EFFACE

European Union Action to
Fight Environmental Crime

Understanding the damages of

Review of the availability of data: Annexes

Deliverable No. 3.1 Annexes

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Table of Contents

1. Introduction

This document forms the Annex to D3.1. It contains the tables detailing the review of data sources on the impacts of environmental crime. The tables are set out in the following pages and follow the same subject order as in the main deliverable. The tables are arranged in the following subject order:

- Soils
- Waste: landfills and dumping
- Illegal waste shipment from Europe
- Pollution incidents
- Fisheries
- CITES
- Protected areas
- Chemicals: trade, bans
- Fires
- Marine (oil, Marpol, London Convention, etc.)
- Timber

2. Soils

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Introduction into the soil of a quantity of detrimental materials causing harm of some type		
Title of information/data source	*"Progress in the management of Contaminated Sites in Europe"* European Commission - Joint Research Centre Institute for Environment and Sustainability European Union, 2014		
Where is the data source? Link if available?	http://eusoils.jrc.ec.europa.eu/ESDB_Archive/eusoils_docs/other/EUR26376EN.pdf		
Method used for data collection	The report is based on data that were collected from the National Reference Centres for Soil in 39 countries belonging to the European Environment Information and Observation Network (EIO-NET) during a campaign organised by the JRC European Soil Data Centre in 2011-2012.		
Geographic scope of data (country coverage), including if transboundary	The geographical coverage of the data collection encompasses the 33 EEA Member Countries (28 European Union Member States together with Iceland, Liechtenstein, Norway, Switzerland and Turkey) and the EEA cooperating countries in the West Balkan: Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia (FYROM), Montenegro, Serbia as well as Kosovo under the UN Security Council Resolution 1244/99.		
Temporal coverage of data (start and end date)	The report is based on a data collection exercise that was launched in EIONET countries by ESDAC in October 2011 and concluded in February 2012, after which a period of analysis and assessment followed that resulted in a draft report in August 2012.		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	On average about 4.2 Potentially Contaminated Sites are estimated to exist per 1,000 inhabitants and about	

		5.7 Contaminated Sites per 10,000 inhabitants. A tentative extrapolation to the whole of Europe results in an estimated 2.5 million Potentially Contaminated Sites of which about 14 % (340,000 sites) are estimated to be contaminated and in need of remediation measures	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment	Different contaminants have different effects on the environment, depending on their properties, for example: their potential for dispersion, their solubility in water or fat, their bioavailability, carcinogenicity, etc.	
	Social		
	Economic	The report aims to find out how much money on average is spent on the remediation of local soil contamination by the public and private sectors and how this relates to population size and available economic resources, as indicated by GDP.	
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		

	Economic	Annual national expenditures for the management of Contaminated Sites are on average about €10 per capita, ranging from approximately €2 in Serbia to more than €30 in Estonia. This corresponds to an average of €0.4 per million Euros of national GDP.	
Other issues/comments	Most European countries have national legislation (or in some cases regional legislation) to deal with local soil contamination, but no legal framework has yet been established at the level of the European Union.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Soil contamination		
Title of information/data source	Soil contamination. A severe risk for the environment and human health. Global Soil Forum Institute for advanced Sustainability Studies e. V.		
Where is the data source? Link if available?	http://globalsoilweek.org/wp-content/uploads/2013/10/GSW_factsheet_Contamination_en.pdf		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	Europe		
Temporal coverage of data (start and end date)	Report published in October 2013.		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	More than 2.5 million sites among 38 European countries are potentially contaminated, and 342,000 sites have been identified as contaminated sites (European Commission,	

		2013).	
	Number of individuals involved in criminal activity	Another problem is that polluters can often not be identified at sites affected by local soil contamination and thus brought to account for their actions which may affect human health and be detrimental to the local environment.	
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social	The long-term exposure to low-level concentrations of soil contaminants is of particular concern. Coming into contact with contaminated soil through ingestion, inhalation, or dermal absorption directly effects human health and can cause serious health problems: • cancers caused by arsenic, asbestos ordioxins • neurological damage • lower IQ caused by lead or arsenic • kidney disease caused by lead, mercury, cadmium, and • skeletal and bone diseases through lead, fluoride or cadmium)	
	Economic		
Quantitative impacts	To environment		
	Social	An astonishing number of people are affected by toxicities of arsenic (>100,000 people), cadmium (500,000),	

		mercury (80,000) and lead (>1 billion; National Water Research Institute, Burlington, Canada, 1988).	
	Economic		
Monetary impacts	To environment		
	Social		
	Economic	The management of contaminated sites costs Europeans an estimated 6 billion Euros annually (European Commission, 2013).	
Other issues/comments	Most of the existing national provisions in the European Union tackle the problem of soil contamination but not all member states have established a national inventory of contaminated sites (European Commission, 2006).		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Soil Contamination		
Title of information/data source	*"The European environment — state and outlook 2010 Soil (SOER 2010)"* European Environment Agency and European Commission - Joint Research Centre 2010		
Where is the data source? Link if available?	http://www.eea.europa.eu/soer		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	European Union (EU) and neighbouring countries		
Temporal coverage of data (start and end date)	2010		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area		

	affected)		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment	Soil contamination can have lasting environmental consequences and be extremely difficult and costly to remediate. Contamination can seriously affect the ability of soil to perform some of its key ecosystem functions. Thresholds for most pollutants exist in most countries but these can vary and often do not consider the multifunctional usage of soil. In extreme situations where contaminant levels exceed a critical threshold, the soil body may be considered as 'functionally dead'. Pollution by heavy metals and organic contaminants is probably the most important problem as the contamination is practically irreversible. Diffuse contamination by nutrients, fertiliser impurities (e.g. cadmium) and biocides is more concentrated in areas with intensive agricultural production and can have significant impacts on soil biology communities (and thus soil functions), groundwater sources, and crop uptake.	
	Social	Contamination can affect human health either through direct contact or by ingestion through the food chain (also through contaminated water). Industrial emissions of persistent organic compounds such as PCBs and dioxins to agricultural soil and their subsequent introduction into the food chain can lead to the development of tumours in people. Evidence shows that the majority of the costs are borne	

		by society in the form of damage to infrastructures due to sediment run off and landslides, increased health-care needs for people affected by contamination, treatment of water contaminated through the soil, disposal of sediments, depreciation of land around contaminated sites, increased food safety controls, and costs related to the ecosystem functions of soil.	
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic	The cost of contamination: EUR 2.4–17.3 billion/year (based on single case study in France)	
Other issues/comments	The costs of degradation depend on the process, its spatial extent and intensity, the natural characteristics of the location and the socio-economic characteristics of the surrounding area. However, while such factors have been addressed in local case studies, the calculation of a Europe-wide figure is impeded by the fact that much of the data is either unavailable or not comparable.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Soil Contamination from human activities (for example, from industrial processes, mining, household/business waste, human and animal pharmaceuticals)		
Title of information/data source	*"Science for Environment Policy In-depth Report: Soil Contamination: Impacts on Human Health"* Report produced for the European Commission DG Environment Science Communication Unit, University of the West of England, Bristol (2013)		
Where is the data source? Link if	http://ec.europa.eu/environment/integration/research/newsalert/pdf/IR5.pdf		

available?			
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	EU Countries		
Temporal coverage of data (start and end date)	Report published in September 2013		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social		
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments	The report contains a series of case studies from heavily-contaminated sites around Europe, which indicate the possible health impacts of high levels of soil contamination.		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal landfill		
Title of information/data source	Follow-up study on the implementation of Directive 1999/31/EC on the landfill of waste in EU-25. Final Report - Findings of the Study.European Commission, DG Environment		
Where is the data source? Link if available?	*ec.europa.eu/environment/waste/pdf/study/cowi_report.pdf*		
Method used for data collection	The study was elaborated on the basis of country reports drafted by nationalexperts having carried out desk studies and interviews with relevant stakeholders, including both public authorities, landfill operators and NGOs.		
Geographic scope of data (country coverage), including if transboundary	In ten new Member States (Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia), the study provides for an assessment of the situation regarding illegal/uncontrolled landfills. In six selected Member States (Germany, Hungary, Ireland, Slovenia, Spain and Sweden), the study analyses the implementation of Council Decision 2003/33/EC establishing criteria and procedures for the acceptanceof waste at landfills of 19 December 2002.		
Temporal coverage of data (start and end date)	The project started on 30 August 2006 and finished on 30 June 2007.		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment	For ten new MS, the study provides for information on the incidence of	

		illegal landfills, including their number, where known, and their potential environmental pressures (quantities, types and nature of the waste, characteristics of location, discharges and emissions, whereknown).	
	Social		
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments	For un update on the on the Implementation of the EU waste legislation, covering the period 2007-2009 see "Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Implementation of the EU waste legislation, Brussels, 17.1.2013, COM(2013) 6 final", available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0006:FIN:EN:PDF		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal landfill		
Title of information/data source	The costs of not implementing the environmental acquis. Final report ENV.G.1/FRA/2006/0073 September 2011 European Commission Directorate-General Environment		
Where is the data source? Link if available?	http://ec.europa.eu/environment/enveco/economics_policy/pdf/report_sept2011.pdf		
Method used for data collection	The study assessed the implementation gaps focusing on the following environmental sectors:		

	• Waste • Biodiversity and nature • Water • Air • Chemicals and noise (less detailed). For each sector a desk study has been made and the key results in terms of the implementation gaps and the associated costs have been identified and described.		
Geographic scope of data (country coverage), including if transboundary	27 EU Member States		
Temporal coverage of data (start and end date)	Report published in September 2011		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	The data are not very detailed and the number of landfills that are not in compliance does not say how much of the waste that is being deposited on these landfills. Based on these data a rough indication is that 15% of the waste is placed on non-compliant sites.	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social	Part of the social costs includes health impacts of the pollution from low standard landfills. Additionally, there could be an amenity effect of living close to non-compliance landfill or dump site.	
	Economic	The economic costs of not implementing the requirements for landfills relate to	

		containment of the waste or the risk of having later to clean up a landfill. These costs could be very high. The example of the containment costs suggests an order of magnitude of 4-5 billion EUR per year. Clean-up costs for a contaminated site can be substantial. If waste is not contained and the site is contaminated there could be pollution of water bodies that would impact on the drinking water supply.	
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment	A value around 15 EUR per tonne of waste landfilled in the non-compliance landfill compared to the compliant landfill. If it is assumed that 15% of the waste goes to non-compliant landfills, the total annual environmental costs would be in the order of 500 million EUR per year (COWI study 2000).	
	Social		
	Economic		
Other issues/comments	For more detailed data see "Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the Implementation of the EU waste legislation, Brussels, 17.1.2013, COM(2013) 6 final", available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0006:FIN:EN:PDF		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal landfill		
Title of information/data source	Data Evaluation. 4th period of the project TransWaste, funded by CENTRAL EUROPE		
Where is the data source? Link if available?	http://www.central2013.eu/fileadmin/user_upload/Downloads/outputlib/Transwaste_Data_Evaluation_output_3.2.2_final.pdf		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	The study involves Germany, Austria, Hungary, Slovakia and Poland.		
Temporal coverage of data (start and end date)	The study was published in March 2011.		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social		
	Economic		
Quantitative impacts	To environment	In Poland in 2010 over 400 illegal landfills of municipal waste were revealed. In Hungary it is estimated that 15 to 20 000 tons are disposed illegally. In Austria and Germany the number of illegal landfills are not specified and not known respectively.	

		Punctual illegal disposal though exists in areas like forests or ditches etc. (tyres, bulky waste, etc.). The corresponding amounts areunknown.	
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste sites and illegal dumping		
Title of information/data source	Cracking down on waste crime - Waste crime report 2012- 2013		
Where is the data source? Link if available?	Environment Agency - UK https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/288605/LIT_8777_8cc7d6.pdf		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	Regional data for the UK		
Temporal coverage of data (start and end date)	2012 - 2013		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	820 active illegal waste sites; other data involve the proportion of active illegal waste sites in each region	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			

Qualitative impacts	To environment	The report contains data on illegal dumping incidents 2012-2013 (by waste type)	
	Social		
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments	The report lists also data on enforcement actions for tackling waste crime.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Waste: illegal landfill and dumping		
Title of information/data source	Ecomafia 2013. Le storie e i numeri della criminalità ambientale Legambiente NGO - Italy		
Where is the data source? Link if available?			
Method used for data collection	Each year Legambiente collects from all the Italian law enforcements official data on verified crimes, arrests, complaints and seizures, to process them for writing the Ecomafia Report.		
Geographic scope of data (country coverage), including if transboundary	Regional data for Italy		
Temporal coverage of data (start and end date)	Report published in 2013 (data 2012)		
Extent of environmental crime	Numbers of instances of the crime or	In 2012, 5025 crimes were discovered.	The report contains data for each

	other measure of scale (e.g. area affected)		Italian region.
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?	Involvement of criminal organizations (like Camorra) in illegal dumping and landfill of waste. For more detailed data concerning the involvement of Camorra and other Italian mafia-type organization in illegal waste treatment see also Europol, "Threat assessment Italian Organised Crime", The Hague, June 2013, available at https://www.europol.europa.eu/sites/default/files/publications/italian_organised_crime_threat_assessment_0.pdf		
Qualitative impacts	To environment	Contamination of soil, groundwater and agricultural Products.	
	Social	The damage caused by the indiscriminate waste disposal, the settlement of illegal dump sites directly affect the local ecosystem, the salubrity of neighbouring farming areas and aquifers and the health of those living in the areas concerned.	
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments	The Ecomafia Report analizes also more deeply the repression and intelligence activities and the ecocrime's trend.		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Accumulation of waste, illegal and legal, urban and industrial, has contaminated soil, water, and the air with a range of toxic pollutants including dioxins		
Title of information/data source	The Waste Crisis in Campania, Italy By Lucie Greyl, Sara Vegni, Maddalena Natalicchio, Salima Cure and Jessica Ferretti		
Where is the data source? Link if available?	http://www.ceecec.net/case-studies/waste-crisis-in-campania-italy/		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	Regional data for Italy		
Temporal coverage of data (start and end date)			
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity	Criminal behaviour on the part of politicians and public administrators, company managers and freemasons	
Relationship to organised crime (if any)?	Relationship to illegal activities of the Camorra (the name of a dominant Naples mafia clan). For more detailed data concerning the involvement of Camorra and other Italian mafia-type organization in illegal waste treatment see also Europol, "Threat assessment Italian Organised Crime", The Hague, June 2013, available at https://www.europol.europa.eu/sites/default/files/publications/italian_organised_crime_threat_assessment_0.pdf		
Qualitative impacts	To environment	The accumulation of waste, illegal and legal, urban and industrial, has contaminated soil, water, and the air with a range of toxic pollutants including dioxins.	

	Social	A high correlation between incidences of cancer, respiratory illnesses, and genetic malformations and the presence of industrial and toxic waste landfills was also found. Civil society has mobilised in local grassroots committees and associations.	
	Economic	Contamination has also affected local sources of water and food production, creating health problems as well as economic issues for the farmers of the region.	
Quantitative impacts	To environment	2551 sites contaminated in the region, of which 1186 are in the province of Naples (in particular, 1011 are private and 175 public areas)	
	Social	For data concerning social impact of Naples waste crisis, see Implementing EU Waste Legislation for Green Growth, Final Report European Commission, DG ENV, November 2011 (p. 171 ff.)	
	Economic	For data concerning economic impact of Naples waste crisis, see Implementing EU Waste Legislation for Green Growth, Final Report European Commission, DG ENV, November 2011 (p. 171 ff.)	
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments			

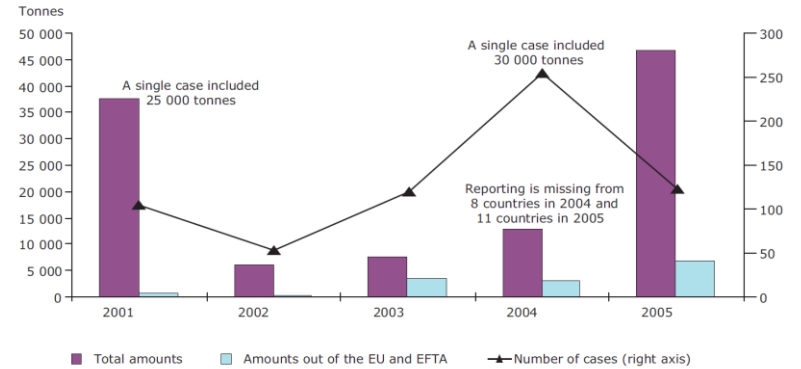
3. Illegal waste shipment from Europe

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal waste shipment **Number of illegal waste shipment instances in the EU**		
Title of information/data source	European Commission (2012) Report from the Commission to the Council and the European Parliament on the implementation of Council Regulation (EEC) No 259/93 of 1 February 1993 on the supervision and control of shipments of waste within, into and out of the European Community, and on the implementation of Regulation (EC) No 1013/2006 of 14 June 2006 on shipments of waste - Generation, treatment and transboundary shipment of hazardous waste and other waste in the Member States of the European Union (2007-2009), COM (2012) 448, Brussels, 7.8.2012.		
Where is the data source? Link if available?	http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012DC0448&from=EN		
Method used for data collection	Statistical data from reporting of EU Member States to Commission questionnaires and Basel Convention questionnaires		
Geographic scope of data (country coverage), including if transboundary	EU Member States (covers exports and imports)		
Temporal coverage of data (start and end date)	2007-2009		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Number of illegal waste shipment instances in the EU. Most Member States have reported illegal waste shipments between 2007 and 2009. Highest numbers were reported in Germany, the Netherlands, Belgium and the United Kingdom. In **2009**, **400 cases** were reported of which half occurred between EU countries and the other half involved shipments into or out of the EU.	The report notes that the total number of illegal waste shipments is probably considerably higher. Seven Member States did not report at all and many countries indicated that no illegal waste shipments were detected. It should be kept in mind that a list of actions can be considered illegal under the WSD not only the import of hazardous waste to developing countries. For instance, the

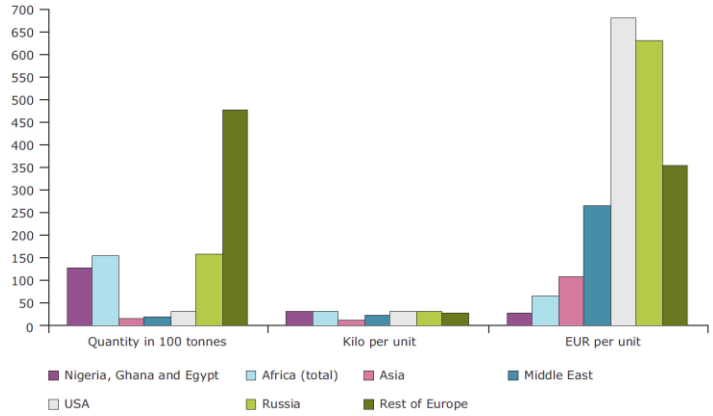
			implementation report notes that the most common reason for illegality was shipment of waste without sending notification. Figures are not broken down to the different types of illegal activities.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	Previous implementation reports on the Waste Shipment Regulation can be found at: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52009DC0282&from=EN http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52006DC0430&from=EN Additional information: The report notes that in **2009**, around **77 million tonnes of hazardous waste** was generated in the **EU** and between 2007 and 2009 Germany has generated the largest amount – around 19 million tonnes. Between 2007 and 2009 the Netherlands exported the largest amount of hazardous waste nevertheless the recipient countries are not specified and thus include both EU and non-EU countries.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Weight of reported illegal waste shipment from the EU**		
Title of information/data source	EEA (2009) Waste without borders in the EU? Transboundary shipment of waste. 4 March 2009		
Where is the data source? Link if available?	http://www.eea.europa.eu/publications/waste-without-borders-in-the-eu-transboundary-shipments-of-waste		

