is harvested, transported, bought or sold in violation of national laws

This answer focuses on the corruption vulnerabilities in illegal trade in ozone depleting substances and dumping and illegal transport of hazardous waste.

Linkages between environmental crime and corruption

Environmental crime often includes a transnational dimension and involves organised crime groups who engage in other types of crime, such as money laundering, corruption and fraud, with a major influence on the global economy and security (Elliot 2007). In fact, there is evidence that "traditional" organised criminal groups involved in human, drugs and arms trafficking are also increasingly getting involved in transnational

environmental crime (Elliot 2009). Organised groups in conflict and/or fragile countries are allegedly also engaged in environmental crime activities in order to generate funds for other criminal activities (OECD 2012).

Evidence suggests that illegal networks are intrinsically linked to large-scale corruption (Fagan 2011), particularly to facilitate fraudulent trade, or forge import/export certificates (EIA 2008). It is to be expected that the same holds true for environmental crime activities.

For instance, recent research on the links between corruption and wildlife trafficking shows that corruption can play a major role in facilitating the illegal trade of animals, plants and their products and derivatives (Wyatt & Ngoc Cao 2015). In the forestry sector, corruption also acts as a facilitator allowing companies and individuals to illegally extract wood, which has serious consequences for the environment and society (Transparency International no year). Corruption is also a threat to conservation. Research shows that funds intended for forest protection are at risk of being siphoned or misused, hampering the effective protection of forests (Williams et al. 2015; Assembe-Mvondo 2015; Standing 2015).

Similarly, illegal, unregulated and unreported (IUU) fishing is also facilitated by corruption. Fishers, processors and retailers make use of corruption, falsification of documents and money laundering to be able to conduct their activities (High Seas Task Force 2006). Corruption also acts as a facilitator of a series of other illegal activities related to IUU fishing, such as trafficking of workers, issuance of registries and licences that will then be abused, smuggling of illegal catches and faking of documents, among others, (Martini 2013).

The relationship between corruption and other environmental crimes such as illegal trade in ozone depleting substances and hazardous waste is still under-researched. Available research points to the risk of corruption in the issuance of licences and permits and in dealing with customs officials, among others. This answer analyses in more detail the links between corruption and these crimes, the main actors involved and initiatives undertaken in the Asia-Pacific region counter corruption in these areas.

Environmental crime and corruption in the Asia-Pacific region

In the Asia-Pacific region, environmental crime is a serious problem with consequences not only for environmental degradation and sustainable development, but also for good governance, security and the legitimacy of legal institutions (Elliott 2007). Besides being a source of private gain for ruling elites, illegal environmental activities also create a shadow economy (Elliot 2009). For instance, in Indonesia, studies have shown that all forms of environmental crime resulted in losses to the Indonesian treasury of more than US\$8 billion¹ a year in 2003. In the forestry sector, illegal logging has resulted in losses in revenue of about US\$3 billion (EIA 2008).

As with other forms of transnational crime, such as narcotics and arms, bribery and other forms of corruption associated with environmental crime undermine good governance, corroding state institutions and the rule of law (Elliott 2009). In addition, in the Asia-Pacific region, local crime groups and/or legitimate companies often exercise control over local communities and end up constituting a parallel authority that “takes advantage of corrupt officials and politicians, as well as weak government institutions and law enforcement agencies” (Elliott 2009).

2. Dumping and illegal transport of hazardous waste

Definition

Hazardous waste is the by-product of industrial and manufacturing processes and discarded products from commercial and industrial sectors, as well as household waste, such as unused cleaning products, television monitors, metal cables insulated with plastics, lead-acid batteries, and used oils. The monitoring and tracking of hazardous waste shipments is difficult, as countries often define hazardous waste differently (International Network for Environmental Compliance and Enforcement 2009).

¹ Note: Transparency International takes “billion” to refer to one thousand million (1,000,000,000).

Globalisation and the worldwide production of millions of tonnes of waste gave rise to the illegal movement and dumping of waste particularly in developing countries, posing serious risks to the environment and human health. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted in 1989 to regulate the transboundary movements of hazardous wastes. It obligates its 170 parties to ensure that such waste is managed and disposed of in an environmentally sound manner (Basel Convention website).