Method used for data collection	Data is taken from the European Commission which collected statistical data form Member States via the reporting requirement under the Waste Shipment Directive (see: European Commission, 2007. The EU Member States reporting according to Commission Decision 99/412/EEC of 3 June 1999 concerning a questionnaire for the reporting obligation of Member States pursuant to Article 41 (2) of Council Regulation (EEC) No 259/93)		
Geographic scope of data (country coverage), including if transboundary	European Union – waste shipment between EU countries and out of the EU and EFTA countries		
Temporal coverage of data (start and end date)	Between 2001 and 2005 (note data on other types of shipment cover wider period, but data on illegal activity restricted to this period)		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Number of illegal waste shipments in the EU and reported amounts. Reported **annual waste illegal shipments** in the EU vary between **6,000 and 47,000 tonnes** with an average of about 22,000 tonnes (see figure below).	The reported amount of illegal waste shipment is probably only a fraction of the actual number of illegal waste shipments. It is important to keep in mind that illegal shipment under the WSR may take many forms, such as transporting waste without notification, mixing certain types of waste, falsifying any documentation and transporting etc. While all listed actions are considered to be illegal the shipment of hazardous waste out of the EU to developing countries has the largest economic, environmental and social impact compared to other actions.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	

	Economic	Not addressed	
Other issues/comments	The figure below is done by the European Commission and it is based on Member States' reporting under the WSR. Figure: Reported illegal waste shipments in the EU from 2001 to 2005 (p.11)  **Note:** In the years 2001 to 2003 the reporting covers only the old EU Member States, but three countries did not report. **Source:** European Commission, 2007.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Amount of used colour televisions exported from the EU to non-OECD countries**		
Title of information/data source	EEA (2009) Waste without borders in the EU? Transboundary shipment of waste		
Where is the data source? Link if available?	http://www.eea.europa.eu/publications/waste-without-borders-in-the-eu-transboundary-shipments-of-waste		
Method used for data collection	The report focuses on the problem of exporting WEE, especially coloured televisions, from the EU as used goods to developing countries by looking at the average value of exported colour televisions from the EU to the different parts of the world as an indication of the condition of products (see Figure below).		
Geographic scope of data (country coverage), including if transboundary	European Union exporting to non-EU countries with a special focus on African countries.		
Temporal coverage of data (start and end date)	2005 (note that for general illegal waste shipment temporal coverage is 2001-2005)		
Extent of environmental crime	**Numbers of instances of the crime or**	Volume of exported coloured televisions.	It is assumed that many of these coloured

	other measure of scale (e.g. area affected)	In **2005**, more than **15,000 tonnes of coloured televisions** were exported from the EU to Africa.	televisions are used or not even functioning and thus count as e-waste. Nevertheless, no specific figures are included on the actual amount of WEEE.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	The figure below indicates that the average value of coloured television exported from the EU to Africa is only €64 and for Nigeria, Ghana and Egypt it is even lower (€28), while the average value per unit overall is €339. This indicates that probably a large set of exported coloured televisions to Africa are used products or e-waste. Figure: Export of all colour television sets from the EU to Africa, Asia, the Middle East, United States and other European countries in 2005 (p14)  **Note:** Bulgaria and Romania are not included in the EU but in the 'Rest of Europe'. **Source:** Eurostat, 2007.		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal waste shipment		
Title of information/data source	Compilations on hazardous waste volumes and movements for national reporting to Basel Convention		
Where is the data source? Link if available?	http://www.basel.int/Countries/NationalReporting/StatusCompilations/ComplitionPartII%282011%29/tabid/3506/Default.aspx		
Method used for data collection	Reported by parties in response to agreed UNEP questionnaire and data compiled by Basel Secretariat.		
Geographic scope of data (country coverage), including if transboundary	Global – but data for parties are missing for each year, eg 18 parties missing for 2011		
Temporal coverage of data (start and end date)	First reports are from 1997, but format changed to simplified overviews in early 2000s – but annual reports available with the latest for 2011 data		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Generated and exported amount of hazardous waste is indicated.	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**		
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal waste shipment **Volume of used electronic goods exported from Denmark to non-OECD countries**		
Title of information/data source	DEPA, 2006, Eksport af brugte el-produkter som affald eller som second-hand produkter (Export of used electrical and electronic equipment as waste or as second-hand goods), PlanMiljø, the Danish Environmental Protection Agency. As the study above is in Danish details could not be accessed but the main result of the Danish study was taken from EEA (2012) Movements of waste across the EU's internal and external borders		
Where is the data source? Link if available?	http://mst.dk/media/mst/70090/Eksport_af_brugte_elprodukter.pdf		
Method used for data collection	Unknown due to reasons indicated above		
Geographic scope of data (country coverage), including if transboundary	Denmark		
Temporal coverage of data (start and end date)	2006		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Amount of used electronic goods exported from Denmark to developing countries. Around **2,500 tonnes** of used televisions, computers, monitors, refrigerators and deep freezers are exported from Denmark to non-OECD countries each year.	Indicated in EEA (2012) Movements of waste across the EU's internal and external borders
	Number of individuals involved in criminal activity	Needs to be checked	
Relationship to organised crime (if any)?	Needs to be checked		
Qualitative impacts	**To environment**	Needs to be checked	
	Social	Needs to be checked	
	Economic	Needs to be checked	
Quantitative impacts	**To environment**	Needs to be checked	
	Social	Needs to be checked	

	Economic	Needs to be checked	
Monetary impacts	**To environment**	Needs to be checked	
	Social	Needs to be checked	
	Economic	Needs to be checked	
Other issues/comments	As the report is in Danish the whole content was not checked and only a main figure quoted in another report is indicate dhere.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Weight of illegally transported waste from the EU to non-OECD countries**		
Title of information/data source	European Topic Centre on Resource and Waste Management (2008) Transboundary shipments of waste in the EU – Developments 1995-2005 and possible drivers		
Where is the data source? Link if available?	http://scp.eionet.europa.eu/publications/Transboundary%20shipments%20of%20waste%20in%20the%20EU/wp/tech_1_2008		
Method used for data collection	Main source of information is the official statistical information reported by EU Member States to the European Commission together with some additional sources, e.g. IMPEL TSF network data		
Geographic scope of data (country coverage), including if transboundary	European Union export to EU and non-OECD countries (2001-2003 reporting is EU15, 2004-2005 reporting is EU25)		
Temporal coverage of data (start and end date)	2001 and 2005		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Number of illegal waste shipment cases in the EU and amount of illegally exported waste from EU to non-OECD countries. Total number of cases of illegal waste shipments reported in the EU is around 50 to 250 cases annually. Amount of reported **illegal waste shipments from EU to non-OECD** countries has increased from **700 tonnes in 2001 to 7,100 tonne in 2005**.	Illegal waste shipment can take many different types of actions, including transporting waste types subject to the Basel Ban to non-OECD countries, mixing certain wastes, not giving notice etc. Largest numbers of illegality concerned the failure to notify. Around 6-8 EU countries reported illegal waste shipment movements during 2001 and 2005.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		

Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	Additional information: Belgium, the Netherlands and the United Kingdom reported illegal export cases to non-OECD countries. The IMPEL-TSF findings identified that waste shipments to developing countries had different destinations depending on the type of waste: • Mix of plastic and paper – East and West Asia • Refrigerators and CFCs – Western Africa • ELV – Africa and Eastern Europe • Electronic and cable waste – West and East Asia The IMPEL-TSF project also showed that Belgium and the Netherlands have the most significant hubs for illegal waste shipment to developing countries.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Global impact of illegal transport of hazardous waste**		
Title of information/data source	OECD (2012) Illegal trade in environmentally sensitive goods, OECD Trade Policy Studies		
Where is the data source? Link if available?	http://www.oecd-ilibrary.org/trade/illegal-trade-in-environmentally-sensitive-goods_9789264174238-en		
Method used for data collection	The report mainly provides qualitative data and builds on other thematic reports and publications. The report also indicates that for hazardous waste data is available on waste movements issued by national governments and for certain types of wastes customs data is also available. Nevertheless, it indicates that the collection of data on hazardous waste is very limited.		
Geographic scope of data (country coverage), including if transboundary	Global		
Temporal coverage of data (start and end date)	Different for the various aspects and in many cases it is not specified		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale**	N/A	
	Number of individuals involved in	N/A	

	criminal activity		
Relationship to organised crime (if any)?	Crime syndicates are involved in illegal trafficking of hazardous waste from Italy to eastern Europe and west Africa. The differences between disposal and recycling rules encouraged the smuggling of waste to developing countries.		
Qualitative impacts	**To environment**	Soil and water contamination damage ecosystems	From: Baker et al, 2004, Vital Waste Graphics, UNEP, Nairobi.
	Social	Electronic waste dumping has serious impacts on health – e.g. lung and kidney diseases, lead poisoning and cancer. Persistent exposure to dioxins causes skin lesion, altered liver function and impairs in the immune system.	From: Interpol, 2009, Electronic Waste and Organized Crime. Assessing the Links
	Economic	Illegal trade of hazardous waste undermines the legitimate waste treatment and disposal industries	From: Czarnomski et al., 2006, IMPEL-TFS Threat Assessment Project: the illegal shipment of waste among IMPEL member states", project report
Quantitative impacts	**To environment**	Not addressed	
	Social	2006: Trafigura case – illegal dumping of chemical waste in Cote d'Ivoire: tens of thousands of people were affected by several illnesses and at least 15 people died.	Data is taken from a Guardian article.
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	The report provides a global estimate on illegal trade in wildlife, timber, IUU fishing, controlled chemicals and illegal disposal of hazardous waste at around $30-70 billion per year.	This is a global estimate and the report specifically indicates that it is very hard to make any accurate estimates.
Other issues/comments	The IMPEL-TSF Seaport II project (2006), which examined thirteen EU countries, indicated that over half of the examined waste shipments were illegal. Overall, it is estimated that every year 8.5 million tonnes of hazardous waste is produced in the world, mostly in industrialised countries (year is not indicated but it seems like it is based on a 1996 publication!). Inconsistencies in the classification system of hazardous waste makes monitoring very hard and do not help in enforcement. The report also suggests that the creation of free-trade zones has increased the illegal trade in hazardous waste. A 2005 IMPEL study found that the main driver of illegal waste shipment in IMPEL member states were the high costs of treatment or disposal of waste and poor enforcement. In 2009, it was estimated that it is four times more expensive to incinerate waste in the Netherlands than to ship it to China. Another estimate		

	suggests that it is 400 times cheaper to dump hazardous waste than to legally dispose it in the EU.

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal waste shipment **Organised crime linked to illegal e-waste shipment**		
Title of information/data source	Interpol (2009) Electronic waste and organised crime: Assessing the link, Phase II Report for the Interpol Pollution Crime Working Group		
Where is the data source? Link if available?	The report can be downloaded from the Interpol website.		
Method used for data collection	Desk-based literature review and targeted interviews with key figures in the sector. The research on UK was carried out by Bureau Veritas, while in the US by the Michigan State University.		
Geographic scope of data (country coverage), including if transboundary	Organised crime in Europe (mainly UK and Netherlands) and the US		
Temporal coverage of data (start and end date)	Interviews were carried out in 2007		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Volume of generated e-waste is estimated in Europe and the US. A UK Environmental Agency report estimated in 2006 that in eight European countries overall **4 million tonnes of e-waste** was generated per year. The section on the scale of the US e-waste problem is very detailed.	There are no comments in the report on the accuracy of this estimate.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	As the volume of e-waste is large a significant market has developed in second-hand, recyclable and waste electronic and electric equipment. The report presents a figure (p.21) on the structure of the e-waste exporting sector and highlights the numerous entry points for crime. Waste tourists have a significant role in the illegal export of e-waste. The most common method of illegal export of e-waste in the UK is mislabelling and mixing e-waste together with other waste streams, e.g. end-of-life vehicles. A Dutch study concluded that almost all companies who are involved in the recycling of e-waste are somehow involved in the illegal exports either intentionally or not. Rotterdam port has a central role in the illegal waste shipment movements. Overall, the illegal export of e-waste is less structured and centralised than other organised pollution crimes.		

Qualitative impacts	**To environment**	The negative environmental impacts of the different toxins are assessed.	Information is based on other literature.
	Social	The negative health impacts of the different toxins are assessed.	Information is based on other literature.
	Economic	The re-sale of e-waste is considered to provide substantial profits to the actors involved in the illegal acts; while the export itself is cheap it is highly profitable.	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	In total, e-waste is estimated to produce returns of €450/tonne based on Dutch price figures of used televisions. The UK Environmental Agency estimates that the annual turnover of the illegal export of e-waste is around £2 million.	It is not indicated how the estimates were calculated.
Other issues/comments	The report notes that data availability on this topic is very limited. Overall, figures indicated are not always explained and thus the basis of the estimates is not always clear.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment		
Title of information/data source	Prakash, S.; Manhart, A. 2010. Socio-economic assessment and feasibility study on sustainable e-waste management in Ghana (Freiburg, Öko-Institut).		
Where is the data source? Link if available?	http://www.oeko.de/oekodoc/1057/2010-105-en.pdf		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary			
Temporal coverage of data (start and			

end date)			
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**		
	Social	Child labour	
	Economic		
Quantitative impacts	**To environment**		
	Social		
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic		
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Volume of WEEE generated in the EU**		
Title of information/data source	Huisman, J., Magalini, F., Kuehr, R., Maurer, C., Ogilvie, S., Poll, J., Delgado, C., Artim, E., Szezak, J., Stevels, A. (2007) 2008 Review of Directive 2002/96 on Waste Electrical and Electronic Equipment (WEEE), Final Report, United Nations University, AEA Technology, Gaiker, Regional Environmental Centre for Central and Eastern Europe, Delft University of Technology, for the European Commission, Study No. 07010401/2006/442493/ETU/G4, August 2007.		
Where is the data source? Link if available?	http://ec.europa.eu/environment/waste/weee/pdf/final_rep_unu.pdf		
Method used for data collection	Over 183 contacts were approached (interviews and questionnaires) and over 350 literature resources were looked at.		
Geographic scope of data (country coverage), including if transboundary	EU		
Temporal coverage of data (start and end date)	For the generated WEEE amounts the year 2005 is used.		

Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Generated amount of WEEEE in the EU. In **2005, between 8.3 and 9.1 million tonnes of WEEE** arose in the EU. A compositional breakdown is also provided in the report (see figure below). A number of forecasting assumptions were applied which predict that by 2020, total WEEE arising will grow annually between 2.5% and 2.7% reaching about 12.3 million tonnes.	Published estimates and responses to the study's questionnaire were used.
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	Figure – Breakdown of WEEE generated in the EU in 2005		

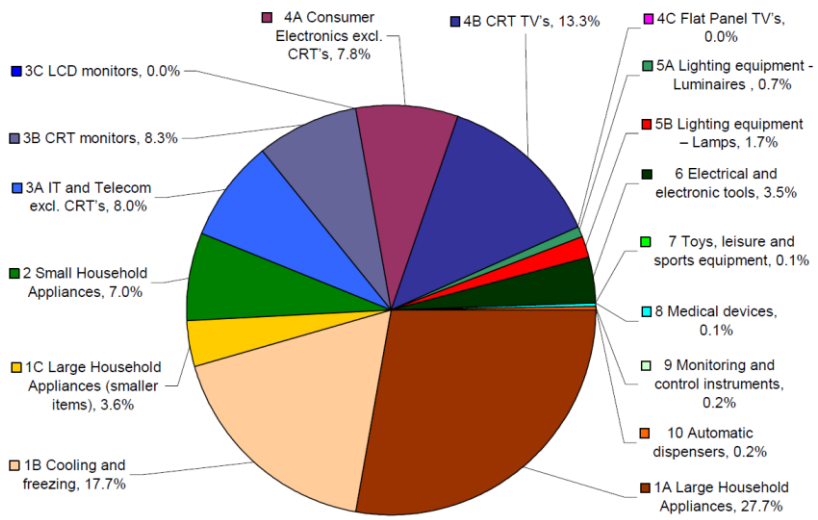


Figure i: Breakdown of WEEE arising 2005

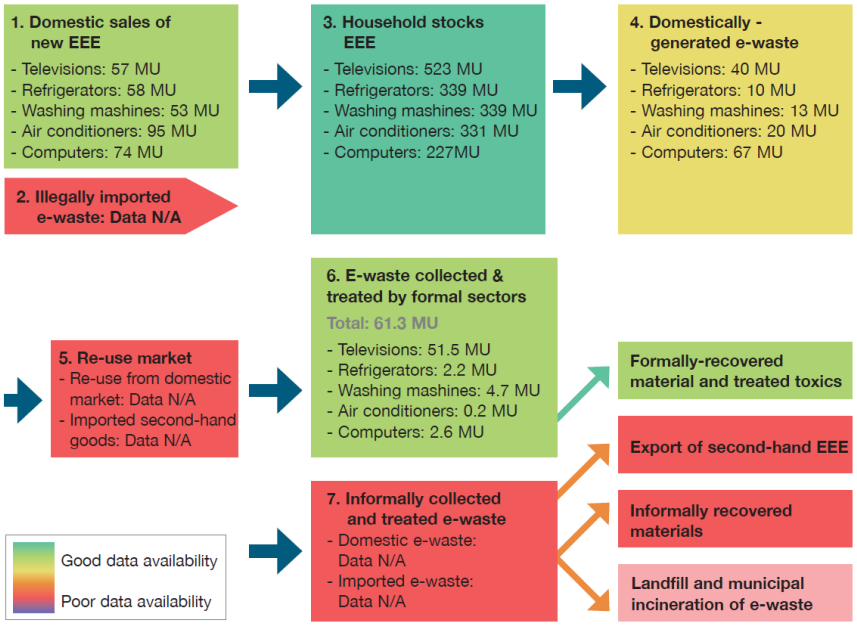
Additional information: The study also looks at the environmental and economic impact of the EU WEEE Directive.

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal waste shipment **Value of the e-waste recycling industry in the EU**		
Title of information/data source	Frost and Sullivan (2013) European Waste Electrical and Electronics Equipment Recycling Market		
Where is the data source? Link if available?	http://www.frost.com/sublib/display-report.do?id=M91F-01-00-00-00 (Also see: http://www.prnewswire.com/news-releases/european-waste-electrical-and-electronics-equipment-recycling-market-238908711.html and http://www.waste-management-world.com/articles/2013/10/huge-potential-for-e-waste-recycling-growth-in-europe.html)		
Method used for data collection	Estimates are based on the volume of generated WEEE and collection rates in the 25 European countries. The research covers municipal solid waste and industrial waste, but do not cover hazardous waste. WEEE is segmented into Large Household Appliance, Small Household Appliance, IT and Communications, Consumer Equipment, and Others.		
Geographic scope of data (country coverage), including if transboundary	25 European countries		

Temporal coverage of data (start and end date)	2009-2020, with 2012 as the base year		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	N/A	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	N/A		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	The European e-waste recycling market earned revenues of $1.3 billion in 2012 and it is estimated to bring $1.79 billion in 2020.	
Other issues/comments	The value of the e-waste recycling industry in Europe, which is estimated based on the generated WEEE volumes, can provide an indication of the order of magnitude of the loss of the recycling industry due to illegal export of WEEE. The report could not be accessed thus the table was filled out based on press releases and summaries of the main results of the study.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **The e-waste recycling sector in China (volumes and structure)**		
Title of information/data source	E Wang, F.; Kuehr, R.; Ahlquist, D.; Li J. (2013) E-waste in China: A country report		
Where is the data source? Link if available?	http://ewasteguide.info/files/Wang_2013_StEP.pdf		
Method used for data collection	The report used national statistics, reports, research papers, project documents and expert interviews.		