However, despite the existence of such a convention and of a variety of bilateral agreements and national laws, the illegal trade in hazardous waste remains a significant problem throughout the world, posing significant human health, environmental and financial risks to the countries involved (Europol 2011; International Network for Environmental Compliance and Enforcement 2009). In this context, criminals and organised crime groups have been exploiting the high costs associated with legal waste management, and making substantial profits from illegal trafficking and disposal activities (Europol 2011).

Illicit waste trafficking has been facilitated through cooperation with legitimate businesses in the financial services, import and export, as well as metal recycling sectors. In addition, there is evidence of the use of specialists engaged in document forgery to obtain permits, and of corruption in the public and private sectors (Europol 2011).

Hazardous waste in the Asia-Pacific region

Studies suggest that European, Russian and Japanese crime groups have established an illegal market for hazardous waste in Asia, often in combination with money laundering and arms trade activities (Elliott 2009). According to Europol (2011), toxic waste is trafficked from northwest Europe to non-EU countries, especially in West Africa and Asia. Italy has also become a transit point for e-waste (second-hand electrical and electronic equipment) en route to Africa and Asia (Europol 2011).

In the 1990s, problems with the illegal disposal of hazardous waste were particularly prominent in the Pacific islands, leading to the adoption of the

1995 Waigani Convention (Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region) which has similar provisions to the Basel Convention with modifications to suit the region.

The Waigani Convention not only provides a basis for preventing imports of hazardous wastes into the region, it also provides a legal mechanism for movement of wastes where this is agreed between parties (Secretariat of the Pacific Regional Environment Programme website).

Corruption risks

While studies analysing the relationship between illegal waste activities and corruption are scarce, Terekhova (2012) has recently discussed how such activities may offer corruption opportunities.

According to Terekhova, there are various factors fuelling corruption in the waste sector. The pursuit for financial benefits is a prime driver of environmental crime, as industries may make substantial profits by illegally disposing of waste (Terekhova 2012).

Corruption may take place at several stages in the management, transboundary movement, and disposal of hazardous waste. For instance, it may take place (Terekhova 2012):

- in the process of licensing disposal facilities or authorising persons to transport hazardous wastes
- in the process of issuing the export notification document in contravention of domestic legislation or the convention's provisions
- in the process of authorising the export to take place (for example, issuance of the movement document in contravention of the convention's provisions)
- in the process of accepting or authorising the exported shipment (for example, lack of compliance with an import restriction, lack of control of a contract)
- at each border control (for example, lack of appropriate control of the documents or of the content of the shipment)
- in the process of detecting illegally dumped waste (for example, regulators can be offered inducements to ignore the illegal disposal)

Corruption can potentially affect a variety of actors, including harbour officials, police, customs, traders and brokers, shipping lines, importers and exporters (Terekhova 2012), among others.

Domestic initiatives

Recent recommendations to prevent and combat corruption in the illegal trade of hazardous waste are connected to the effective implementation of the Basel Conventions' requirements. According to Terekhova (2012), such elements may include:

- (i) appropriate legal framework and appropriate sanctions. A complex legal framework for waste management and a policy landscape which includes different law enforcement and administrative authorities might create corruption opportunities. Public officials must have clarity to exercise their mandates and responsibilities. Sanctions must be proportionate to act as sufficient deterrents in cases of illegal traffic.
- (ii) coordination among national agencies. Besides clear mandates, different national and regional agencies responsible for waste management and environmental protection should work together. Information exchange should be done in a transparent and accountable manner.
- (iii) awareness raising and capacity building. Public officials and other relevant stakeholders must have a good understanding of national regulations on waste management, as well as of the Basel Convention.
- (iv) inclusive control of transboundary movements. While it is common for custom officials to focus on imports – which generate revenues – more than on exports, an effective control requires focus on both imports and exports, avoiding, for instance, that illegal waste leaves developed countries to developing countries where enforcement is often weaker.
- (v) performance recognition. Regulatory authorities and customs need proper recognition if they are to contribute to preventing and combating illegal traffic.

Other efforts include training for police and customs officials on ethics and corruption, and the establishment of whistleblower mechanisms, among others.

Cross-border initiatives

Besides national regulations and enforcements efforts, regional and global initiatives are key to control and avoid the illegal transboundary movement of hazardous waste. Several international and regional organisations have developed programmes aimed at enhancing national governments' enforcement capacity which could also have a positive effect in reducing corruption risks.

For instance, in 2012, the Swedish International Development Cooperation Agency in partnership with the United National Environmental Programme launched the Project REN - Regional Enforcement Network for Chemicals and Waste – to combat illegal trade in harmful chemicals and hazardous waste in Asia. The project aims to enable customs to monitor and control transboundary movements of chemicals and waste more efficiently, drawing on regional and global enforcement cooperation and targeted problem-solving capacity at the domestic level².

Interpol has also established a working group on pollution crime which leads a number of projects to combat the transport, trade and disposal of hazardous wastes or resources in contravention of national and international laws. The group has helped enforcement agencies throughout the world to identify and punish individuals involved in environmental crime³.

As part of Operation Demeter, launched by the World Customs Organisation in 2009, customs administrations from 64 countries monitored the illicit cross-border shipment of hazardous and other waste en route from Europe to countries in the Asia-Pacific region and Africa. The operation lasted 50 days and aimed to increase information exchange among customs officials. More than 30,000 tons of illegal hazardous waste was arrested, and the majority of seizures took place in European countries, such as the Netherlands, Belgium and Italy, before the waste was shipped

² Please see:

<http://www.unep.org/ozonaction/News/Features/2012/U NEPSIDAlaunchRegionalEnforcementNetwork/tabid/79390/Default.aspx>

³ Please see: <http://www.interpol.int/Crime-areas/Environmental-crime/Environmental-Crime-Committee/Pollution-Crime-Working-Group>

to developing countries (World Customs Organisation 2009).

3. Illegal trade in ozone depleting substances

Overview

Ozone depleting substances (ODSs) are those substances which deplete the ozone layer (for example, chlorofluorocarbons (CFCs), halons, hydrochlorofluorocarbons (HCFCs), and so on), and are widely used in refrigerators, air-conditioners, fire extinguishers, dry cleaning and as solvents for cleaning, among others.

In 1987, governments adopted the Montreal Protocol to reduce and eventually eliminate emissions of several ODS. While the protocol is considered to be one of the success stories of international environmental agreements, the complete phase-out of ODS is now challenged by a growing black market of CFCs, halons, and more recently HCFCs, despite a licensing system created in 1997 to tackle such illegal trade (EIA 2006).

As with any other illegal activity, the magnitude of the global illegal trade in ODS is difficult to determine precisely. In the mid-1990s, the size of the CFC black market in developed countries was estimated at around 10-20,000 tonnes with a commercial value of US\$150-300 million (EIA 2005). However, due to decreased demand as well as improved enforcement of regulations, illegal trade in ODS into developed countries has declined significantly. Nevertheless, recent seizures show that ODS has increased sharply in developing countries, as the phase-out of ODS commences (UNEP website).

Illegal trade in ODS has a negative impact on good governance, depriving governments and legitimate industry of revenue and opening up opportunities for corrupt behaviour. Moreover, the involvement of organised crime groups in such activities poses a threat to security and increases violence in transit countries.

ODS in the Asia-Pacific region

Based on reports and recent seizures, the illegal trade in the Asia-Pacific region is widespread and substantial, and has increased dramatically as the phase-out takes hold (UNEP 2007). China is a

major source of counterfeit CFCs, followed by India and the Republic of Korea, which together account for approximately 70% of global CFC production (EIA 2006; Elliot 2009; UNEP 2007). Southeast Asia is one of the most important routes (EIA 2006; Elliot 2009).

Bangladesh, China, Korea, India, Indonesia, Iran, Malaysia, Pakistan, Philippines, Sri Lanka, North Korea, Thailand and Vietnam are among the countries in the region which still have high consumption of CFCs (UNEP 2007), making such a market a highly profitable one.

As with other forms of transnational environmental crime, it seems likely that organised criminal groups are involved in pollutant smuggling in the region (Elliot 2009).

Corruption risks

As with the illegal trade in hazardous waste, the relationship between trade in ozone depleting substances (in contravention to domestic laws and international conventions) and corruption is still under-researched.