Geographic scope of data (country coverage), including if transboundary	China		
Temporal coverage of data (start and end date)	Various years but in general between 2005 and 2011		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	The report attempts to estimate the amount of EEE put on the Chinese market and the volume of WEEE generated domestically and imported from other countries (see figure below).	The report specifically addresses the problem of data availability, especially for the illegally imported e-waste amounts (see figure below).
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	The loopholes of importing e-waste to China are identified (China banned the import of e-waste in 2000): mixed shipments with bulk steel and copper scraps, transit through Hong Kong and transit through Vietnam.		
Qualitative impacts	**To environment**	The negative impacts of e-waste recycling on the environment are summarised in the report based on other publications.	
	Social	The negative impacts of e-waste recycling on human healthy are summarised in the report based on other publications.	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	As of 2007, it is estimated that 0.44 million people works in the informal e-waste collection sector and 0.25 million people in the informal e-waste recycling sector. At the time of publication it was estimated that around 20 million migrant workers are involved in the informal e- collection and recycling of solid waste.	The report notes that it is very hard to provide accurate estimates of the number of workers involved.
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Collection prices of the informal e-waste sector are indicated.	
Other issues/comments	Figure on e-waste flows in China in 2011, millions of units (p.28)		



Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal waste shipment **Global WEEE stream estimates**		
Title of information/data source	Zoetman, B.C.J. (2006): Global Waste Electrical and Electronic Equipment (WEEE) stream estimates. A contribution to the Transumo study. Tias Business School, Tilburg University, September 2006. Draft-not published.		
Where is the data source? Link if available?	http://library.certh.gr/libfiles/PDF/GEN-PAPYR-3211-GLOBAL-WASTE-ELECTRICAL-by-ZOETEMAN-in-WEEE-Paper-maart-PP-13-Y-2007.pdf		
Method used for data collection	Simplified calculations are made based on total annual volume generated of 4 categories of WEEE and the (resulting) amount exported/imported by the region.		
Geographic scope of data (country coverage), including if transboundary	EU, US and Japan exports to China, India and West Africa		
Temporal coverage of data	2005		

(start and end date)			
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Amount of WEEE generated globally, in the EU and amount of export of WEEE from EU to developing countries. In **2005** it was estimated that around **7 million tonnes of WEEE** (In 2005, each EU citizen produces 15 kg WEEE and the population of the EU in 2005 was 475 million) was produced in the **EU**, of which 50% is large household appliances, 10% is small appliances, 20% is office and communication waste and 20% is entertainment electronics. Following the estimations above it is estimated that **1.9 million of WEEE is leaving the EU annually** (10-20% of the total amount of WEEE is exported illegally in the EU and in addition an extra 30% of computers, mobiles and TVs exported legally for reuse to developing countries (which will eventually be waste). Of this amount 50% is estimated to go to Asia of which 65% goes to China and 35% to India, 20% of total goes to West Africa and the remaining 20% to Eastern Europe and North Africa. These calculations lead to the following annual figures (export from EU): • **China 0.62 million tonnes** • **India 0.33 million tonnes West** • **Africa 0.62 million tonnes**	Calculations use very rough estimates.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	

Other issues/comments	The report also mentioned some figures produced by the Dutch VROM: In the Netherlands 1000 tonnes of WEE was transported illegally to third countries (43% to China/Hong Kong, 7% other Asian countries, 28% West Africa, 7% Eastern Europe and 10% Middle East and North Africa).

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Volume of WEEE in developing countries**		
Title of information/data source	UNEP (2009) Recycling – From e-waste to resources, Sustainable Innovation and Technology Transfer Industrial Sector Studies, July 2009		
Where is the data source? Link if available?	http://www.unep.org/pdf/Recycling_From_e-waste_to_resources.pdf		
Method used for data collection	Even though the report mainly focuses on innovative technologies to recycle e-waste one chapter analyses the amount of WEEE. This section is based on existing e-waste assessment reports.		
Geographic scope of data (country coverage), including if transboundary	Global – the section on WEEE volumes covers South Africa, Kenya, Uganda, Morocco, Senegal, Peru, Colombia, Mexico, Brazil, India, and China		
Temporal coverage of data (start and end date)	Various years, in many cases 2007		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Quantity of e-waste generated in developing countries in metric tonnes per year (see page 44 of the report). Detailed information is provided for different products.	The report specifically indicates that some reports had limited scope and thus figures were extrapolated. WEEE quantities were estimated by using the quantities of EEE put on market and their average lifetime.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	

	Economic	Not addressed	
Other issues/comments	Additional information: In 2005, in the EU 9.3 million tonnes of electronic appliances were put on market, including 44+ million large household appliances in EU15, 48 million desktops and laptops, around 32 million TVS and 76 million lamps.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Volume and impact of WEEE exported from Germany to developing countries**		
Title of information/data source	Umwelt Bundesamt (2010) Transboundary shipment of waste electrical and electronic equipment / electronic scrap – Optimization of material flows and control, Project No. (FKZ) 3708 93 300 – Final Report AND Summary		
Where is the data source? Link if available?	http://archive.basel.int/techmatters/e_wastes/germany-report-18May2010.pdf http://www.umweltbundesamt.de/sites/default/files/medien/461/publikationen/k3933.pdf		
Method used for data collection	Quantities of WEEE have been calculated on an empirical basis (statistical data from national sources and specific export data from the Hamburg port used as an example). The section focusing on destination countries builds on interviews and country reports.		
Geographic scope of data (country coverage), including if transboundary	Export from Germany (with a special focus on the Hamburg and Bremen port) to Ghana, Nigeria, South Africa, Vietnam, India and the Philippines		
Temporal coverage of data (start and end date)	2008		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	**Exported amount of WEEE from Germany:** The report estimates that **in 2008 between 93,000 tonnes and 216,000 tonnes of used electrical and electronic products were exported from Germany** to non-EU countries, of which a significant portion of the products were in very bad condition and can be considered as WEEE. 2006 national statistics showed that 1.8 million tonnes of new electrical and electronic equipment was sold and around 1.3-1.5 million tonnes of WEEE was generated, but only 0.8 million tonnes of WEEE were collected. The report also estimates the **exported amount of**	The calculations used some assumptions and for instance, it is stated that the number of exported small equipment is underestimated.

		different materials: 37,000 tonnes of steel, 65,000 tonnes of CRT-glass, 23,000 tonnes of plastics, 1.6 tonnes of silver, 300 kg of gold and 120 kg of palladium. **Total imported amount of WEEE in developing countries:** The report examines the total imported amounts of used products/WEEE in Nigeria, Ghana, South Africa, India, the Philippines and Vietnam.	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	The report thoroughly examines the parties involved in the illegal export chain (e.g. collection points, 'waste tourists', forwarding agents, shipping line operators). The numbers of intervention points are also identified for the different areas of origin in Germany.		
Qualitative impacts	**To environment**	Around ¾ of the exported quantities are disposed rather than recycled due to the lack of proper waste management infrastructure. This also results in an economic loss to the recycling industry in the EU.	Rough estimate
	Social	Not addressed	
	Economic	See above	
Quantitative impacts	**To environment**	The recycling rates are considered to be much smaller in developing countries' informal recycling sector than in the EU, which results in low reclamation rates. Based on reclamation rates in the informal recycling sector in developing countries it is estimated that around 240 kg gold, 120 kg palladium and 1.2 tonnes of silver is lost. The loss of these precious metals not only impacts the environment but has a significant economic impact as well.	Reclamation rates are based on another publication on Asian informal recycling sites.
	Social	Not addressed	
	Economic	The pricing situation of the imported used products/WEEE in Nigeria is detailed in the final report.	Based on country reports.
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Using export data from the Hamburg port the values of the exported goods are estimated.	The report notes that there are essential data uncertainties with regards to the Hamburg

		Based on the estimated amounts of exported precious metals (see above) the value of these metals is estimated at around €9 million (2008 prices).	port's export data.
Other issues/comments	Additional information: Using the generated WEEE amounts estimated in this report and population data the EEA (2009) concludes that between **550,000 tonnes and 1,300,000 tonnes of used products/WEEE are shipped from the EU** every year. Source: EEA (2009) Movements of waste across the EU's internal and external borders		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Impact of WEEE in Africa**		
Title of information/data source	Secretariat of the Basel Convention (2011) Where are WEee in Africa? Findings from the Basel Convention E-waste Africa Programme		
Where is the data source? Link if available?	The report can be downloaded from the Basel Convention website		
Method used for data collection	The results reported in the publication are generated in the framework of the Basel Convention E-waste Africa programme. Under the project the followings were undertaken: (i) a study on flows of used and end-of life products to selected African countries, (ii) national assessments on used and end-of-life products, (iii) a socio-economic study on the e-waste sectors in Nigeria and Ghana, and (iv) the development of an enforcement programme in selected African countries.		
Geographic scope of data (country coverage), including if transboundary	WEEE in Benin, Cote d'Ivoire, Ghana, Liberia and Nigeria in general and the ports of Amsterdam and Antwerp were also investigated under the project		
Temporal coverage of data (start and end date)	2009 and 2010		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Volume of e-waste generated in Benin, Cote d'Ivoire, Ghana, Liberia and Nigeria. The highest amount is in Nigeria (in 2010 it was 1.1 million tonnes per year).	National e-waste assessments were investigated in order to establish the estimates. Difficulties arose especially as statistical data does not distinguish between new and used EEE. E-waste volumes are added up from three streams: illegally imported WEEE from developed countries, near-end-of-life used EEE imported from developed countries which end up as WEEE in a short time of period and e-waste generated from domestic consumption.
	Number of individuals involved in	Not addressed	

	criminal activity		
Relationship to organised crime (if any)?	The ports of Amsterdam and Antwerp were investigated in order to assess the flows of WEEE and used products to Africa some major issues in relation to organised crime were identified: brokers and trades play an important role, in many cases immigrants or temporary residents from Africa support the illegal trading, e-waste is very often co-loaded with used vehicles, custom declarations are only given on the day of shipping and there are specialised agents dealing with used EEE.		
Qualitative impacts	**To environment**	**Climate change:** As recycling processes in the informal sector do not recover some precious metals this loss of scare metals lead to an indirect effect on climate change. The primary production of precious metals is very energy intensive and thus emits a lot of carbon dioxide. In addition, if refrigerators and air conditioners are not well-managed CFCs and HCFCs are also emitted. **Contamination:** Major impacts result mainly from the process of dismantling, material recovery and disposal. Soil and ash contamination is detailed based on other studies.	
	Social	The difference between the refurbishing and the collector/recycle sector are detailed from numerous aspects, e.g. wage, health and safety risks, working hours, child labour, qualifications, origin of workers. The report also notes that used electronic and electric equipment has an important role in bridging the digital divide in African countries, i.e. ICT can improve in these developing countries with the help of used EEE.	
	Economic	It is important to note that the WEEE recycling sector provides an important income for many poor people in African countries. The informal recycling sectors in Ghana and Nigeria are considered to be well organised.	
Quantitative impacts	**To environment**	Dioxin emissions are quantified based on other publications.	
	Social	Under the socio-economic study the followings were identified: In Accra (Ghana) and Lagos (Nigeria)	

		around 300,000 people is employed by the refurbishing sector.	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Building on another study the total income of people involved in the e-waste sector in Ghana is estimated.	
Other issues/comments	The socio-economic studies, which include more detailed information and provide a more comprehensive overview on the socio-economic aspects of WEEE in Africa can be accessed here: http://www.basel.int/Portals/4/Basel%20Convention/docs/eWaste/E-waste_Africa_Project_Nigeria.pdf http://www.oeko.de/oekodoc/1057/2010-105-en.pdf		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste movements **Volume of WEEE exported from Germany, the Netherlands and Belgium to West Africa**		
Title of information/data source	Oko Institute e.v. (2010) Building local capacity to address the flow of e-wastes and electrical and electronic products destined for reuse in selected African countries and augment the sustainable management of resources through the recovery of materials in e-wastes Component 1: Flows of used and end-of-life e-products from Germany, The Netherlands and Belgium		
Where is the data source? Link if available?	http://www.basel.int/Portals/4/Basel%20Convention/docs/eWaste/E-waste_Africa_Project_Europe.pdf		
Method used for data collection	Analysis of data from Eurostat and UN sources. Consideration given to quality of data and best use of data. Statistical data complimented by interviews.		
Geographic scope of data (country coverage), including if transboundary	DE, NL and BE exporting to West Africa (coastal nations)		
Temporal coverage of data (start and end date)	Various but typically 2005-2008.		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Data provided on exports of individual EEE types to individual W African nations from selected EU MS.	Discrepancies between data sources highlighted, suggesting monitoring problems.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	The report thoroughly examines the actors involved in the illegal export of e-waste and the leakage pathways of e-waste from the formal to the informal sector.		

Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Consideration given to changing economic circumstances in W Africa and effect on type and extent of imports	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Normalisation to changes in GDP between W African countries used to examine EEE movement differences	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	Note that the report aims to provide data on key EEE trade between the EU and W Africa and forms the data basis for subsequent analysis – in particular in bringing together different data sources it questions the accuracy of some data sources. It notes the problems of distinguishing EEE and WEEE and whether exports are or are not illegal. It seeks to examine the interaction with economic conditions in W Africa, but is not aimed at looking at the environmental or social impacts of EEE/WEEE exports.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Global impacts of WEEE in developing countries**		
Title of information/data source	ILO (2012) The global impact of e-waste - Addressing the challenge, SafeWork and SECTOR, International Labour Organisation, Geneva, 2012		
Where is the data source? Link if available?	http://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_196105.pdf		
Method used for data collection	The report builds on academic and grey literature and summarises health, labour and environmental effects of e-waste.		
Geographic scope of data (country coverage), including if transboundary	Global – WEEE from developed world to developing countries		
Temporal coverage of data (start and end date)	Various years		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	The report generally talks about the impacts of e-waste and thus only a general scale of the amount of WEEE is provided.	It is hard to make global estimates as secondary and used products are usually invisible in the statistics and the definition of e-

		The report uses a UNEP (2009) figure that around **40 million tonnes of e-waste** is generated globally each year. 80% of e-waste sent for recycling in developed countries end up in developing countries, mainly in Africa and Asia. China receives around 70% of e-waste. Between 1994 and 2003 around 500 million PCs reached their end-of-life which contained around 718,000 tonnes of lead, 1,363 tonnes of cadmium and 287 tonnes of mercury (Smith et al, 2006).	waste is different in many countries. UNEP (2009) Recycling – From e-waste to resources, Sustainable Innovation and Technology Transfer Industrial Sector Studies, July 2009 Smith, T.; Sonnenfeld, D.A.; Naguib Pellow, D. 2006. Challenging the chip: Labor rights and environmental justice in the global electronics industry (Philadelphia, PA, Temple University Press).
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Exporters of e-waste to China often avoid detection by going through Hong Kong, Taipei or the Philippines and then tranship the e-waste to smaller ports of China, where custom officers can be bribed. In addition, Dubai and Singapore often serve as a transit point (Singapore does not consider e-waste as hazardous waste!)		
Qualitative impacts	**To environment**	There is a high risk that pollution from e-waste impacting the environment eventually gets into the food chain.	
	Social	**Health:** E-waste has a negative impact on human health, including breathing difficulties, respiratory irritation, coughing, choking, pneumonitis, tremors, neuropsychiatric problems, convulsion, coma and death. Physical injuries are also common. **Labour:** The informal e-waste recycling sector is labour intensive, involves low earnings and work in most cases is unrecorded and unregulated. Additional information is provided on child labour. **Immigrants:** In many cases, immigrants or temporary residents from African countries are involved in the illegal shipment of WEEE from the EU to Africa. **Fraud:** In some cases, the end-of-life computers still contain personal details and this could be used for fraud.	The report collects a lot of reliable information from other publications, which usually examine specific case studies, on the health and labour impacts of e-waste recycling in the developing world. Some specific case studies are also presented. Subsequently, it includes a lot of important references in this area.
	Economic	Not addressed	

Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	Additional information: E-waste: 50% large household appliance, 30% information and communication technology equipment, 10% consumer electronics. Illegal trade is mainly driven by profit and ineffective enforcement is one of the main problems.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Human health impacts of WEEE in China**		
Title of information/data source	KeQiu Li, ShaSha Liu, QiaoYun Yang, YuXia Zhao, JunFang Zuo, Ran Li, YaQing Jing, XiaoBo He, XingHua Qiu, Guang Li, Tong Zhu, Genotoxic effects and serum abnormalities in residents of regions proximal to e-waste disposal facilities in Jinghai, China, Ecotoxicology and Environmental Safety, Volume 105, July 2014, Pages 51-58, ISSN 0147-6513, http://dx.doi.org/10.1016/j.ecoenv.2014.03.034. Xing-Ru Zhao, Zhan-Fen Qin, Zhong-Zhi Yang, Qian Zhao, Ya-Xian Zhao, Xiao-Fei Qin, Yong-Chuan Zhang, Xian-Li Ruan, Yin-Feng Zhang, Xiao-Bai Xu, Dual body burdens of polychlorinated biphenyls and polybrominated diphenyl ethers among local residents in an e-waste recycling region in Southeast China, Chemosphere, Volume 78, Issue 6, February 2010, Pages 659-666, ISSN 0045-6535, http://dx.doi.org/10.1016/j.chemosphere.2009.12.013. Hongmei Wang, Mei Han, Suwen Yang, Yanqing Chen, Qian Liu, Shen Ke, Urinary heavy metal levels and relevant factors among people exposed to e-waste dismantling, Environment International, Volume 37, Issue 1, January 2011, Pages 80-85, ISSN 0160-4120, http://dx.doi.org/10.1016/j.envint.2010.07.005. Qingbin Song, Jinhui Li, A systematic review of the human body burden of e-waste exposure in China, Environment International, Volume 68, July 2014, Pages 82-93, ISSN 0160-4120, http://dx.doi.org/10.1016/j.envint.2014.03.018. Jing Zheng, Ke-hui Chen, Xiao Yan, She-Jun Chen, Guo-Cheng Hu, Xiao-Wu Peng, Jian-gang Yuan, Bi-Xian Mai, Zhong-Yi Yang, Heavy metals in food, house dust, and water from an e-waste recycling area in South China and the potential risk to human health, Ecotoxicology and Environmental Safety, Volume 96, 1 October 2013, Pages 205-212, ISSN 0147-6513, http://dx.doi.org/10.1016/j.ecoenv.2013.06.017. Kristen Grant, Fiona C Goldizen, Peter D Sly, Marie-Noel Brune, Maria Neira, Martin van den Berg, Rosana E Norman, Health consequences of exposure to e-waste: a systematic review, The Lancet Global Health, Volume 1, Issue 6, December 2013, Pages e350-e361, ISSN 2214-109X, http://dx.doi.org/10.1016/S2214-109X(13)70101-3.		
Where is the data source? Link if available?	Experimental articles on impacts: http://www.sciencedirect.com/science/article/pii/S0147651314001390		

	http://www.sciencedirect.com/science/article/pii/S0045653509014222 http://www.sciencedirect.com/science/article/pii/S0160412010001492 Experimental articles on risks: http://www.sciencedirect.com/science/article/pii/S0160412014000919 http://www.sciencedirect.com/science/article/pii/S0147651313002595 Review article: http://www.sciencedirect.com/science/article/pii/S2214109X13701013		
Method used for data collection	Experimental articles on impacts analyse blood and urine samples to assess the level of pollutants in potential affected and control groups. Experimental articles on human health risks assess contamination levels and possible effects on human health. Finally, the listed review article provides a summary of recent experimental article on the topic.		
Geographic scope of data (country coverage), including if transboundary	Different e-waste recycling sites in China		
Temporal coverage of data (start and end date)	Various years		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Not addressed	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Health impacts of elevated levels of heavy metals, PCBs etc. and human health risks associated with exposure to e-waste recycling. For instance, children and neonates were identified to be the most sensitive to such exposure.	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Detailed data on contamination levels for heavy metals and PCBs/PBDEs for people exposed to poor e-waste recycling.	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	

	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	Experimental articles provide very specific data while the review article gives a very good summary on the health impacts related to e-waste recycling in China. On pages 354-355 it has an overview table which includes the most important academic publications in the area. These data are important in providing a link between assumed impacts of exposure and actual ill health and they provide the mechanism to link these two.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Chemical contamination in African e-waste recycling sites**		
Title of information/data source	Greenpeace (2008) Chemical contamination at e-waste recycling and disposal site in Accra and Korforidua, Ghana, Greenpeace Research laboratories technical note, 10/2008		
Where is the data source? Link if available?	http://www.ewasteguide.info/files/Brigden_2008_Greenpeace.pdf		
Method used for data collection	Six types of samples were taken (5 from soil and 1 from sediment in a lagoon close to the e-waste sites). The methodology behind exploring the contamination of the samples is further detailed in the report.		
Geographic scope of data (country coverage), including if transboundary	Two e-waste recycling and disposal sites in Ghana		
Temporal coverage of data (start and end date)	Not specified - sample taking seemed to be happened in 2008		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	N/A	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	At the examined open burning sites soil contained over one hundred times more of some metals, including lead than in normal soil samples. Cadmium and antimony levels were also fund to be very high. The sample taken from the lagoon was found to include a very high level of PCDD/Fs.	