In this specific area, the literature tends to discuss the variety of methods used by criminals to smuggle such substances. Corruption is not the only means by which smugglers illegally trade ODS. Due to the complexities surrounding the movement of illegal ODS, as well as the nature of ODS chemicals, the identification of illegal material is extremely difficult, particularly because the majority of customs are still lacking appropriate testing equipment to check the substances at the border. This makes it much easier for smugglers to deceive a customs officer or ozone agent who is not well informed – without having to rely on corrupt practices (UNEP 2001).

As previously mentioned, the illegal trade in ODS relies heavily on customs' (lack of) capacity to assess whether the material traded is legal or illegal. In many circumstances, smugglers need not resort to corruption, and may use other techniques, such as mislabelling or concealment, to illegally export to a country. Yet, such illegal activity offers several corruption opportunities, such as:

- (i) licensing system: corruption may occur when an exporter or importer issues a licence to exit/enter a country without the required documentation. Detailed analysis of official

customs import and export data for CFCs highlights huge discrepancies in declared trade between countries. For example, while China and Indonesia have both import and export licensing systems in place, reported exports of CFCs from China to Indonesia from 2001 to 2004 were more than 1000 tonnes higher each year than Indonesia's reported imports of CFCs from China (EIA 2006). Flaws in the licensing system and corruption – such as bribery of custom officials in the country of import – facilitate such irregular trade (EIA 2006).

- (ii) smuggling methods: usually involve disguising virgin ODS to appear recycled, mislabelling containers and false declarations, transshipment fraud, and evasion, where ODS may be transported along traditional smuggling routes used for arms or narcotics, for example. Corruption may also be used by different groups to facilitate such illegal trade (UNEP 2001; Elliott 2009). ODS may also be moved openly through border crossing points if customs officials are bribed to ignore it (Elliott 2009).
- (iii) customs and public authorities: investigations carried out by the Environmental Investigation Agency in China revealed the importance of having contacts with customs officials to facilitate the export/import of restricted chemicals (EIA 2006), particularly when the exporter does not have the required licences issued by the government. Moreover, exporters tend to favour one harbour over others, according to the level of scrutiny employed by officials. In the case of China, the port of Shanghai is preferred over the Ningbo port, as the checking of commodities is much more likely to occur at the latter (EIA 2006). As for factory inspections, exporters have also revealed having well-placed informants within the local authorities who frequently reveal when inspections are going to take place (EIA 2006).

In considering the actors involved, research has shown that organised criminal groups are often engaged in such activities. The close connections between exporters and importers with government officials, such as ODS and custom officers – who, in developing countries, are usually not well trained and receive low salaries – might also increase the opportunities for corruption (UNEP 2001). Other bureaucrats involved in monitoring compliance with environmental regulations may also engage in corrupt behaviour.

Domestic initiatives

While the literature does not highlight a specific initiative which has been effective in reducing corruption risks in ODS illegal trade, it makes several recommendations on how to best counter illegal trade in this area, which in turn, also helps to curb corruption (EIA 2006).

In this context, countries should work on:

- enhancing Cooperation. Greater cooperation between customs and ozone units of these countries is key for controlling and avoiding illegal trade in ozone depleting substances
- establishing an effective licensing system, which reduces bureaucracy levels (for example, the European Union has an electronic licensing system, EIA 2006:19) and creates deterrents for illegal trade
- establishing effective and proportionate sanctions, such as increased penalties for illegal trade activities, and a ban on all firms proven to have illegally shipped ODS from further exports, and revoke licences where appropriate
- capacity building initiatives: various investigative, training, and other capacity building initiatives to improve identification of illegal ODS by authorities
- enhancing human and material resources, including salary adjustments to mitigate the incentive for civil servants to accept bribes, and equipment which can help to identify ozone depleting substances
- the establishment of whistleblower mechanisms and protections
- setting up a central reporting and information agency to improve the collection and exchange of information, such as the required notifications of trade, and enforcement information on material flows, companies, and processing capacities in the individual countries (Boekel no year)

Cross-border initiatives

Effective law enforcement measures for transnational environmental crimes require extensive cooperation among countries. Several international and regional organisations related to environmental protection have launched campaigns and projects aimed at addressing the illegal trade in ODS which could also prevent corrupt practices.

The US Operation Cool Breeze was a multi-agency operation launched in the United States in the mid-1990s with the aim of tracking down CFC smugglers and securing convictions. The operation was a powerful deterrent, significantly reducing the amount of CFC illegally entering the country (EIA 2009).