	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Specific levels of the examined toxic components of WEEE are detailed in the report.	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	Additional information: In the EU only 25% of WEEE is collected and treated and the remaining 75% is unaccounted for. According to a UNEP, 2005 estimate 20-50 million tonnes of e-waste is generated worldwide each year. Source: UNEP (2005) "E-waste: the hidden side of IT equipment's manufacturing and use". Early Warnings on Emerging Environmental Threats No. 5, United Nations Environment Programme		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Organised crime and corruption in the EU linked to illegal waste shipment**		
Title of information/data source	Europol (2011) OCTA 2011 – EU Organised Crime Threat Assessment		
Where is the data source? Link if available?	https://www.europol.europa.eu/sites/default/files/publications/octa_2011_1.pdf		
Method used for data collection	Not specified		
Geographic scope of data (country coverage), including if transboundary	European Union – illegal waste shipment to third countries		
Temporal coverage of data (start and end date)	Not specified		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	N/A	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	The report indicates that Italy has become an important transit point for WEEE shipment to Africa and Asia and that there is evidence of corruption in both public and private sectors, especially in issuing of certificates by laboratory technicians. In many cases intermediate storage		

	sites are used to hide the final destination of the illegal wastes, which also makes harder to identify source companies. In many cases there is cooperation between the illegal trafficking groups with legitimate businesses, such as financial services, and metal recycling sectors and permit issuing bodies. The Netherlands and Belgium also form an important hub for exporting waste to third countries, especially West Africa and Asia. Ports in the North-West part of Europe are often used to transport toxic waste, WEEE and deregistered vehicles to West Africa. The trafficking groups involved in the illegal waste shipments are usually consist of 5-10 people, including ethnic links to the destination country.		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	The report focuses on a number of different organised crime activities among which on is environmental crime.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Weight estimates of illegally transported waste from the EU to Eastern Europe, the Caucasus and Central Asia**		
Title of information/data source	European Topic Centre on Resource and Waste Management (2008) Transboundary shipments of waste in the EU – Developments 1995-2005 and possible drivers		
Where is the data source? Link if available?	http://scp.eionet.europa.eu/publications/Transboundary%20shipments%20of%20waste%20in%20the%20EU/wp/tech_1_2008		
Method used for data collection	The report indicates that as information was hard to obtain from official sources the data collected is gathered through different newspapers and informative bulletins.		
Geographic scope of data (country coverage), including if transboundary	European Union export to non-EU countries (here EECCA countries are covered)		
Temporal coverage of data (start and end date)	2001 and 2005		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g.**	Illegal waste shipment cases from EU to EECCA countries – amount of wastes	As stated about information is based on non-official resources.

	area affected)	14 cases have been identified from which 8 cases include illegal waste shipment from Hungary to Ukraine (7 cases) and The Republic of Moldova (1 case). Main shipments included (for more details see table on pp.179-181 of the report): • 25,000 tonnes of waste from oil refineries from Hungary to Ukraine • 16,902 tonnes of tar residues • 6,000 tonnes of albumen concentrate • 40,000 tonnes of asbestos waste from automobile industry from Hungary to Ukraine • 61 tonnes of car tyres from Lithuania to Russia • Unknown amount of ELV from Germany to Eastern Europe	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment: **Overall impacts of WEEE in China – case of Guiyu**		
Title of information/data source	BAN (2002) Exporting harm – The High-tech trashing of Asia, The Basel Action Network, 25 February 2002 Greenpeace International (2005) Recycling of electronic waste in China and India – Workplace and Environmental contamination, August 2005		

	Greenpeace (2008) Evidence of environmental and health impacts of electronics recycling in China: and update, Greenpeace Research Laboratories Technical Note 04/2008		
Where is the data source? Link if available?	http://www.ban.org/E-waste/technotrashfinalcomp.pdf http://www.greenpeace.org/international/PageFiles/25134/recycling-of-electronic-waste.pdf http://www.greenpeace.to/publications/impacts-of-e-recycling-china-update.pdf		
Method used for data collection	The BAN (2002) and Greenpeace (2005) reports present the sampling results of different types of samples (soil, sediment, water, dust, air) which were taken at the e-waste recycling sites in Guiyu, China by the study team and were analysed to identify the levels of metals in them. While Greenpeace (2008) collects academic literature on health and environmental impacts of e-waste recycling in Guiyu and summarises their results.		
Geographic scope of data (country coverage), including if transboundary	E-waste recycling sites in Guiyu, China (The reports also address India and Pakistan in a more generic way.)		
Temporal coverage of data (start and end date)	Sampling dates: 2001 and 2005. Academic literature in Greenpeace (2008) is gathered from years between 2003 and 2007.		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	N/A	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	BAN (2002) Indicates Singapore and Dubai as important pre-distribution centres for e-waste coming from the EU and US shipped to Asia.		
Qualitative impacts	**To environment**	BAN (2002) includes a summary table which analyses the environmental of different e-waste components (see below). Deterioration of local drinking water is addressed – drinking water has to be transported from another town.	
	Social	Occupational impacts are also indicated in the BAN (2002) table below.	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Key findings were that many toxic heavy metals and organic compounds were found in elevated levels in the taken samples. Results of the sampling exercise are presented in the reports (BAN, 2002 and Greenpeace, 2005). Greenpeace (2008) collects academic publications in this area and provides a very accurate and detailed	BAN (2002) only took 5 samples, while Greenpeace (2005) builds its conclusions on more than 70 samples. Greenpeace (2008) has an extensive reference list, which is considered to be very useful.

		overview.	
	Social	**Employment:** BAN (2002) estimates that in 2002 around 100,000 people were employed at the e-waste recycling sites in Guiyu. **Health**: Greenpeace (2008) examines the elevated lead level in children's blood and PDE levels in blood.	The employment figure is a very rough estimate and it is very hard to estimate the exact number due to a fluctuating migrant workforce.
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	BAN (2002) estimates that an average wage of a worker at the e-waste recycling site in Guiyu is equivalent to $1.5 per day.	The source of this information is not indicated.
Other issues/comments	Table: Environmental and occupational impacts of WEEE in Asia (BAN, 2002, p.26)		

Computer / E-Waste Component	Process Witnessed in Guiyu, China	Potential Occupational Hazard	Potential Environmental Hazard
Cathode ray tubes (CRTs)	Breaking, removal of copper yoke, and dumping	- Silicosis - Cuts from CRT glass in case of implosion - Inhalation or contact with phosphor containing cadmium or other metals	Lead, barium and other heavy metals leaching into groundwater, release of toxic phosphor
Printed circuit boards	De-soldering and removing computer chips	- Tin and lead inhalation - Possible brominated dioxin, beryllium, cadmium, mercury inhalation	Air emission of same substances
Dismantled printed circuit board processing	Open burning of waste boards that have had chips removed to remove final metals	- Toxicity to workers and nearby residents from tin, lead, brominated dioxin, beryllium, cadmium, and mercury inhalation - Respiratory irritation	- Tin and lead contamination of immediate environment including surface and groundwaters. - Brominated dioxins, beryllium, cadmium, and mercury emissions
Chips and other gold plated components	Chemical stripping using nitric and hydrochloric acid along riverbanks	- Acid contact with eyes, skin may result in permanent injury - Inhalation of mists and fumres of acids, chlorine and sulphur dioxide gases can cause respiratory irritation to severe effects including pulmonary edema, circulatory failure, and death.	- Hydrocarbons, heavy metals, brominated substances, etc. discharged directly into river and banks. - Acidifies the river destroying fish and flora
Plastics from computer and peripherals, e.g. printers, keyboards, etc.	Shredding and low temperature melting to be reutilized in poor grade plastics	Probable hydrocarbon, brominated dioxin, and heavy metal exposures	Emissions of brominated dioxins and heavy metals and hydrocarbons
Computer wires	Open burning to recover copper	Brominated and chlorinated dioxin, polycyclic aromatic hydrocarbons (PAH) (carcinogenic) exposure to workers living in the burning works area.	Hydrocarbon ashes including PAH's discharged to air, water, and soil
Miscellaneous computer parts encased in rubber or plastic, e.g. steel rollers	Open burning to recover steel and other metals	Hydrocarbon including PAHs and potential dioxin exposure	Hydrocarbon ashes including PAH's discharged to air, water, and soil
Toner cartridges	Use of paintbrushes to recover toner without any protection	- Respiratory tract irritation - Carbon black possible human carcinogen - Cyan, yellow, and magenta toners unknown toxicoity	Cyan, yellow, and magenta toners unknown toxicity
Secondary steel or copper and precious metal smelting	Furnace recovers steel or copper from waste including organics	Expoure to dioxins and heavy metals	Emissions of dioxins and heavy metals

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Organised crime linked to illegal e-waste shipment in the UK**		
Title of information/data source	EIA (2011) System failure – The UK's harmful trade in electronic waste, Environmental Investigation Agency		
Where is the data source? Link if	http://www.greencustoms.org/docs/EIA_E-waste_report_0511_WEB.pdf		

available?			
Method used for data collection	EIA has carried out investigations in two UK civic amenity sites and followed the route of e-wastes		
Geographic scope of data (country coverage), including if transboundary	Illegal exports of WEEE from the UK to West Africa		
Temporal coverage of data (start and end date)	2010		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	N/A	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	Investigation showed that local council recycling sites are often involved in the illegal trade of e-waste and that e-waste passes through many hands before it arrives to its final destination in West Africa – specific information is provided on the participating businesses, amounts of e-waste etc. Other cases also showed that some of the criminal groups who carry out the illegal shipment of WEEE are also involved in in crimes such as theft, human trafficking, fraud, drugs, firearms and money laundering. In a case of a waste storage facility in the Midlands together with the waste that was supposed to be exported to West Africa stolen vehicles, narcotic and firearms were discovered.		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	At one of the investigated sites local recycling sites sold at least 7 tonnes of TVS to a UK company at cost of about £1.5-2 per TV.	Quality of data considered to be good.
Other issues/comments	Additional information: Around 75% of the exported electronic units from the EU to West Africa are broken.		

Issue	**Sub-issue**	**Description of information and data available for**	**Other comments (including on quality of data,**

		subjects below	**potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Impact of WEEE in Nigeria**		
Title of information/data source	BAN (2005) The digital dump – Exporting re-use and abuse to Africa, The Basel Action Network, 24 October 2005		
Where is the data source? Link if available?	http://ban.org/library/TheDigitalDump.pdf		
Method used for data collection	On-site investigations and literature review		
Geographic scope of data (country coverage), including if transboundary	Lagos, Nigeria		
Temporal coverage of data (start and end date)	Investigations took place between 27 August to 5 September 2005		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Estimated volume of used and waste EEE. Around 400,000 scrap computers are estimated to arrive per month to Nigeria. Local experts indicated that between 25-75% of imported used computers are not working. BAN estimates that 45% of the imported WEEE is coming from Europe. The study uses a UNEP figure for global estimate of WEEE generated – 20-50 million.	The report especially emphasises that statistical data on used and waste electronics is virtually non-existent and thus it is very hard to make any estimates.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	The structure of the second-hand market and some recycling sites are further investigated and detailed in the report.		
Qualitative impacts	**To environment**	Negative environmental impacts of the informal e-waste recycle sector are assessed.	
	Social	**Health**: Negative human health impacts of the informal e-waste recycle sector are assessed. **Personal data:** The study raises concern on data privacy as in many imported used computers data are not deleted.	
	Economic	The study acknowledges the potential positive impact of used EEE imported from developed countries on the 'digital divide' in developing countries. The second-hand EEE imported from developed	

		countries plays an important role in Nigeria's economy and possibly contributed a lot to Nigeria's growth.	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	Lack of statistical data on WEEE volumes. Additional comment: The study includes a very short case study of the Koko Beach toxic dumping in 1987-88: 18,000 drums of Italian hazardous waste were dumped and $100 per month was paid to the landowner of the illegal dumping site.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal waste shipment **Environmental impacts of WEEE in China (academic publications)**		
Title of information/data source	Chunfa Wu, Yongming Luo, Shaopo Deng, Ying Teng, Jing Song, Spatial characteristics of cadmium in topsoils in a typical e-waste recycling area in southeast China and its potential threat to shallow groundwater, Science of The Total Environment, Volume 472, 15 February 2014, Pages 556-561, ISSN 0048-9697 Quan Zhang, Jingjia Ye, Jinyuan Chen, Hangjie Xu, Cui Wang, Meirong Zhao, Risk assessment of polychlorinated biphenyls and heavy metals in soils of an abandoned e-waste site in China, Environmental Pollution, Volume 185, February 2014, Pages 258-265, ISSN 0269-7491		
Where is the data source? Link if available?	http://www.sciencedirect.com/science/article/pii/S0048969713013673 http://www.sciencedirect.com/science/article/pii/S0269749113005733		
Method used for data collection	Experimental results: Analysis of soil and groundwater samples to assess cadmium and PCB levels in e-waste recycling sites.		
Geographic scope of data (country coverage), including if transboundary	China		
Temporal coverage of data (start and end date)	Both papers were published in 2014 and Wu et al focuses on an e-waste recycling site which has been operating since the 1980s, while Zhang et al examines an e-waste recycling site which was worked between 2003 and 2008.		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	N/A	
	Number of individuals involved in criminal activity	N/A	

Relationship to organised crime (if any)?	N/A		
Qualitative impacts	**To environment**	Negative impacts on ecosystems. Zhang et al (2014) assess this through the impacts on hamsters' ovary cells and on earthworms and finds the levels toxic to them. Wu et al (2014) assesses the impact of Cadmium contamination in soils on acidification in groundwater.	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Detailed data on contamination levels for heavy metals and PCBs for soil samples.	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	Data is very specific to the two e-waste recycling sites but provide clear evidence of the contamination levels in soil.		

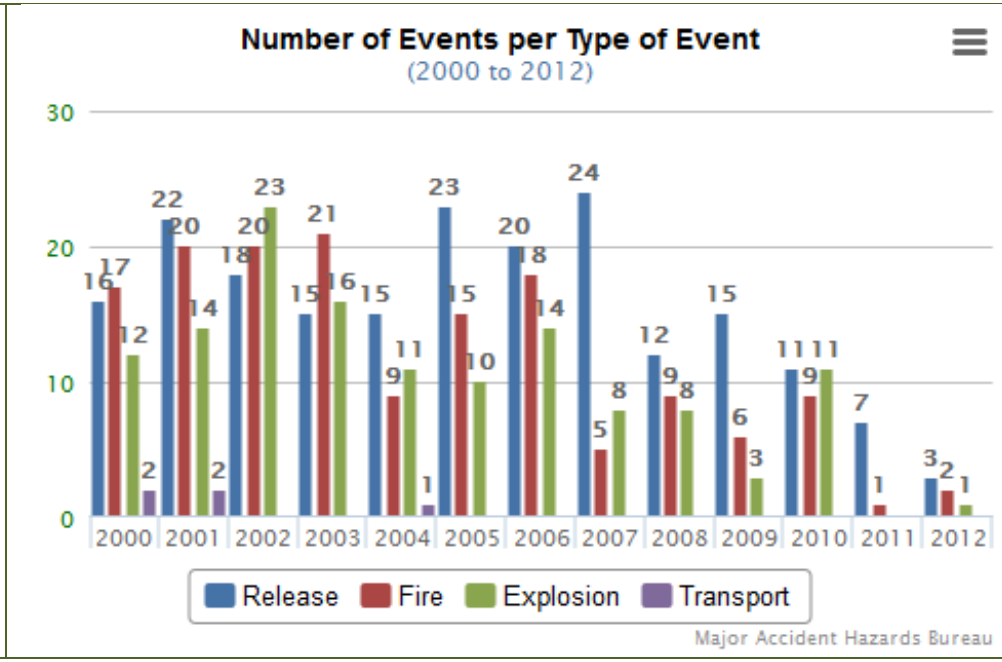
4. Pollution Incidents

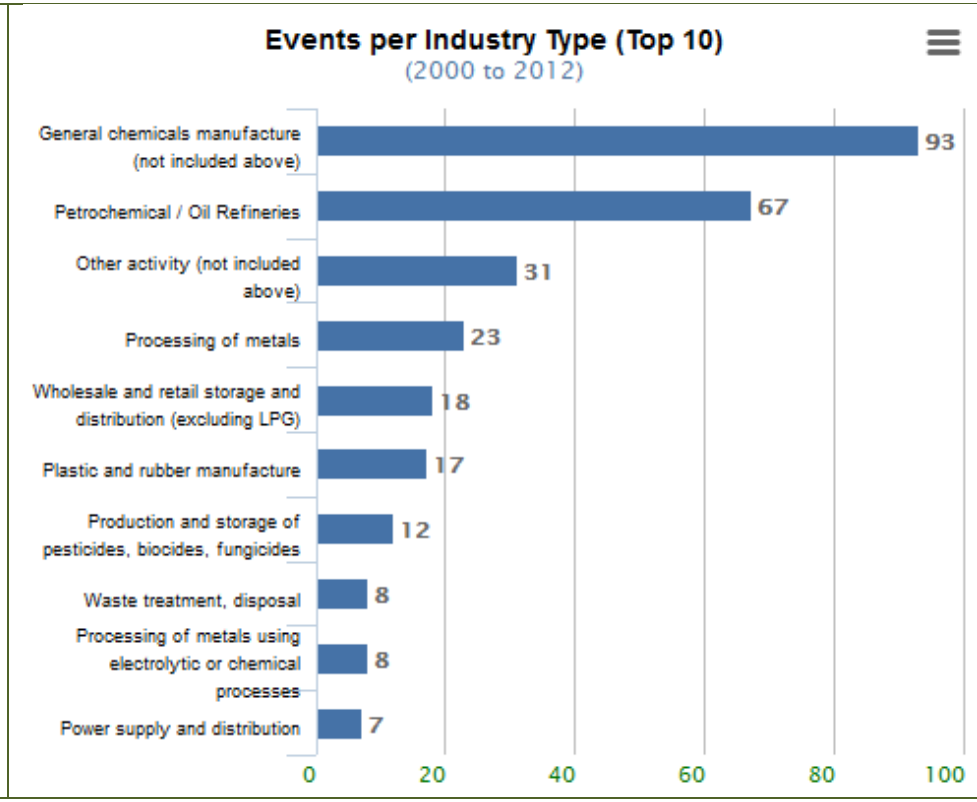
Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Pollution incidents resulting from natural hazards and technological accidents; the latter includes oil spills, industrial accidents (fires, explosions, leaks/spills), and toxic spills from mining activities and is therefore of most interest		
Title of information/data source	Mapping the impacts of natural hazards and technological accidents in Europe		
Where is the data source? Link if available?	EEA, introductory webpage: http://www.eea.europa.eu/highlights/natural-hazards-and-technological-accidents and full report: http://www.eea.europa.eu/publications/mapping-the-impacts-of-natural		
Method used for data collection	Main sources of information and data: EM-DAT database maintained by the Centre for Research on the Epidemiology of Disasters CRED, from the NatCatSERVICE maintained by MunichRE, DG JRC (IES and IPSC) and the European Maritime Safety Agency EMSA.		
Geographic scope of data (country coverage), including if transboundary	The 32 EEA member countries		
Temporal coverage of data (start and end date)	Report is dated 2010; purports to present a picture of the situation from the previous 10 years		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Between 1998 and 2009 there were 10 major **oil spills**, 339 major **industrial accidents** and 4 major **toxic spills** from mining activities in the countries covered by the report.	These may not be criminal events per se, but may have resulted from negligence of some sort.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Technological accidents caused severe ecosystem impacts. The **oil spills** from the tankers Erika (1999) and Prestige (2002) caused some of the worst ecological disasters in European waters. In recent years, however, the ecological impacts of marine oil spills have been comparatively minor, largely because of favourable weather conditions. Of the 339 major **industrial accidents** mentioned in the report, only 22 are deemed as having had impacts on the environment. The **toxic waste spills** from the mining activities in Aznacollar, Spain (1999) and Baia Mare, Romania (2000), had serious long term effects on the environment.	Data on industrial accidents is based on the MARS (Major Accident Reporting System) database, managed by the Major Accident Hazards Bureau (MAHB) at the Joint Research Centre of the European Commission.

	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	The 10 major (over 700 tonnes) **oil spills** mentioned in the report (the majority from ships in European coastal areas, and one from an oil pipeline) resulted in approximately 70,000 tonnes of oil spilled. . The most significant were oil spills from the tankers *Erika* (1999, Atlantic coast of France, 20 000 t oil spilled) and *Prestige* (2002, Atlantic coast of Spain, 63 000 t oil spilled). The major 4 **toxic spills** mentioned involved the spillage of approximately 5 million m3 of toxic/ contaminated substances. In Baia Mare, the spill of 100,000 m3 of contaminated water led to heavy pollution of a river system, resulting in the temporary closure of various water supply systems and killing more than one thousand tonnes of fish.	
	Social	The 339 major **industrial accidents** mentioned in the report resulted in 169 fatalities.	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	The cost of major **oil spills** is estimated as between EUR 500–500,000 per spilled tonne of oil. The cost of 33 major **industrial accidents** (listed in table 12.1 on pp114-5) is estimated at more than EUR 3.7 billion; this is described as a conservative estimate. The overall remediation cost can of the Aznacollar spill was about EUR 377 million.	
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Major accidents and near misses involving dangerous substances **(NB criminality is not necessarily implied)**		
Title of information/data source	eMARS: Major Accident Reporting System		
Where is the data source? Link if available?	European Commission, Joint Research Centre: https://emars.jrc.ec.europa.eu/ 'Dashboard' of key at-a-glance statistics: https://emars.jrc.ec.europa.eu/?id=14		

Method used for data collection	Mandatory reporting for EU Member States when a Seveso establishment is involved and the event meets the criteria of a "major accident" as defined by Annex VI of the Seveso III Directive (2012/18/EU). For non-EU OECD and UNECE countries, reporting is voluntary. The information of the reported event is entered into eMARS directly by the official reporting authority of the country in which the accident occurred.		
Geographic scope of data (country coverage), including if transboundary	EU Member States (and non-EU OECD and UNECE countries)		
Temporal coverage of data (start and end date)	1980-2013		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	786 incidents were included in the database as of 19 May 2014.	Database can be queried by date, by accident or near miss, and by industry type. The 'dashboard' shows charts which give the number of incidents divided into: release, fire, explosion and transport. It also shows the top 10 industries responsible for accidents. See comments section below for charts.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**		Some entries include quantitative data on the 'consequences' (i.e. impacts) of the accidents/near misses. This could be investigated further, but guidance would be needed on which types of incidents to focus on.
	Social		
	Economic		
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments			


Number of Events per Type of Event
(2000 to 2012)
30
20
10
0
16 17 12 2
22 20 14 2
18 20 23
15 21 16
15 9 11 1
23 15 10
20 18 14
24 5 8
12 9 8
15 6 3
11 11 9
7 1
3 2 1
2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012
Release
Fire
Explosion
Transport
Major Accident Hazards Bureau



Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal oil spills from ships		
Title of information/data source	European Parliament, Policy Department B: Structural and Cohesion Policies, 'External costs of maritime transport'		
Where is the data source? Link if available?	http://www.trt.it/english/Schede-progetti/European-parliament/External%20Costs%20of%20Maritime%20Transport.pdf, mainly pp14-15		
Method used for data collection	Report drafted by TRT Trasporti e Territorio Srl		
Geographic scope of data (country coverage), including if transboundary	EU, except Atlantic coast of Portugal, Spain and France		
Temporal coverage of data (start and end date)	Report dates from 2007		
Extent of environmental crime	**Numbers of instances of the crime or**	Cites the SERAC Unit of JRC as having produced	Can't find any information online about the 'SERAC

	other measure of scale (e.g. area affected)	an extensive monitoring of illegal oil spills in EU Seas, amounting to 2,875 detected spills per year detected.	Unit'.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Based on number of spills identified by SERAC, illegal oil illegal discharges in European monitored seas may be estimated at 23,661 tonnes (yearly average for the 1998-2004 period). An estimate for all EU seas (monitored and non-monitored) is given as 29,619 tonnes.	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	The external costs due to oil spills worldwide (including permitted, small accidental, big accidental and illegal spills) in 2006 are estimated at EUR 44 billion; the estimate for the EU fleet alone was EUR 8 billion. The complete external costs 'bill' to world citizens and environmental resources due to maritime transport is about EUR 300 billion per year (2006), 21% of which from the EU fleet (64 billion). This includes oil spills, GHG emissions, local and regional pollutants (air quality), and wastewater marine pollution and permitted oil discharges. The report suggests that if efficient enforcement measures succeeded in reducing to zero illegal oil spills, a 13% reduction of external costs could be obtained.	
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Soil contamination		
Title of information/data source	Data Collection on Contaminated Sites		
Where is the data source? Link if available?	Joint Research Centre, European Soil Portal. webpage: http://eusoils.jrc.ec.europa.eu/library/data/eionet/2011_Contaminated_Sites.htm and report (.rar format): http://eusoils.jrc.ec.europa.eu/library/data/eionet/Meeting10122012/CSI015_indicator_contaminated_sites_PACK.rar Another version of the report (or a different report, but using the same data?) can be found at: http://publications.jrc.ec.europa.eu/repository/bitstream/111111111/30755/1/lbna26376enn.pdf		
Method used for data collection	EEA indicator CSI015 "Progress in the management of contaminated sites". Based on a data collection questionnaire		
Geographic scope of data (country coverage), including if transboundary	32 EEA Member Countries (27 EU Member States plus Iceland, Liechtenstein, Norway, Switzerland and Turkey) and the West Balkan cooperating countries: Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Montenegro, Serbia as well as Kosovo.		
Temporal coverage of data (start and end date)	Data collection period ran from October 2011 to February 2012		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	About one third of countries surveyed have available estimates for the scale of local soil contamination. Based on their data, about 4.2 Potentially Contaminated Sites are on average reported per 1,000 inhabitants and about 5.7 Contaminated Sites per 10,000 inhabitants. A tentative extrapolation to the whole of Europe results in an estimate for the total number of Potentially Contaminated Sites of 2.5 million of which about 14% (340,000 sites) are expected to be contaminated and hence in need of remediation measures. Report states that "some significant new site contamination still occurs as a result of accidents and illegal actions", but this is not quantified.	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	

	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Annual national expenditures for the management of contaminated sites are on average about EUR 10 per capita, with a range of approx. EUR 2 in Serbia to more than EUR 30 in Estonia. This corresponds to an average of 0.4 per EUR million of national GDP. Compared to 2006 average national expenditures for the management of contaminated sites decreased (EUR 12 per capita; 0.7 per EUR million of national GDP). On average 81% of the annual national expenditures for the management of contaminated sites is spent on remediation measures, with 15% spent on site investigations.	
Other issues/comments	The report states that 28 countries maintain comprehensive inventories for Contaminated Sites, of which 25 have central national data inventories and three (Sweden, Belgium and Germany) regional level inventories; this is also the case for a few Italian regions. Key sources of contamination are identified as follows (there is also a breakdown per country on p25 of the report):		

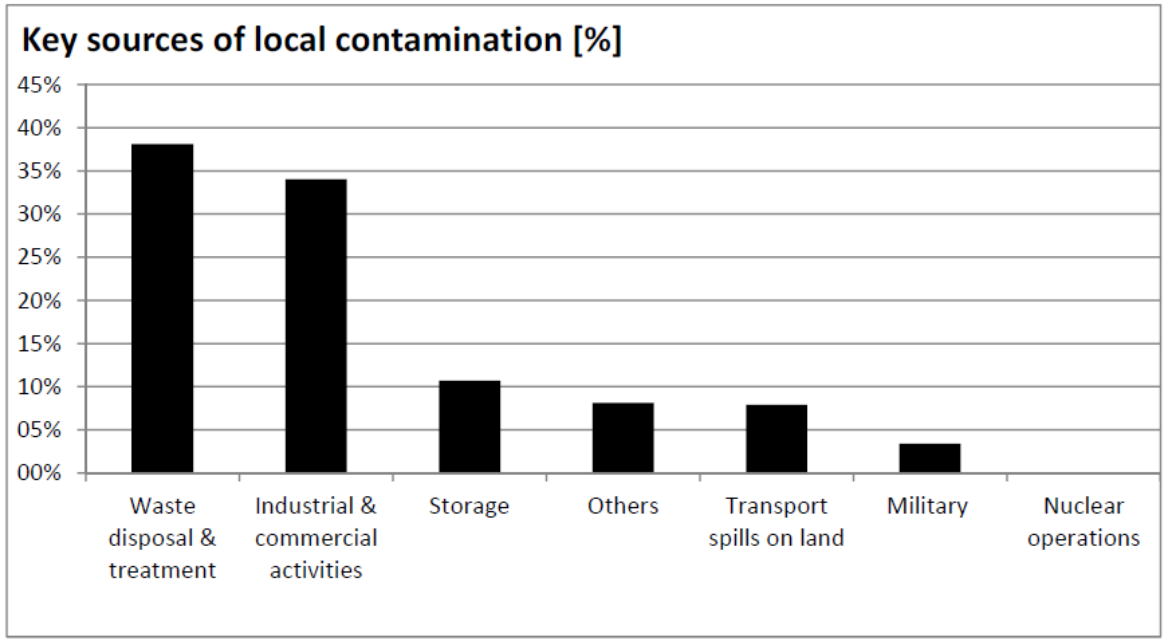


Fig.6: Key sources of contamination

18 European countries have funding mechanisms for so called "orphan" contaminated sites (sites where no liable party can be identified) at the national level; Belgium and Germany provide this funding at the regional level. In Slovakia this funding mechanism was first adopted in 2006. Such funding could therefore potentially address environmental crimes where the perpetrator has not been, or cannot be, identified.

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Unlawful discharges of hazardous substances to water; Unlawful dumping of waste: **Sanctions for environmental crime in the EU27**		
Title of information/data source	Huglo Lepage & Partners (2007). Study on environmental crime in the 27 Member States		
Where is the data source? Link if available?	Main study: http://ec.europa.eu/environment/legal/crime/pdf/report_environmental_crime.pdf Annex I - complete tables per Member State: http://ec.europa.eu/environment/legal/crime/pdf/crime_annex1.pdf Annex II - simplified table per Member States: http://ec.europa.eu/environment/legal/crime/pdf/crime_annex2.pdf Annex III - tables per offence: http://ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf		
Method used for data collection			
Geographic scope of data (country	27 EU Member States		

coverage), including if transboundary			
Temporal coverage of data (start and end date)	Report published in 2007		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Not addressed	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Contains info on the magnitude of legal sanctions (fines, sentences) applied in the EU27 for unlawful discharges of hazardous substances to water and unlawful dumping of waste (also for illegal waste shipments, habitat deterioration and unlawful trade/use of ozone depleting substances.)	
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Pollutant releases **(NB the database does not delineate between legal and illegal releases)**		
Title of information/data source	The European Pollutant Release and Transfer Register (E-PRTR)		
Where is the data source? Link if available?	http://prtr.ec.europa.eu/		
Method used for data collection	Mandatory environmental data reporting, undertaken by industrial facilities on an annual basis.		
Geographic scope of data (country coverage), including if transboundary	EU Member States plus Iceland, Liechtenstein, Norway, Serbia and Switzerland. Data can be queried by region (for releases to land) and river basin district (for releases to water), and by individual pollutants.		
Temporal coverage of data (start and end date)	2007 onwards		
Extent of environmental crime	**Numbers of instances of the crime or**	More than *30,000 industrial facilities report to E-*	

	other measure of scale (e.g. area affected)	*PRTR. The database includes information on the number of releases (deliberate and accidental) of pollutants to air, water and soil.*	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	The database includes information on the volume/weight of pollutants released annually by industrial facilities.	The database must be queried based on: region/river basin, pollutant group, and air/water/soil release.
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	The data covered includes pollutant releases to air, water and land as well as off-site transfers of waste and of pollutants in waste water. It covers 65 economic activities taking place within nine industrial sectors: energy; production and processing of metals; mineral industry; chemical industry; waste and waste water management; paper and wood production and processing; intensive livestock production and aquaculture; animal and vegetable products from the food and beverage sector; and other activities. It covers 91 key pollutants falling under the following *7 groups:* greenhouse gases; other gases; heavy metals; pesticides; chlorinated organic substances; other organic substances; and inorganic substances.		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Waste crime (illegal waste sites, illegal burning of waste, tax evasion, fly-tipping)		
Title of information/data source	Environmental Services Association Education Trust (2014). Waste Crime: Tackling Britain's Dirty Secret		
Where is the data source? Link if available?	www.esauk.org/reports_press_releases/esa_reports/ESAET_Waste_Crime_Tackling_Britains_Dirty_Secret_EMBARGOED.pdf		
Method used for	Information collated from various reports and databases		

data collection			
Geographic scope of data (country coverage), including if transboundary	UK (mainly England & Wales)		
Temporal coverage of data (start and end date)	Broadly 2009-2013		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Includes case study examples of recent waste crimes and outcomes of prosecution. 120 sites involved in **illegal burning** of waste at end of March 2012. Local authorities dealt with over 711,000 incidents of **fly-tipping** in 2012/13. Around 67% of fly-tipped waste was household waste (further info in: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/251325/FINAL_Statistics_Notice_Fly-tipping_England_2012-13FOR_PUBLICATION-v2.pdf).	
	Number of individuals involved in criminal activity	Between 2001 and 2008 the number of offenders sentenced for environmental offences within the Draft Guideline on Environmental Offences more than doubled, from 284 in 2001 to 682 in 2008. Since 2008, the number of convictions has remained at just under 700 per year; 689 people were sentenced under Section 33 of the Environmental Protection Act in 2011. 66 organisations were sentenced in 2011 for offences covered under the Draft Guideline. The 'Flycapture' database (national fly-tipping database run by the Environment Agency) states there were over 2,200 prosecutions for fly-tipping in England in 2012/13, 99% of which resulted in a conviction.	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Estimates **costs of waste crime** to the UK economy as: £224.3m per year for illegal waste sites; £157m per year for tax evasion; and £186.6m per year for fly-tipping (see table below). Includes table (from an AMEC 2012 study) that estimates the annual lost taxes and profits from illegal waste (C&D, WEEE, tyres, ELV, hazardous waste) in England and Wales as totalling £668.3m (of which £224.3m is lost landfill tax and lost VAT).	

		Report cites the Environmental Services Association as suggesting that **misclassification of waste sent to landfill** (ie classed as inert when it's not, to pay lower rate of landfill tax) may cost as much as £200m to the exchequer. It is estimated that English local authorities spent £51.6m on **fly-tipping clearance and enforcement** in 2012/13 (£3.6m less than in 2011/12, perhaps due to decreased local authority budgets and/or reduction in the incidence of fly-tipping). Eunomia estimates the total financial cost of dealing with fly-tipping in the UK (including private and public land) at around £186.6m for 2013/13, with a cost to local authorities of around £135m for 2012/13. (Further info in: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/251325/FINAL_Statistics_Notice_Fly-tipping_England_2012-13FOR_PUBLICATION-v2.pdf)	
Other issues/comments			

Table 2: *Estimated Costs of Waste Crime*

Activity	Cost Range (£m)	Best Estimate
Illegal Waste Sites	126.9 - 224.3	224.3
- Including: *Illegal Burning*	18.0 - 24.0	24.0
- Including: *Illegal Exports*	8.7	8.7
Tax Evasion[38]	93.7 - 314.0	157.0
Poor Compliance Amongst Legal Waste Operators	Unknown	Unknown
Fly-tipping	103.2 - 270.0	186.6
TOTAL	**328.8 - 808.3**	**567.9**

The report also includes results of a model developed to examine the marginal benefit of additional expenditure on waste crime enforcement. This suggests that an additional £5million per annum, over 10 years, given to enforcement bodies to help combat waste crime, would lead to between £137m and £212m of benefits. This equates to a best estimate of £4.40 of benefits returned for every £1 invested, of which £3.20 would be returned directly to the public purse.

In addition, the report makes numerous recommendations for measures to tackle waste crime.

Issue	Sub-issue	Description of information and data available for	Other comments (including on quality of

		subjects below	data, potential to aggregate data)
Type of environmental crime	Illegal dumping of waste		
Title of information/data source	A review of waste disposal at the Mobuoy site and the lessons learnt for the future regulation of the waste industry in Northern Ireland		
Where is the data source? Link if available?	http://www.doeni.gov.uk/niea/mills-review-december-2013.pdf		
Method used for data collection	A review commissioned by the then Minister of the Environment, Alex Attwood MLA, in June 2013		
Geographic scope of data (country coverage), including if transboundary	Northern Ireland (UK)		
Temporal coverage of data (start and end date)	Report is dated December 2013		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	The report relates to one large illegal dumping incident, in an area stretching around 1.4km.	
	Number of individuals involved in criminal activity	It is not known who deposited the waste, but it was a sophisticated operation carried out over a number of years. A criminal investigation (Operation Sycamore) is ongoing and two people have been arrested and questioned. Away from the specific case, the report states that the NIEA's Environment Crime Unit has obtained 161 waste crime convictions and a total of £430,300 in fines since 2009, and that the Proceeds of Crime Act has been used to make Confiscation Orders in 25 environmental crime cases, totalling £1,944,136. The NIEA's Land and Resource Management Unit's Enforcement Team, set up in mid-2012, has obtained a further 6 convictions resulting in fines of £23,000. The report also states, however, that there is significant feeling that sentencing for those convicted of waste crime is too lenient to provide an effect deterrent.	
Relationship to organised crime (if any)?	The report cites the draft revised Northern Ireland Waste Management Strategy 2013, which recognises that "a significant amount of illegal activity in the waste sector over the past decade has involved organised crime". The PSNI in their Strategic Problem Profile for Environmental Crime in Northern Ireland (July 2012) also identified involvement by organised crime gangs. In addition, the report quotes the NIEA's Environmental Crime Unit (ECU) as stating "that it can be said with confidence that criminality conducted for financial gain, but not necessarily connected to organised crime groups, is extremely common within the sector and is evidenced in illegal disposal of waste, as well as the illegal management of scrap cars, tyres and metal".		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	An estimated total of 516,000 tonnes of macerated	

		waste was discovered by the Northern Ireland Environment Agency (NIEA) in an area adjacent to the River Faughan in Mobuoy, near Derry. This illegal waste was deposited in an area stretching to almost 1.4km in and around a licensed Materials Recycling Facility (MRF) owned and run by City & Industrial Waste Ltd, with the majority of the waste being buried in excavated sand and gravel pits.	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	A total of £600,000 has already been spent on removing waste from the licensed site. The cost of removing the illegally dumped waste could cost "up to tens of millions of pounds". (The report states that the removal of waste from 100 illegal sites, with an average volume of 10,000 m3 and a removal cost of £215/m3 (based on the repatriation of waste to the Republic of Ireland project) would cost £250 million.) It is estimated that the tax evaded due to the illegal dumping at Mobuoy amounts to a minimum of £34.6 million.	
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal Oil Discharges from ships		
Title of information/data source	North Sea: Illegal Oil Discharges at Night		
Where is the data source? Link if available?	Spill International: http://www.spill-international.com/news/id1260-North_Sea_Illegal_Oil_Discharges_at_Night.html and Tilburg university press release (in Dutch): http://uvtapp.uvt.nl/fsw/spits.npc.ShowPressReleaseCM?v_id=5041162174698702		
Method used for data collection	Research by crime economist Ben Vollaard from Tilburg University (The Netherlands), in collaboration with the Dutch Police Academy (Politieacademie). Based on monitoring by the Dutch Coast Guard planes in the Dutch part of the North Sea from 1992 to 2011.		
Geographic scope of data (country coverage), including if transboundary	North Sea		
Temporal coverage of data (start and end date)	Based on data from 1992-2011 Article dates from March 2013; final report was published later in 2013		

Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Estimates suggest that twice as much pollution is caused (i.e. twice as much oil discharged) by night-time discharges as by those during daylight hours.	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Earlier research has revealed that a continuous stream of oil discharges in the shipping lanes has a negative impact on sea and sea-floor life.	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	As much as 500,000 litres of oil (oily discharges including from sludge from fuel, bilge water and water that has been used to clean storage rooms of oil tankers (slop)) per year is being discharged at night by vessels on the North Sea; this is done at night to avoid discovery by the authorities. Between a third and a half of the common murres (seabirds) that are found dead on North Sea beaches have traces of oil (the common murre is a regular seabird which is sensitive to oil and is widely used as an indicator of the problem).	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	It is worth trying to retrieve the original version of the final report (in Dutch).		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal oil discharges at sea		
Title of information/data source	OCEANIDES: Harmonised monitoring, reporting and assessment of illegal marine oil discharges		
Where is the data source? Link if available?	Basic summary: http://www.copernicus.eu/pages-principales/projects/project-database/database-of-projects/?idproj=70&what=1&page=13 More detail: http://cordis.europa.eu/projects/EVK2-CT-2002-00177 **Unfortunately it seems that the actual database is no longer available**		
Method used for data collection	OCEANIDES used both satellite (including RADARSAT and ENVISAT images) and airborne oil pollution surveillance services and infrastructure to understand, address and identify the technological, scientific, and legislative requirements for establishing a Pan-European harmonised, standardised, oil pollution monitoring and information reporting capability. It also applied a state-of-the-art oil spill trajectory/fate and		

	environmental impact assessments model to assess the fraction of illegal oil spills that were most likely to reach environmentally sensitive areas and the scale of their environmental impact.		
Geographic scope of data (country coverage), including if transboundary	Most of the testing concentrated on the North Sea and Baltic basins, but the project collected data from all past and ongoing monitoring efforts in European sea basins.		
Temporal coverage of data (start and end date)	Project ran from February 2003 – August 2005		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Not addressed	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	OCEANIDES addressed several problems: the lack of agreed methods for correlating shapes found on satellite imagery with illegal oil slicks, lack of systematic efforts to ground-truth reported oil slicks from space-borne remote sensing, lack of harmonised, systematic reporting mechanisms that allows the problem of one sea to be compared with another or lessons learnt in one to be applied more generally, lack of knowledge on the combined space/airborne sampling efforts required to establish oil spill statistics on a European scale, and lack of quantitative estimates of the environmental impact of illegal oil pollution. OCEANIDES aimed to: define an ideal set of parameters that characterise an oil slick; create a database of information from previous and current monitoring campaigns, apply the 'ideal template to them, and store them in a common database; devise methods for more accurately detecting oil slicks by comparing images; develop statistical methods to calculate the number of oil slicks likely to be have been deposited in a given area; understand whether it is possible to convert the number of oil slicks deposited in a basin to a volume or mass of oil; and understand what fraction of the oil deposited in a sea basin over the period of a year reaches the shore and how this fraction depends on the type and average thickness of slicks.		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Dumping of wastes (oil, litter, plastic, fishing gear) from ships		
Title of information/data source	Seas At Risk position paper 'Ship waste dumping and the clean ship concept: How an improved EU PRF Directive can play a key role in Cleaning up the Seas'		
Where is the data source? Link if available?	http://www.seas-at-risk.org/1mages/Seas%20At%20Risk%20Position%20Paper160911.pdf		
Method used for data collection	Various pre-existing reports and research		
Geographic scope of data (country coverage), including if transboundary	European seas		
Temporal coverage of data (start and end date)	The paper is not dated, but must be from 2011 or later (most recent source cited in the paper is from 2011)		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Not addressed	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	It is estimated that the illegal discharge of oily waste by vessels is a major source of oil pollution; operational discharges from ships are estimated as accounting for 45% of the estimated average annual input of oil entering the marine environment. It is estimated that in the North Sea around 20,000 tonnes of waste is dumped each year. In the Netherlands it has been estimated that as much as 90% of the plastic found on beaches originates from shipping and fisheries (Van Franeker, 2010). Between 2001 to 2006 in the North East Atlantic, it was found that a significant increase of fishing gear was found during beach litter monitoring programmes (OSPAR Commission,	Source: GESAMP (IMO/FAO/UNESCO-IOC/UNIDO/WMO/IAEA/UN/UNEP Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection). 2007. Estimates of oil entering the marine environment from sea-based activities. Rep. Stud. GESAMP No. 75. Source: Van Franeker, J.A. 2010. Fulmar Litter EcoQO Monitoring in the Netherlands 1979-2008 in relation to EU Directive 2000/59/EC on Port Reception Facilities. IMARES Report Nr C027/10. IMARES Wageningen UR. Source: OSPAR Commission. 2009. Marine litter in the North-East Atlantic Region: Assessment and priorities for response. London, United Kingdom

		2007) and in the Netherlands, Dutch NGO the North Sea Foundation found that 36% of all beach litter items monitored between 2002-2010 came from fisheries (in particular synthetic rope and netting). More than 250 million tonnes of grey (from laundries, kitchens, showers) and black water (sewage) are discharged from ships globally, of which 25% comes from the EU fleet.	Source: Maffii, S. 2007. External Costs and Climate Impacts of Maritime Transport. Transport and climate change: A Greens/EFA conference. Bruxelles.
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	The report cites a source which suggests ship source pollution generates a total external costs 'bill' to world citizens and environmental resources of around EUR 300 billion, 21% of which is attributed to the European fleet. The full cost of all oil pollution from ships (including permitted, small accidental, big accidental and illegal) was estimated to cost around EUR 8 billion for the EU fleet in 2006.	Source: Maffii, S. 2007. External Costs and Climate Impacts of Maritime Transport. Transport and climate change: A Greens/EFA conference. Bruxelles. Source: Maffii, S. 2007. External Costs and Climate Impacts of Maritime Transport. Transport and climate change: A Greens/EFA conference. Bruxelles.
Other issues/comments	It is not clear whether any or all of the ship discharges referred to can be classified as illegal. Further research would be required to determine this.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Fly-tipping		
Title of information/data source	TrashOut: locate illegal dumps		
Where is the data source? Link if available?	http://www.trashout.me/statistics/europe		
Method used for data collection	The data are crowd-sourced by people who have downloaded the TrashOut app to a smartphone; this enables users to report fly-tips, including location information, size, type of waste, a photo of the dump etc.		
Geographic scope of data (country coverage), including if transboundary	Worldwide; some data are currently included for 26 EU Member States (not Lithuania or Luxembourg)		
Temporal coverage of data (start and end date)	Data can be reported in real-time		
Extent of environmental crime	**Numbers of instances of the crime or**	10,860 separate fly-tips were included in the	See general comments section below

	other measure of scale (e.g. area affected)	database as of 19 May 2014.	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Around 21% of the fly-tips reported were the size of a bag of waste; around 32% the size of a wheelbarrow of waste, and around 46% the size of a van/truckload of waste. Data is also included on the type of waste, divided into: plastic, metal, dangerous, construction, glass, household, liquid, automotive and electronic.	See general comments section below
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments	As the information is crowd-sourced, it may not be 100% accurate; updates may not occur when fly-tips are dealt with; populations in some countries may be more engaged, therefore giving the impression that there are more fly-tipping incidents, when it is simply a case that a greater proportion are being reported. However it provides an interesting general illustration of the breadth of fly-tipping activity in the EU (and further afield).		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Fly-tipping (illegal waste dumping)		
Title of information/data source	Website and specific reports		
Where is the data source? Link if available?	Report 'Fly-tipping Partnership Framework: A National Framework for England for tackling Fly-Tipping through Local Partnerships': http://www.tacklingflytipping.com/files/20140410%20Fly-tipping%20framework%20FINAL.pdf		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	UK		
Temporal coverage of data (start and end date)	To present day		

Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	A total of around 711,000 incidents of fly-tipping in England were reported to the national Flycapture database in 2012-13. The true figure is likely to be considerably higher, but this represents a reduction of 44 per cent since 2007/8. The types of waste fly-tipped range from 'black bag' household waste to organised crime involving industrial wastes, tyres, construction waste and liquid wastes. 67% of fly-tips dealt with by local authorities are made up of household or household-type waste. The top five most frequently fly-tipped items are: household rubbish; white goods such as fridges and freezers; construction, demolition and home improvement rubbish; garden rubbish; and rubbish from businesses. The top four favourite spots for fly-tippers are: the roadside; council land such as housing estates, car parks, parks and open spaces; back alleys; and country paths.	Source: National Framework for England for tackling Fly-Tipping, http://www.tacklingflytipping.com/files/20140410%20Fly-tipping%20framework%20FINAL.pdf Source: http://www.tacklingflytipping.com/about-fly-tipping/key-statistics.aspx
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	There are 'hidden costs of the adverse impact on local amenity and the environment'. Fly-tipping poses a threat to humans and wildlife, damages the environment, and spoils enjoyment of towns and countryside.	Source: National Framework for England for tackling Fly-Tipping, http://www.tacklingflytipping.com/files/20140410%20Fly-tipping%20framework%20FINAL.pdf# Source: http://www.tacklingflytipping.com/about-fly-tipping/
	Social	Fly-tipping undermines legitimate waste businesses, where illegal operators undercutting those operating within the law. This also undermines the reputation of legal operators. Areas subject to repeated fly-tipping may suffer declining property prices and local businesses may suffer as people stay away.	Source: http://www.tacklingflytipping.com/about-fly-tipping/
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	It is estimated that fly-tipping costs the public sector over £36 million a year and private landowners £50-150 million or more	Source: National Framework for England for tackling Fly-Tipping,

		a year in clean up and disposal costs alone. There are additional costs of administering fly-tipping reporting and response services. Fly-tipping is estimated to cost £100-£150 million every year to investigate and clear up. The cost falls on taxpayers and private landowners.	http://www.tacklingflytipping.com/files/20140410%20Fly-tipping%20framework%20FINAL.pdf Source: http://www.tacklingflytipping.com/about-fly-tipping/
Other issues/comments	The National Framework for England for Tackling Fly-Tipping Also includes a small number of case studies on actions to combat/mitigate fly-tipping. The maximum penalties for fly-tipping on summary conviction are a £50,000 fine and/or twelve months imprisonment, and on conviction in a Crown Court an unlimited fine and/or five years imprisonment (source: National Framework for England for tackling Fly-Tipping).		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Fly-tipping		
Title of information/data source	Flycapture database (National fly-tipping database run by the Environment Agency for England & Wales)		
Where is the data source? Link if available?	https://flycapture.environment-agency.gov.uk/flycapture/		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	England & Wales (UK); data at local authority level		
Temporal coverage of data (start and end date)	To at least 2012-2013, possibly later		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale**	Contains data on amount of waste fly-tipped on public land	
	Number of individuals involved in criminal activity		
Relationship to organised crime			
Qualitative impacts	**To environment**		
	Social		
	Economic		
Quantitative impacts	**To environment**		
	Social		
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic		
Other issues/comments	The database is not publicly accessible; however, the Environment Agency can be approached to obtain a login/password		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Environment related 'legal offences' in various fields in Estonia		
Title of information/data source	Environmental Inspectorate, Estonia		
Where is the data source? Link if available?	http://www.kki.ee/eng/?part=html&id=19		
Method used for data collection	A short table of 'legal offences' related to the environment, collated from data processed by various state authorities (the Environmental Inspectorate, local governments, the Police and Border Guard Board, the Rescue Board, the Tax and Customs Board, the Consumer Protection Board, the Veterinary and Food Board).		
Geographic scope of data (country coverage), including if transboundary	Estonia, national		
Temporal coverage of data (start and end date)	2012		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	The table lists, for example, 491 violations of the Waste Act, 7 under the 'Earth's Crust Act', 12 under the Integrated Pollution Prevention and Control Act, and 138 under the Water Act.	See general comments below for full table
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	The table lists the total amount of fines related to the various groups of violations: EUR 10,269 for the 491 violations of the Waste Act; EUR 1,250 for the 7 under the 'Earth's Crust Act'; EUR 3,060 for the 12 under the Integrated Pollution Prevention and Control Act; and EUR 28,350 for the 138 under the Water Act.	
Other issues/comments	**Legal offences by field in 2012**		

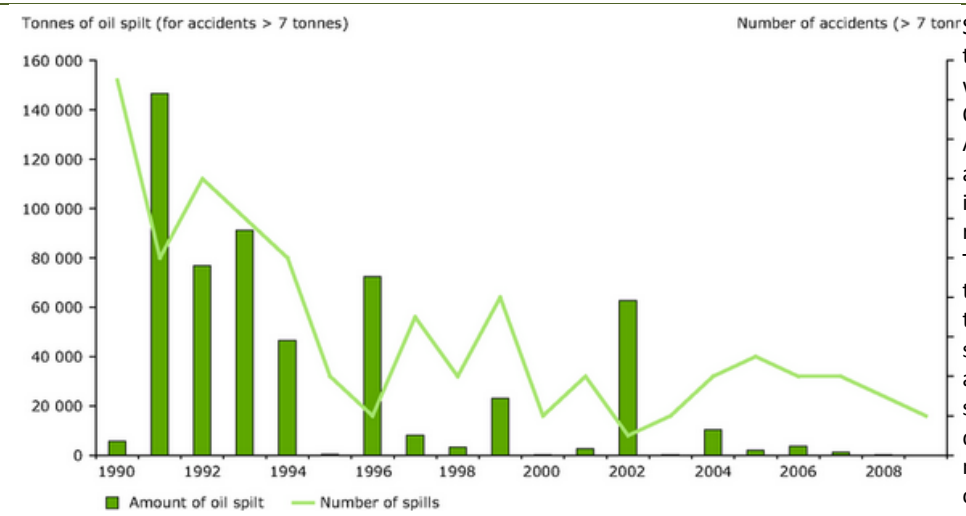
Liability provision	Number of violations	Amount of fines in euros
Hunting Act	178	10,269
Waste Act	491	63,254
Fishing Act	631	55,229
Penal Code	26	2,680
Chemicals Act	7	568
Radiation Act	11	3,560
Local Government Organisation Act	1203	61,211
Nature Conservation Act	257	24,875
Animal Protection Act	50	1,036
Earth's Crust Act	7	1,250
Forest Act	144	12,248
Packaging Act	16	770
Integrated Pollution Prevention and Control Act	12	3,060
Fire Safety Act	22	684
Water Act	138	28,250
Ambient Air Protection Act	55	11,440
Public Water Supply and Sewerage Act	3	120
KOKKU/ TOTAL	**3251**	**280,504**

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Unauthorised (illegal) waste activity		
Title of information/data source	The Nature and Extent of Unauthorised Waste Activity in Ireland		
Where is the data source? Link if available?	Irish Environmental Protection Agency (EPA), Office of Environmental Enforcement, http://www.epa.ie/pubs/reports/waste/unauthorisedwaste/epa_unauthorised_waste_activities.pdf		
Method used for data collection	Consultations, interviews and EPA data/reports		
Geographic scope of data (country coverage), including if transboundary	Ireland		
Temporal coverage of data (start and end date)	Report dates from 2005		

Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Concludes that the large-scale illegal dumping of the type that occurred in Co. Wicklow during the period 1997 to 2002 is no longer taking place. Fly-tipping and backyard burning of waste have increased, however, as have illegal collection of waste (most notably C&D and C&I waste) from both households and commercial enterprises. The report also states there is evidence of significant (estimated as "tens of thousands" of tonnes) **illegal movement of waste** to Northern Ireland, mainly during 2002-2004.	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Evidence suggests that unregulated, small scale, "Man in the Van", tipper truck owners offering waste collection services are responsible for much of the fly-tipping of C&I waste.	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Eight illegal landfills containing household waste were reported – three in both Counties Monaghan and Wicklow and one in both County Cork and County Meath. The cumulative quantity of household waste estimated to be contained within these illegal landfills is in the region of 50,000 tonnes. The report also lists 15 illegal landfills for C&I waste, 16 for C&D waste, and 1 for hazardous waste. In 2001 an estimated 500,000 tonnes of soil was accepted at unauthorised facilities. Approximately 80% of all local authorities identified backyard burning as being a significant issue. In 2003, around 287,000 tonnes of household waste was not presented for collection, the assumption being that it was disposed of by householders themselves.	
	Social	Unauthorised collection of waste is seen as a significant problem by 18 out of 34 Irish local	

		authorities.	
	Economic	The report identified 15 unauthorised waste transfer stations and waste processing facilities in operation during the course of the study; these did not have the required Waste Management Act authorisations from the relevant local authority or the EPA.	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments			

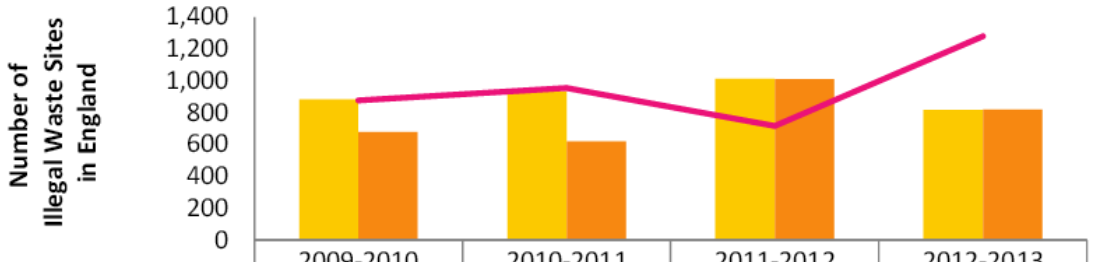
Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Oil spills from tankers in EU25		
Title of information/data source	Annual number of accidents (with > 7 tonnes of oil spilt) and volume of oil spilt in EU‑25 for accidental oil spills where > 7 tonnes of oil was spilt		
Where is the data source? Link if available?	EEA, webpage with main figure: http://www.eea.europa.eu/data-and-maps/figures/accidental-oil-tanker-spills-in-european-seas-1 and Excel file with data: http://www.eea.europa.eu/data-and-maps/figures/accidental-oil-tanker-spills-in-european-seas-1/annual-number-of-accidents-with/at_download/file		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	All EU Member States except for Romania and Bulgaria.		
Temporal coverage of data (start and end date)	1990-2009 (last updated in 2010)		

Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**		Spills are classed as 'accidental'; there is no information on whether they are criminal or not. Only includes spills over 7 tonnes. An accidental oil spill is defined as all oil lost to the environment, including that which is burnt or remains in a sunken vessel. The source acknowledges that the vast majority of spills are less than 7 tonnes, but that data in such cases is unreliable and they are regarded to have a relatively small contribution to the overall quantity of oil spilled into the marine environment as a result of tanker accidents.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	558,247 tonnes of oil spilled in 121 individual incidents between 1990 and 2009. Data is also included in the Excel spreadsheet on the amount of oil per spill.	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Waste-related crime (illegal waste sites, metal theft) **Waste crime in England and Wales (UK)**		
Title of information/data source	Environment Agency (2013). Waste crime report 2012-2013, Version 1		

Where is the data source? Link if available?	https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/288604/LIT_8776_956402.pdf		
Method used for data collection	Report on work of Environment Agency, Illegal Waste Sites Task Force and Metal Theft Task Force during 2012-2013.		
Geographic scope of data (country coverage), including if transboundary	UK (England and Wales)		
Temporal coverage of data (start and end date)	April 2012 – March 2013		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Between April 2012 and March 2013, activities were stopped on 1,279 **illegal waste sites**, mainly by closing them, or by bringing them into regulation. Just over 60% were dealing with tyres, C&D waste, ELVs, scrap metal and WEEE. 820 identified active **illegal waste sites** at the end of March 2013 (around 65% of which dealing with the priority waste streams above). 107 large, serious and organised incidents of **waste dumping** were also addressed (the most common waste streams involved were C&D, household/commercial, chemicals/fuel/ oils, and tyres). 550 arrests made and around 350 vehicles seized in relation to **scrap metal theft**/crime.	
	Number of individuals involved in criminal activity	During 2012-2013 in England, 171 successful prosecutions were made, and 62 formal cautions for waste crime issued (report includes figures on fines/sentences issued, and on expected EA income from Proceeds of Crime Act).	
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	A report 'The Economic Impact of Illegal Waste' (December 2012) estimates that waste crime diverts as much as £1 billion per annum from legitimate business and HM Treasury.	Source: https://www.gov.uk/government/policies/reducing-and-managing-waste

<table>
<tr><td>Monetary impacts</td><td>To environment</td><td>Not addressed</td><td></td></tr>
<tr><td></td><td>Social</td><td>Not addressed</td><td></td></tr>
<tr><td></td><td>Economic</td><td>During 2012-2013, EA spent around £17 million on tackling waste crime (around 7% of EA's total spend on environmental protection and 20% of expenditure on waste regulation). Almost £5 million also invested in the EA illegal waste sites task force over 'the past 18 months'.