The OzonAction Compliance Assistance Programme, carried out by the United Nations Environment Programme's Division of Technology, Industry and Economics (UNEP DTIE), has, since 2005, supported governments and industries in developing countries to elaborate and enforce the policies required to implement the protocol and make informed decisions about alternative technologies. In addition, capacity building projects have helped customs officers in their work to enforce national licensing systems, fight illegal trade in ODS, and to facilitate legal trade in replacement chemicals (UNEP no year).

The Green Customs Initiative⁴, launched in 2003, focused on the black market of ODS and other chemicals. It aims to improve training, coordination and identify high risk importers/exporters and shipping agents suspected to be involved in smuggling activities.

Project Sky-Hole Patching was launched in 2006 by the World Customs Organisation to tackle the smuggling of both ozone depleting substances and hazardous waste in Asia. The project sought to use the intelligence gathering capacity and information sharing networks of the World Customs Organisation's Regional Office in Asia to intercept shipments of illegal ODS and waste. The first phase of the project focused on ODS, and the second phase, which started in 2007, also covered hazardous waste (UNEP 2007). Besides the seizure of more than 1,000 tons of illicit waste and of more than 100 tons of smuggled ODS, the project has successfully raised awareness of such environmental crimes among customs agencies across the region, and facilitated intelligence exchange among members and with other organisations (Environmental Investigation Agency 2008; Rilo 2012).

⁴ Please see: <http://www.greencustoms.org/background/>

4. References

Environmental crime

Assemble-Mvondo, S. 2015. *National-level Corruption Risks and Mitigation Strategies in the Implementation of REDD+ in the Democratic Republic of the Congo: An Overview of the Current Situation*. U4 Issue 2015: 9.

<http://www.u4.no/publications/national-level-corruption-risks-and-mitigation-strategies-in-the-implementation-of-redd-in-the-democratic-republic-of-the-congo-an-overview-of-the-current-situation/#sthash.wgLARjet.dpuf>

Brack, D. and Hayman, G. 2002. *International Environmental Crime: The Nature and Control of Environmental Black Markets*. Background Paper for RIIA workshop.

Elliott, L. 2007. *Transnational Environmental Crime in the Asia-Pacific: An “Un(der)secutized” Security Problem? The Pacific Review*, Vol. 20 No. 4 December 2007: 499–522.

http://ips.cap.anu.edu.au/ir/tec/publications/Elliott_L_Transnational_environmental_crime_Asia_Pacific_undersecutized_security_problem.pdf

Elliott, L. (ed.). 2007. *Transnational Environmental Crime in the Asia-Pacific: A Workshop Report*.

http://ips.cap.anu.edu.au/ir/tec/publications/Transnational_environmental_crime_Asia_Pacific_workshop_report_TEC_Workshop_Report_2007.pdf

Elliott, L. 2011. *Transnational Environmental Crime: Applying Network Theory to an Investigation of Illegal Trade, Criminal Activity and Law Enforcement Responses*. Transnational Environmental Crime Project. Working paper 1/2011.

http://ips.cap.anu.edu.au/ir/tec/publications/TEC_Working_Paper_1_2011.pdf

Environmental Investigation Agency (EIA). 2008. *Environmental Crime: A Threat to Our Future*.

Fagan, C. 2011. *Evidence of Illegal Cross-Border Flows of Funds, Goods, and Services in South Asia and Their Impact on Corruption*. U4 Expert Answer.

High Seas Task Force, 2006. *Closing the net: Stopping illegal fishing on the high seas*. Governments of Australia, Canada, Chile, Namibia, New Zealand, and the United Kingdom, WWF, IUCN and the Earth Institute at Columbia University. <http://www.oecd.org/sd-roundtable/papersandpublications/39375276.pdf>

Martini, M. 2013. *Illegal, Unregulated and Unreported Fishing and Corruption*. U4 Helpdesk Answer.

<http://www.u4.no/publications/illegal-unreported-and-unregulated-fishing-and-corruption/>

OECD. 2012. *Illegal Trade in Environmentally Sensitive Goods*.

<http://www.oecd.org/tad/envtrade/ExecutiveSummaryIllegalTradeEnvSensitiveGoods.pdf>

Bricknell, S. 2010. *Environmental Crime in Australia*.