An additional £5 million of funding for the enforcement of waste crime was announced in the 2014 Budget, which will increase planned expenditure on waste crime enforcement in the tax year 2014 to 2015 by nearly 40%. The funding will help the Environment Agency take on additional enforcement initiatives to tackle waste crime.</td><td></td></tr>
<tr><td>Other issues/comments</td><td colspan="3">Figure 4: numbers of illegal waste sites
 

<table>
<tr><th></th><th>2009-2010</th><th>2010-2011</th><th>2011-2012</th><th>2012-2013</th></tr>
<tr><td>New sites found</td><td>882</td><td>930</td><td>1,013</td><td>817</td></tr>
<tr><td>Sites still active at end of March</td><td>680</td><td>618</td><td>1,011</td><td>820</td></tr>
<tr><td>Illegal activity stopped</td><td>876</td><td>954</td><td>716</td><td>1,279</td></tr>
</table></td></tr>
</table>

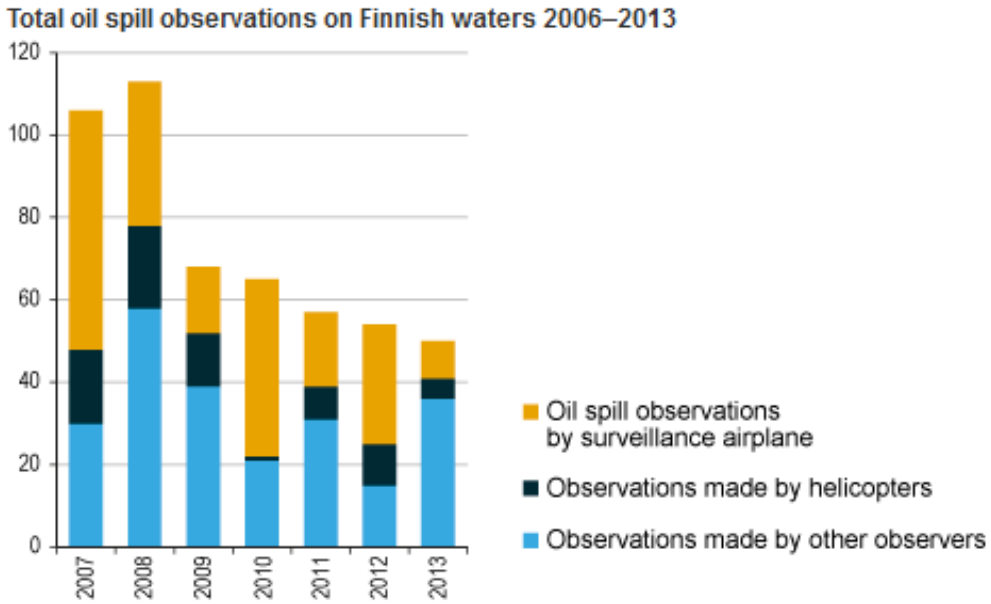
Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Contaminated sites **Croatian database on potentially contaminated and contaminated localities (GEOL) (NB contamination is not necessarily the result of criminal activity)**		
Title of information/data source	Database on potentially contaminated and contaminated localities (GEOL)		
Where is the data source? Link if available?	Introduction to the database: http://www.azo.hr/NbspDatabaseOnPotentially (there is a link to the database itself towards the bottom of the page)		
Method used for data collection	The database was elaborated by the Croatian Environment Agency, within the implementation of the **Project Development of the Croatian soil monitoring programme with a pilot project** , co-financed by the EU LIFE Third Countries programme. Existing GEOL data were verified and supplemented in accordance with recommendations of the European Point Source Assessment System - EPSAS (industrial plants which are subject to IPPC and Severso II Directive) and European pollutant release and transfer registers – EPRTR (Attachment 1) EC/166/2006.		
Geographic scope of data (country coverage), including if transboundary	Croatia		
Temporal coverage of data (start and end date)	The database was elaborated during 2005/2006		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	The database contains data on 2,264 potentially polluted sites within Croatia, owned by 1,080 legal entities. For 247 of these sites (owned by 128 legal entities), it is recommended to establish soil monitoring considering the type of registered activity at location, production capacities, high potential of contamination and the type of pollutants that these activities may generate.	The database contains data on recognised contaminated and potentially contaminated locations; general data on the legal entity which disposes with the location, present pollutants, the status of contaminated location and other information. The database can be searched according to: · legal entities, · location, · counties, · registered activities at the location, and · potential pollutants.
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	

	Economic	Not addressed	
Other issues/comments	The main database is in Croatian. A native speaker would therefore be needed to investigate further.		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal landfills **Illegal landfills in Bulgaria**		
Title of information/data source	European Commission press release, 23 January 2014, 'Environment: Commission takes Bulgaria to Court over illegal landfills'		
Where is the data source? Link if available?	http://europa.eu/rapid/press-release_IP-14-47_en.pdf		
Method used for data collection	Not addressed		
Geographic scope of data (country coverage), including if transboundary	Bulgaria		
Temporal coverage of data (start and end date)	Press release dates from 23 January 2014		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	According to the latest information available to the Commission, more than four years after the final Landfill Directive deadline (of July 2009) for the closure of non-compliant landfills, Bulgaria still has 113 non-compliant landfills in operation. (In 2009 the figure was 130, and by April 2012 the figure was 124). No clear calendar has been provided by Bulgaria for the construction of a promised 23 new compliant landfills by July 2015.	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	The press release does not contain information on the specific impacts of illegal landfills.
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal oil spills **Baltic Sea oil spills**		
Title of information/data source	A record low in oil spills detected by aerial surveillance in 2013		
Where is the data source? Link if available?	http://www.environment.fi/en-US/Waters_and_sea/A_record_low_in_oil_spills_detected_by_a%2828251%29		
Method used for data collection	Surveillance flights by the Finnish Border Guard (approximately 625 hours of aerial surveillance)		
Geographic scope of data (country coverage), including if transboundary	Baltic Sea		
Temporal coverage of data (start and end date)	1996-2013		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Nine illegal oil spills were identified on the Baltic in 2013. The record number of 107 oil spills was reported in 2001. Including oil spills in ports or close to shore, the total number of all oil spill observations was 50 in 2013.	
	Number of individuals involved in criminal activity	Not addressed	
Relationship to organised crime (if any)?	Not addressed		
Qualitative impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	Not addressed	
Quantitative impacts	**To environment**	In 2013, the average spill was roughly five litres, compared to 180 litres in 2001.	
	Social	Not addressed	
	Economic	Not addressed	
Monetary impacts	**To environment**	Not addressed	
	Social	Not addressed	
	Economic	An oil pollution fee can be imposed on the owner or manager of a vessel guilty of a spill.	
Other issues/comments			


Oil spills detected by Finnish surveillance aircraft 1996–2013
Oil spill observations
Pollution / flight hour
120
100
80
60
40
20
0
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
42
104
53
63
89
107
75
40
36
48
58
58
35
16
43
18
29
9
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
No. of observed oil spills
Oil spill observed per flight hour



Some supplementary information may be available at http://www.environment.fi/en-US/Waters_and_sea/Environmental_emergency_response_in_Finland/Marine_pollution_response/Surveillance_of_illegal_discharges/Surveillance_of_oil_discharges%289707%29

5. Fisheries

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	Review of Impacts of Illegal, Unreported and Unregulated Fishing on Developing Countries		
Where is the data source? Link if available?	http://transparentsea.co/images/5/58/Illegal-fishing-mrag-report.pdf		
Method used for data collection	Literature review, case studies and basic models		
Geographic scope of data (country coverage), including if transboundary	Developing countries (Guinea, Liberia, Sierra Leone, Angola, Namibia, Mozambique, Kenya, Somalia, Seychelles, Papua New Guinea) but may include EU vessels.		
Temporal coverage of data (start and end date)	Varies depending on case study, up to May 2005.		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	The study includes a collection of incidences, focusing on 2004-2005 but older incidences also recorded.	
	Number of individuals involved in criminal activity	Not available.	
Relationship to organised crime (if any)?	Mention of involvement of organised crime in the case of high value fisheries resources (abalone, sturgeon, potentially toothfish).		
Qualitative impacts	**To environment**	Section on impacts, mainly qualitative, on impacts such as overfishing and damage to ecosystems	Generalisations can be made
	Social	Section on impacts, mainly qualitative, eg food security, conflict between fishers, piracy, undermining of social values and law. The incidence of armed resistance to surveillance and	Generalisations can be made

		enforcement operations appears to be increasing.	
	Economic	Section on impacts, some qualitative, but quantitative and monetary also. Direct loss, loss of landings fees, taxes and levies, indirect loss to ancillary industries.	Generalisations can be made
Quantitative impacts	**To environment**	No data available.	
	Social		
	Economic		
Monetary impacts	**To environment**	No data available.	
	Social	No data available.	
	Economic	The total value of IUU catches taken inside national waters is likely to be in excess of $3bn worldwide. A minimum $0.9bn of IUU catch is taken from EEZs of various countries in the sub-Saharan Africa region, the majority of which are developing countries. Over the whole of the sub-Saharan region, the model estimated the value of IUU catch to be 16% of the total catch value for these countries: or 19% of the declared catch.	
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	the Worldwide Extent of Illegal Fishing		
Where is the data source? Link if available?	http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0004570#pone-0004570-g002		
Method used for data collection	Case studies		
Geographic scope of data (country coverage), including if transboundary	Worldwide (54 countries and on the high seas)		
Temporal coverage of data (start and end date)	1980-2003		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Extent given for regions expressed as a % of reported catch of case study species. "Our study identifies reductions in illegal fishing in 11 areas since the early 1990s and indeed this trend has continued in the years since 2003"	
	Number of individuals involved in criminal activity	No data	
Relationship to organised crime (if any)?	A Link to organised crime is mentioned briefly.		
Qualitative impacts	**To environment**	Bycatch, illegal fishing in marine reserves, collateral damage to ecosystems, significant effects on fish stocks.	
	Social	Food security	
	Economic		
Quantitative impacts	**To environment**	between 11 and 26 million tonnes. Unreported catches of bluefin tuna	

		from the Mediterranean (estimated by the International Commission for the Conservation of Atlantic Tunas to have been 19,400 t in 2006 and 28,600 in 2007.	
	Social		
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic	The lower and upper estimates of the total value of current illegal and unreported fishing losses worldwide are between $10 bn and $23.5 bn annually	
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	**Costs of Illegal, Unreported and Unregulated (IUU) Fishing in EU Fisheries (EFTEC, 2008)**		
Where is the data source? Link if available?	http://www.pewtrusts.org/uploadedFiles/wwwpewtrustsorg/Reports/Protecting_ocean_life/eftec_Costs_IUU_Fishing.pdf		
Method used for data collection	Simulation models, extrapolating from cases to the EU scale		
Geographic scope of data (country coverage), including if transboundary	EU fleet in the large marine ecosystems adjacent to EU MS.		
Temporal coverage of data (start and end date)	Variable.		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area**	Contains data by area on estimates of IUU fishing rates (expressed a % of	

	affected)	total catch)	
	Number of individuals involved in criminal activity	Not exactly, but there is data on serious infringements: in 2006, 9,600 serious infringements were recorded, about 22% of which related to unauthorised fishing (COM [2006] 387 final).	
Relationship to organised crime (if any)?	None mentioned		
Qualitative impacts	**To environment**	Section describing environmental costs, such as depleted stocks, size-related impacts, ecological impacts, extinctions, location or time specific environmental impacts.	
	Social	Section describing social costs, including reduced employment, community impacts.	
	Economic	Section describing economic costs, including reduced profits, data quality, distorted markets, reduced access to fisheries markets, tourisms impacts, credibility issues in international negotiations.	
Quantitative impacts	**To environment**	Impact of IUU fishing on stocks of target species (tonnes) estimated for the large marine ecosystems and MS.	
	Social	Costs of IUU fishing in terms of reduced employment in the fishing and processing Industries (number of jobs lost) estimated for the large marine ecosystems and MS.	
	Economic		

Monetary impacts	**To environment**		
	Social		
	Economic	Costs of IUU fishing in terms of reduced value of fish landed (million euros) estimated for the large marine ecosystems and MS.	
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	**IUU Fishing on the High Seas:** **Impacts on Ecosystems and Future Science Needs**		
Where is the data source? Link if available?	http://www.marinemegafauna.org/wp-content/uploads/2013/02/IUU-Fishing.pdf		
Method used for data collection	Literature review, estimates calculated using estimated levels of IUU, and estimated levels of damage to ecosystems in studied legitimate fisheries (eg rate of seabird bycatch), and extrapolating from there.		
Geographic scope of data (country coverage), including if transboundary	The high seas. This comprises fisheries for tuna, tuna-like species and other large pelagics (e.g. swordfish), fisheries for shark, squid, and for groundfish (e.g. toothfish, cod, redfish, roughy and alfonsino). Spain has distant water fishing fleets that fish in these areas, though the report does not list it as a flag state engaged in IUU fishing.		
Temporal coverage of data (start and end date)			
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	There are estimates for different fish species on levels of IUU catches, expressed as a percentage of their total catch, and in terms of annual value ($m)	
	Number of individuals involved in criminal activity	No indication of number of vessels involved, but flag states involved are provided, and number of times a state is listed on an RFMO black list (Table	

		3), also number of incidences.	
Relationship to organised crime (if any)?	Mention of involvement of organised crime in the case of high value fisheries resources (abalone, sturgeon, potentially toothfish).		
Qualitative impacts	**To environment**	Impacts on cetaceans are discussed, incidences are reported. More likely to occur in EEZ than high seas. Also anecdotal information on impacts on habitats such as corals. Qualitative data on impacts of high seas IUU on EEZs, eg straddling fish stocks, highly migratory fish stocks, EEZ fisheries.	
	Social		
	Economic		
Quantitative impacts	**To environment**	Includes estimates of seabird bycatch for IUU operations in Southern Ocean (Table 6) expressed as birds per year. Also includes figures for Sea turtle bycatch-catch (B/C) ratios for selected pelagic longline fisheries (Table 8).	
	Social		
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic		
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	**Impact of turbot fishery on cetaceans in the Romanian Black Sea area**		
Where is the data source? Link if available?	http://www.icm.csic.es/scimar/index.php/secId/7/IdArt/4253/		
Method used for data collection	Field observations		
Geographic scope of data (country coverage), including if transboundary	Romanian Black Sea		
Temporal coverage of data (start and end date)	2002-2011		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	No data	
	Number of individuals involved in criminal activity	No data	
Relationship to organised crime (if any)?	no		
Qualitative impacts	**To environment**		
	Social		
	Economic		
Quantitative impacts	**To environment**	Assessment of total number of dolphins caught as bycatch by fraudulent and unauthorised fishing was 29 (following an incident of illegal fishing). Includes numbers of cetaceans caught incidentally by Turkish fishermen in Romanian waters.	

	Social		
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic		
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	**Driftnet fishing and biodiversity conservation: the case study of the large-scale Moroccan driftnet fleet operating in the Alboran Sea (SW Mediterranean)**		
Where is the data source? Link if available?	http://www.sciencedirect.com/science/article/pii/S0006320704001673		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	SW Mediterranean		
Temporal coverage of data (start and end date)	2002-2003		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**		
	Number of individuals involved in criminal activity	177 illegal driftnetters	
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**		
	Social		
	Economic		
Quantitative impacts	**To environment**	A total of 237 dolphins (short-beaked	

		common dolphin, *Delphinus delphis*, and striped dolphin, *Stenella coeruleoalba*), 498 blue sharks (*Prionace glauca*), 542 shortfin makos (*Isurus oxyrinchus*) and 464 thresher sharks (*Alopias vulpinus*) were killed by the boats monitored during the sampling period, during the peak of the swordfish fishery, along with 2990 swordfish. Loggerhead turtle (*Caretta caretta*) was also caught (46 individuals). Estimates for a 12-month period by the whole driftnet fleet yielded 3110–4184 dolphins (both species) and 20,262–25,610 pelagic sharks distributed in roughly equal proportions for *P. glauca*, *I. oxyrinchus* and *A. vulpinus*, in the Alboran Sea alone; further 11,589–15,127 dolphins and 62,393–92,601 sharks would be killed annually around the Straits of Gibraltar.	
	Social		
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic		
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal, Unreported and Unregulated Fishing (for sharks specifically)		
Title of information/data source	**Illegal, unreported and unregulated shark catch:** ***A review of current knowledge and action***		
Where is the data source? Link if available?	http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&cad=rja&uact=8&ved=0CC0QFjAA&url=http%3A%2F%2Fwww.traffic.org%2Fspecies-reports%2Ftraffic_species_fish30.pdf&ei=jtV5U5T_A4Hb0QXCp4CQDg&usg=AFQjCNGuNB_ideoOlcqXErF28Fot1jHKZQ&sig2=xkCZsQ9oYPsPolm1v4GxmQ		
Method used for data collection	Literature review		
Geographic scope of data (country coverage), including if transboundary	Global coverage (Spain and France included as shark fishing nations).		
Temporal coverage of data (start and end date)	Post 2000		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	Rates risk to main shark species traded from IUU fishing (Table 1).	
	Social		
	Economic		
Quantitative impacts	**To environment**		

	Social		
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic		
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	**Some remarks of Illegal, Unreported and Unregulated (IUU) fishing in Turkish part of the Black Sea**		
Where is the data source? Link if available?	http://www.blackmeditjournal.org/pdf/256-267%20Vol19No2Bayram.pdf		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	Mainly refers to Turkish waters in Black Sea, but does refer to illegal fishing by Turkish fishermen in other waters (potentially Romanian and Bulgarian waters).		
Temporal coverage of data (start and end date)			
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	In Bulgaria, seven cases were reported between 1997 and 2008 for illegal fishing for turbot. In Romania, eight Turkish fishing boats were detected between 2007 and 2011. Since the 1990's, several Turkish fishermen were arrested, boats detained and fines charged by the Romanian authorities. IUU fishing activities are decreasing due to more stringent measures for	

		control and cooperation with other riparian states beyond EEZ	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	IUU fishing is undoubtedly one of the reasons for the over-exploitation of the fishing resources in the Turkish part of the Black Sea; Illegal sea snail and clam dredging make destructive effects on the soft bottom communities and siltation on macro and meiobenthos. Bycatch of the non-target species is one of the serious problems due to IUU fishing; ghost fishing is also a problem linked to IUU fishing	
	Social	Reports of illegal fishermen being wounded or killed after being found. Unfair competition for fishermen who practice fishing legally; legal, social and political problems, when fishermen abandon their nets to seas and try to escape at the sight of patrolling coast guards or other relevant authorities.	
	Economic	loss of sales tax; loss of income due to loss of fish; economic costs of ghost fishing (eg to maritime transport or required beach cleaning).	