<http://www.aic.gov.au/documents/2/1/1/1%7B211B5EB9-E888-4D26-AED4-1D4E76646E4B%7Drpp109.pdf>

Standing, A. 2015. *Governance Considerations for the Design of REDD+ In Tanzania: The Dilemmas of a Nested Approach*. U4 Issue 2015: 14.

<http://www.u4.no/publications/governance-considerations-for-the-design-of-redd-in-tanzania-the-dilemmas-of-a-nested-approach/#sthash.TJgknxSn.dpuf>

Transparency International. No year. *Forestry*.

<http://www.transparency.org/topic/detail/forestry>

Williams et al. 2015. *REDD Integrity: An Evidence Based Approach to Anti-corruption in REDD+*. U4 Issue 2015:7.

<http://www.u4.no/publications/redd-integrity-an-evidence-based-approach-to-anti-corruption-in-redd/#sthash.MPzuc4O5.dpuf>

Wyatt, T. and Ngoc Cao, A. 2015. *Corruption and Wildlife Trafficking*. U4 Issue 2015:11.

<http://www.u4.no/publications/corruption-and-wildlife-trafficking/>

Ozone depleting substances

Boekel, C., no year. *Enforcement of international environmental agreements, e.g., hazardous waste and ozone depleting substances*,

<http://www.inece.org/5thvol1/boekel.pdf>

Clark, E. 2007. *Ozone Depleting Substances. The Global Illegal Trade: history and current trends*. Environmental Investigation Agency.

Environmental Investigation Agency (EIA). 2006. *Turning up the Heat: Linkages between Ozone Layer Depletion and Climate Change: The Urgent Case of HCFCs and HFCs*.

http://www.eia-international.org/wp-content/uploads/Turning-up-the-the-Heat-FINAL_JAN-10-2007-low-res.pdf

Environmental Investigation Agency. 2007. *Preventing Illegal Trade in ODS: Strengthening the Montreal Protocol licensing system*.

<http://www.eia-global.org/PDF/reports--preventingillegaltrade-climate--May07.pdf>

Environmental Investigation Agency. 2005. *Under the Counter: China's Booming Illegal Trade*.

<http://www.eia-global.org/PDF/Report--UTC--Climate--Dec05.pdf>

Environmental Investigation Agency. 2006. *ODS Tracking: Feasibility Study on Developing a System for Monitoring the Transboundary Movement of Controlled Ozone-Depleting Substances between the Parties*.

<http://www.eia-global.org/PDF/reports--ODStracking--climate--Sep06.pdf>

Ivanova, K. 2005. *Corruption, Illegal Trade and Compliance with the Montreal Protocol*.

<http://www.peacepalacelibrary.nl/ebooks/files/C08-0060-Ivanova-Corruption.pdf>

The Montreal Protocol.

<http://www.unep.org/ozone/Montreal-Protocol/Montreal-Protocol2000.shtml>

Rilo, AP. 2012. *Project Sky-Hole-Patching. Customs Coordination Meeting in Saint Petersburg*.

http://www.unido.ru/upload/files/p/prezent_2012_04_11/jinkon.pdf

United Nations Environmental Programme (UNEP). No year. *OzonAction Compliance Assistance Programme*.

United Nations Environment Programme. 2007. *Combating Illegal Trade in Ozone Depleting Substances*.

<http://www.unep.fr/ozonaction/information/mmcfiles/6076-e-networkingcounts.pdf>

United Nations Environment Programme. 2008. *Saving the Ozone Layer: Phasing Out Ozone Depleting Substances in Developing Country*. Training Manual for Custom Officials. Second Edition.

http://www.unep.fr/ozonaction/information/mmcfiles/6226-e-CTM_Second_Edition.pdf?r=3164

United Nations Environment Programme. 2001. *Illegal Trade in Ozone Depleting Substances: is there a hole in the Montreal Protocol?* OzonAction Newsletter Special Supplement, Number 6.

<http://www.unep.fr/ozonaction/information/mmcfiles/3617-e-oansupplement6IllegalTrade.pdf>

United Nations Environment Programme. 2007. *Illegal Trade in Ozone Depleting Substances: Asia and Pacific Region*.

<http://www.mearen.org/files/publications/Illegal%20Trade%20in%20ODS.pdf>

Hazardous waste

Amato, AD and Zoliy, M. 2011. *Bureaucrats vs the Mafia: Corruption, Extortion and Illegal Waste Disposal*. Università di Roma.

<http://www.siecon.org/online/wp-content/uploads/2011/04/DAmato-Zoli1.pdf>

Environmental Investigation Agency (EIA). 2011. *System Failure: The UK's Harmful Trade in Electronic Waste*.

<http://www.eia-international.org.php5-20.dfw1-1.websitetestlink.com/wp-content/uploads/System-Failure-FINAL.pdf>

Independent Commission against Corruption (ICAC). 2002. *Taking the Whiff out of Waste: Guidelines for Managing Corruption Risks in the Waste Sector*. November. 2002.

International Network for Environmental Compliance and Enforcement Seaport Environmental Security Network. 2009. *The International Hazardous Waste Trade through Seaports*. http://www.inece.org/seaport/SeaportWorkingPaper_24November.pdf

Europol. 2012. *Europol Warns of Increase in Illegal Waste Dumping*.

https://www.europol.europa.eu/sites/default/files/008-2011_oc-scan_policy_brief_v3.pdf

Europol. 2011. *EU Organised Crime Threat Assessment*.

<https://www.europol.europa.eu/sites/default/files/publications/octa2011.pdf>

Secretariat of the Pacific Regional Environment Programme

<http://www.sprep.org/Waste-Management-and-Pollution-Control/Hazardous-Waste-Management/>

Terekhova, T. 2012. *Transboundary Movements of Hazardous Wastes and Corruption: The Special Case of E-waste in West Africa*. Corruption, Environment and the United Conventions against Corruption. UNODC.

http://www.unodc.org/documents/eastasiaandpacific/indonesia/publication/Corruption_Environment_and_the_UNCAC.pdf

The Basel Convention

http://www.basel.int/Portals/4/Basel%20Convention/docs/convention/bc_glance.pdf

UNEP, 2001. *Illegal trade in ozone depleting substances: Is there a hole in the Montreal Protocol?*

<http://www.unep.fr/ozonaction/information/mmcfiles/3617-e-oansupplement6IllegalTrade.pdf>

White, R. and Heckenberg, D. 2011. Key Vulnerabilities & Limitations in the Management of Hazardous Waste and Its Disposal.

http://www.utas.edu.au/sociology/CRU/Briefing_Paper_3_Key_Vulnerabilities_and_Limitations_in_the_Management_of_Hazardous_Waste_and_its_Disposal.pdf

World Customs Organisation. 2009. *Operation Demeter: A Successful Hunt on A Grand Scale* in WCO News. N. 60 2009.

http://wcoomdpublishings.org/downloadable/download/sample/sample_id/90/

5. Additional resources

This answer focused on the corruption risks which can be identified in the illegal trade of ozone depleting substances and hazardous waste. More information on other environmental crimes can be accessed at:

Knape, M. 2009. *Corruption and Consequences: Illegal Logging in Southeast Asia*.

GTZ. 2009. *Overview: The Problem of Corruption in the Forestry Sector. Policy Papers Issue 01/09 – Corruption in the Forestry Sector and Illegal Logging*.

Transparency International. 2011. *Reducing Demand for Illegal Timber: Targeting Corruption in Customs and Procurement*. Working Paper 1/2011.
http://transparency.org/publications/publications/working_papers/wp_01_2011_reducing_demand

Transparency International. 2010. *Timber Trafficking and Laundering: An Anti-Corruption Approach*.
http://transparency.org/publications/publications/working_papers/wp_05_2010_timber_trafficking

Transparency International. 2010. *Corruption in Logging Licenses & Concessions*. Working paper 3/2010.
http://transparency.org/publications/publications/working_papers/wp_03_2010_logging_concessions

Environmental Investigation Agency. 2008. *Borderlines: Vietnam's Booming Furniture Industry and Timber Smuggling in the Mekong Region*.
<http://www.eia-international.org.php5-20.dfw1-1.websitetestlink.com/wp-content/uploads/reports160-11.pdf>

Environmental Investigation Agency. 2010. *Enforcement not Extinction: Zero Tolerance on Tiger Trade*.
<http://www.eia-international.org.php5-20.dfw1-1.websitetestlink.com/wp-content/uploads/reports210-1.pdf>