Quantitative impacts	**To environment**	References several sources providing figures for bycatch of cetaceans in Black Sea, some from IUU. (p. 262)	
	Social		
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic	Over 1 million USD was paid to detaining states as fines during the last 20 years (since 1992).	
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	**POLAND'S FISHERIES CATCHES IN THE BALTIC SEA (1950-2007)**		
Where is the data source? Link if available?	http://epub.sub.uni-hamburg.de/epub/volltexte/2011/11871/pdf/BalticSea_FCRR_181.pdf#page=169		
Method used for data collection	They used ICES landing statistics (i.e. reported landings) and ICES stock assessment working group data, unreported landings, discards and recreational catches		
Geographic scope of data (country coverage), including if transboundary	Poland, Baltic Sea.		
Temporal coverage of data (start and end date)	1950-2007		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	IUU catches including adjustments, unreported landings, discarded and recreational catches totalled an estimated 2.5 million tonnes over the period of study (1950-2007). This estimate is broken down by different	

		fish species (table 10).	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**		
	Social		
	Economic		
Quantitative impacts	**To environment**		
	Social		
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic		
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	A report on IUU fishing of Baltic Sea cod		
Where is the data source? Link if available?	http://www.fishsec.org/downloads/1198235739_21059.pdf		
Method used for data collection	Literature, consultation		
Geographic scope of data (country coverage), including if transboundary			
Temporal coverage of data (start and end date)			
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area**	Refers to WWF report that was not published that reports a discrepancy in	

	affected)	export figures equivalent to 49,000 tonnes of whole cod. In the course of interviews, the majority of participants who were willing to estimate the likely quantities of unreported landings suggested that 45–60% more cod was landed than reported	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**		
	Social		
	Economic		
Quantitative impacts	**To environment**		
	Social		
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic		
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	transnational organized crime in the fishing industry: human trafficking for forced labour and other forms of exploitation onboard fishing vessels; IUU fishing; smuggling of migrants; drug trafficking.		
Title of information/data source	TRANSNATIONAL ORGANIZED CRIME IN THE FISHING INDUSTRY		
Where is the data source? Link if available?	http://www.unodc.org/documents/human-trafficking/Issue_Paper_-_TOC_in_the_Fishing_Industry.pdf		
Method used for data collection	Literature review, media reports, and consultations with more than eighty representatives from the fishing industry, governmental agencies, United		

	Nations agencies, IGOs and NGOs, academic research institutions, and the investigative press.		
Geographic scope of data (country coverage), including if transboundary	global		
Temporal coverage of data (start and end date)	Variable		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	The number of migrant workers in the United Kingdom and Irish fishing industry is believed to be considerable - ITF estimates that one thousand Filipino migrant workers are employed by the Scottish fishing industry alone. According to ITF, Indonesian and Filipino seafarers are subject to excessive work hours without overtime pay, unsafe working conditions which may have been the cause of several deaths, salaries of about a fifth of the local minimum wages. In Europe reports are made of victims sourced in Eastern Europe/Central Asia who are trafficked into the North Asian and European fishing industry both for the purpose of capture fisheries and fish processing.	human trafficking in the European fishing industry, both in capture fisheries and fish processing, is largely underexplored.
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?	Focuses on organised crime.		
Qualitative impacts	**To environment**		
	Social	crews on board vessels engaged in marine living resource crimes are more	

		at risk of human trafficking; Vessels are more likely to be old, badly maintained and therefore unsafe and unhygienic.	
	Economic	(Re. marine living resources crimes) 'Besides loss of profits, States also lose revenue and income they would otherwise have gained through taxes, duties, and economic growth through legitimate investments and employment. The trade in illegally captured, harvested or farmed marine living resources disrupts the market and may lower the price of legal commodities to the detriment of legitimate fishers and farmers.'	
Quantitative impacts	**To environment**		
	Social		
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic		
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	**Does fisheries management incentivize non-compliance? Estimated misreporting in the Swedish Baltic Sea pelagic fishery based on commercial fishing effort**		
Where is the data source? Link if available?	http://icesjms.oxfordjournals.org/content/early/2014/03/21/icesjms.fsu036.abstract		

	(no open access)		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	Swedish pelagic fishery		
Temporal coverage of data (start and end date)	1996-2009		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	systematic misreporting of species composition has taken place over the whole study period	
	Social	Due to misreporting stock assessment accuracy has been compromised	
	Economic		
Quantitative impacts	**To environment**		
	Social		
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic		
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	The continued flouting of EU law by the Italian government in its driftnet fishery		
Where is the data source? Link if available?	http://www.rspca.org.uk/servlet/Satellite?blobcol=urlblob&blobheader=application%2Fpdf&blobkey=id&blobtable=RSPCABlob&blobwhere=1172248234275&ssbinary=true		
Method used for data collection	Monitoring operation, photo identification surveys		
Geographic scope of data (country coverage), including if transboundary	Italy		
Temporal coverage of data (start and end date)	2002-2006		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Some figures provided on the number of different types of driftnets still in operation.	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	Waters around Ischia are important ranges for five cetacean species including endangered sperm whale and short beaked common dolphins. Illegal fishing overlaps with cetaceans habitat, increasing risk of bycatch.	
	Social		
	Economic		
Quantitative impacts	**To environment**	- 2004: 8 illegal landings of swordfish (237 fish) and 73 tuna; 2 cases of sperm whales caught in driftnets; - 2005: 127 swordfish and several tuna and sunfish; 2 dead striped dolphins;	
	Social		

	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic		
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	Barents Sea Fisheries – the IUU Struggle		
Where is the data source? Link if available?	http://site.uit.no/arcticreview/files/2012/11/AR2010-2_Stokke.pdf		
Method used for data collection	Literature review, refers to one source that produced an estimate from Russian logbooks, port-delivery reports and international trade statistics		
Geographic scope of data (country coverage), including if transboundary	Arctic Ocean, Northeast Arctic cod fishery (exploited by Norwegian, Russian and EU fleets).		
Temporal coverage of data (start and end date)	1990 - 2005		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	During the 2000s, illegal harvesting of Northeast Arctic cod reached very high levels, accounting in some years for 20 to 25 per cent of total catches. Unregulated fishing of cod in the 'Loophole', a high-seas area located between the Norwegian and Russian EEZs, in the 1990's amounted to no more than a third of the *increase* in total quotas from the preceding year (more of a nuisance than a sustainability threat). The ICES estimates that total unreported catches of Northeast Arctic cod in this second	Should not be extrapolated beyond mid 2000's since regime changes have led to a reduced extent of crime.

		wave of quota overfishing ranged from 90 thousand tonnes in 2002 to more than 160 thousand tonnes in 2005.	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?	evidence links large-scale overfishing in the region to such other unlawful activities as illegal trade in drugs or weapons and human trafficking		
Qualitative impacts	**To environment**	The high level of quota overfishing in the 2000s jeopardized the ecosystem.	
	Social	A high level of quota overfishing jeopardizes the legitimacy of regional management measures, and promotes corrupt practices in fish production and distribution.	
	Economic	Shift of wealth from legal to illegal fishers.	
Quantitative impacts	**To environment**	ICES estimates that unreported catches of this stock in the early 1990s rose to 130 thousand tonnes in 1992 – more than a third of that year's total cod quota.	
	Social	Norwegian scientists estimate that without illegal fishing, the 2007 quota advice for Northeast Arctic cod would have been 85 per cent higher than the actual case	
	Economic		
Monetary impacts	**To environment**		
	Social		
	Economic		
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal, Unreported and Unregulated Fishing		
Title of information/data source	illegal fishing in arctic waters		
Where is the data source? Link if available?	http://awsassets.panda.org/downloads/iuu_report_version_1_3_30apr08.pdf		
Method used for data collection	Literature review		
Geographic scope of data (country coverage), including if transboundary	Arctic Ocean		
Temporal coverage of data (start and end date)			
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	Provides example cases of IUU fishing in the Barents Sea and Russian Far East. 2007 Norwegian estimates made on behalf of the Norwegian Auditing General set the volume of IUU landings from Norwegian vessels at between 3-10 per cent of TAC: illegal landings between 7,000-22,000 tonnes in 2005. Russian authorities have estimated overfishing of Russian quotas at maximum 20,000-26,000 tonnes for 2005	Isolated examples that cannot be aggregated
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	High levels of illegal fishing pose significant threats to the fishery, the	

		marine ecosystem, fishing communities and food supply. IUU fishing creates unnecessary additional stress on fish stocks already facing growing pressure from the effects of climate change.	
	Social	Since reliable catch data is a key element in stock assessments, high levels of IUU fishing will lead to uncertainty of stock size, age structure and other important data	
	Economic		
Quantitative impacts	**To environment**	Overfishing of Russian quotas with 101,300 tonnes. Third country cod catches in the Barents Sea in 2005 are estimated to between 59,000 tonnes and 66,000 tonnes, as compared to a reported catch of 57,200 tonnes.	
	Social		
	Economic		
Monetary impacts	**To environment**	This estimated overfishing of legal Russian TAC of almost 50 per cent would have a monetary value of €225 million (US$350 million).	
	Social		
	Economic		
Other issues/comments			

6. CITES

Table 1: Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Trade in CITES listed species		
Title of information/data source	**CITES Trade Database**		
Where is the data source? Link if available?	http://www.unep-wcmc-apps.org/citestrade/expert_accord.cfm?CFID=50373713&CFTOKEN=82136667		
Method used for data collection	• The CITES Trade Database is managed by UNEP-WCMC (United Nations Environmental Program and the World Conservation Monitoring Centre). • Data is provided by Signatories in their annual reports, as mandated in the legal text of the Convention. The trade data is self-reported based on import and export permits and certificates.		
Geographic scope of data (country coverage), including if transboundary	Global: Trade data is maintained for signatories of the Convention for which there are 180 Parties.		
Temporal coverage of data (start and end date)	1975-2013		
Extent of environmental crime	The database allows for granular searching such as choosing specific animal parts (claws, skin, teeth) or the finished product (jewelry, chess sets from ivory).		
Relationship to organised crime (if any)?	"Checks and balances" system of seizure data highlights what states are not reporting seizures accurately which could indicate hot spots of organised crime.		
Qualitative impacts	**To environment**		
	Social	It allows the user to see geographical routes/trends of trade of a particular species using import/export data which could be used to understand social/cultural aspects	

		of the demand market.	
	Economic		
Quantitative impacts	**To environment**	Allows search for quantities in trade and data on specific CITES Appendix-listed species.	Illegal trade appears legal in the trade database: Animals are exported under the pretense that they were born in captivity which would mean they were legally traded in terms of CITES, but often the animals were wild caught. Fraudulent permits create fraudulent trade data. See Chimp Case with China.[1]
	Social		
	Economic	Allows search for volume of trade and data on specific CITES Appendix-listed species, its possible to gauge the worth of the legal trade.	Discrepancies in reporting between states.

[1] For more information on the Chimpanzee example see: http://newswatch.nationalgeographic.com/2014/03/16/cites-and-the-illegal-trade-in-wildlife/

Other issues/comments	• Trade statistics are often published 2-3 years after they occur and noted discrepancies at that point are then too late to effectively enforce. • Some noted stated by CITES itself include: - Many annual reports do not clearly state whether the data were derived from the actual number of specimens traded or from the quantity for which the permits or certificates were issued (often considerably different); - Information on seized or confiscated specimens is often absent or provided in insufficient detail; - Information on the source of the material, e.g. wild-caught or bred in captivity, and the purpose of the trade, e.g. for commercial or non-commercial purposes, is sometimes lacking or used in a different way by trading partner countries; and - Non-standard terms are often used to describe the articles/commodities in trade.[2] • CITES Trade Database Interpretation Guide: http://www.cites.org/sites/default/files/common/resources/TradeDatabaseGuide.pdf		
Table 2: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Legal trade in commodities.		
Title of	United Nations Commodities Index/UN Statistics Division (COMtrade)		

[22] For Example: CITES states the problems with its reporting, and explains that records often do not match because of inconsistent reporting by importing and exporting countries. For example, Botswana recorded that 500 belly skins from the Nile crocodile left Botswana, but the importing country, Japan on listed the items as skins. According to CITES, both reporting styles are correct but the items won´t correlate in the database. Further complicating the matter is the fact that products and be re-exported and re-imported.

information/data source	FAOSTAT		
Where is the data source? Link if available?	UNCOM: http://comtrade.un.org/ FAOSTAT: http://faostat.fao.org/		
Method used for data collection	Self reported data by countries		
Geographic scope of data (country coverage), including if transboundary	Global		
Temporal coverage of data (start and end date)	1963-Present		
Extent of environmental crime			
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**		
	Social		
	Economic		
Quantitative impacts	**To environment**	Contains information on whole animals (mostly traded alive, e.g. primates, caged birds, ornamental fish) as well as parts of animals (e.g. skins, hides, pearls, corals).	More useful for estimating monetary aspects of trade than environmental because units of measurement are too vague.
	Social		
	Economic	This data should indicate total volume of trade in wildlife	Estimates of legal trade only. FAOSTAT and UNCOM use the Harmonized Commodity Description and Coding System.

Other issues/comments	Some reports use the value of legal trade to estimate the monetary value of illegal trade by assuming a certain ratio. However, the Coalition on Wildlife Trafficking states that these estimates have a broad range anywhere between 25 to 70% of legal trade. The Global Financial Integrity Report (cited by WWF) on Transnational Crime estimates that illegal trade is 1/3 of legal trade. These ratios are problematic. In some species, such as caviar, the estimated illegal trade is actually significantly more than the legal trade.		
Table 3: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Trade in CITES listed species		
Title of information/data source	**The CITES Trade Data Dashboards**		
Where is the data source? Link if available?	http://dashboards.cites.org/about		
Method used for data collection	This dashboard is designed to give an overview of CITES trade data, and it only shows a subset of the over 10 million records found in the CITES trade database.		
Geographic scope of data (country coverage), including if transboundary	Global The Global Dashboard displays global trade trends by taxonomic group; including between countries The national Dashboard displays trade data by country or region		
Temporal coverage of data (start and end date)	1975-Present		
Extent of environmental crime			
Relationship to organised crime (if			

any)?			
Qualitative impacts	**To environment**		
	Social	Provides info such as: Top ten importing countries, top ten exporting countries	
	Economic	Shows trade flows over time. between countries selected by the user, and includes information on re-exports.	The "Trade Volumes Over Time" shows volume data on trading partners.
Quantitative impacts	**To environment**	Shows trade volumes in types of animals over time (e.g. reptiles). Shows top 10 species in trade, top 10 families in trade, trade by source, trade volume over time	Good for visualizing data over long-periods of time. For instance, whether trade in reptiles has increased and at what rate over the last 40 years. Not species specific for quantifying environmental impact but good for visual overview of trends.
	Social		
	Economic	Shows trade volume over time	
Other issues/comments	Provides good graphics.		
Table 4: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Information on the implementation of CITES Convention in Signatory countries.		
Title of information/data source	**CITES Biennial Reports**		
Where is the data source? Link if available?	http://www.cites.org/eng/resources/reports/biennial.php		
Method used for data collection	Parties´ national reports: self-assessment regarding parties' implementation of the Convention, including their progress in the development and application of laws and regulations, administrative procedures, economic and social incentives and wildlife trade policies. Dependent on self-reported data, which are highly variable from country to country.		
Geographic scope of data (country	Reports focus on the national level but implicate other countries in the reporting profess.		

coverage), including if transboundary			
Temporal coverage of data (start and end date)	The submission of Biennial Reports by Signatories was mandated at 13th meeting of the COP to CITES in Oct 2004 2003/04; 2005/06; 2007/08; 2009/10; 2011/12 (but not all countries have handed in their biennial reports so there is considerable variation from country to country on information available)		
Extent of environmental crime	**Numbers of instances of the crime or other measure of scale (e.g. area affected)**	May contain summaries of national compliance and enforcement efforts (e.g. awareness raising, monitoring, inspections, # of investigations, # of seizures, # of confiscations, # of prosecutions, # of convictions, # of penalties, # of court decisions, etc)	Information on seizures, fines, court proceedings, etc., useful for making comparisons of potential profit of trade versus fines.
	Number of Individuals involved in criminality	Yes, information presented in case by case basis.	Impression that Biennial reports focus on significant cases and may overlook accumulative cases.
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	Indicates the type of wildlife trade that is pertinent to a specific country.	
	Social		
	Economic		
Quantitative impacts	**To environment**		
	Social		
	Economic	Presents information on fines and penalties that could be interesting to compare to value of the trade in a specific country.	
Other issues/comments	Biennial reports do not provide comprehensive data, but instead give an overall impression of a country's implementation of the CITES Convention. Reporting is highly variable with some countries failing to submit reports at all.		
Table 5: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of	Species population		

environmental crime			
Title of information/data source	**Species+** is a website that provides the current listing of species in the multilateral environmental agreements (MEAs) (CITES), their taxonomy, distribution and common names, as well as the trade restrictions that affect them.		
Where is the data source? Link if available?	http://www.speciesplus.net/		
Method used for data collection	**Species+** replaces three databases: the UNEP-WCMC Species Database , the CITES Species Database , and the EU Wildlife Trade Regulations Database. In 2013, UNEP-WCMC, in partnership with the CITES Secretariat and with additional support from UNEP, has brought the various data-holdings together into one, comprehensive data portal to assist Parties to implement biodiversity MEAs.		
Geographic scope of data (country coverage), including if transboundary	Global (as it relates to the species)		
Temporal coverage of data (start and end date)			
Extent of environmental crime			
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	Provides the legal information on specific species: details of quotas and suspensions, as well, as any past or present EU annexes or decisions that affect a certain species	Provides historical legal information.
	Social		
	Economic		
Quantitative	**To environment**	Provides geographic distribution at the country and	Not specific enough to be helpful-no time gradient. Very

impacts		territory level (e.g. extinct, introduced)	basic information.
	Social		
	Economic		
Other issues/comments	• Similar to IUCN RedList Database but less detailed. Species+ was developed as one of the three CITES databases (Species+, CITES Data Dashboards, CITES Trade Database) • Compatible for Internet Explorer 8,9,10, Firefox, Safari and Google Crome. • Does not distinguish what the "Action" is that results in decreasing or increasing species populations. For example, the overall population of the white rhino could be decreasing because of a combination of factors that include wildlife crime, habitat fragmentation and loss, and climate change. The database would not be able to distinguish to what extent each of these were causes of decline.		
Table 6: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Data on species population and rate of extinction		
Title of information/data source	**IUCN Red List**		
Where is the data source? Link if available?	http://www.iucnredlist.org		
Method used for data collection	The majority of assessments appearing on the IUCN Red List are carried out by members of the IUCN Species Survival Commission (SSC), appointed Red List Authorities (RLAs), Red List Partners, or participants of IUCN-led assessment projects. However, assessments can be done by anyone and submitted to IUCN for consideration. Major species assessors include BirdLife International, the Institute of Zoology (the research division of the Zoological Society of London), the World Conservation Monitoring Centre, and many Specialist Groups within the IUCN Species Survival Commission (SSC). Collectively, assessments by these organizations and groups account for nearly half the species on the Red List. The IUCN aims to have the category of every species re-evaluated every five years if possible, or at least every ten years. This is done in a peer reviewed manner through IUCN Species Survival Commission (SSC) Specialist Groups, which are Red List Authorities responsible for a species, group of species or specific geographic area, or in the case of BirdLife International		
Geographic scope of data (country	Global		

coverage), including if transboundary			
Temporal coverage of data (start and end date)	Started in 1964. The Red List is updated every two years, and increasingly is updated annually.		
Extent of environmental crime			
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	Info on Populations, trends over time, geographic range, habitat needs	User must be familiar with correct taxonomy of the species otherwise data is difficult to decipher
	Social		
	Economic		
Quantitative impacts	**To environment**	Provides population numbers of species alive in the wild in their native range, using spatial data	Categories are accumulative; if a species is listed as critically endangered it is also listed as vulnerable and endangered.
	Social		
	Economic		
Other issues/comments			

Table 7: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Seizures (Smuggling, trading, illegal import and export)		
Title of information/data source	**EU TWIX Database**		

Where is the data source? Link if available?	http://www.eutwix.org/
Method used for data collection	Hosts centralised information on wildlife trade seizures reported by the EU Member States, as well as information on forensics institutes, rescue centres and wildlife trade experts.
Geographic scope of data (country coverage), including if transboundary	European but relevant to trade partners which could be outside of the EU.
Temporal coverage of data (start and end date)	
Extent of environmental crime	The main section of the database is designed to become a unique source of centralised data on seizures and offences reported by all 28 EU Member States. Additionally, it has a section with information on technical, scientific, economic and other fields to help with the identification, valuation, disposal, etc. of seized or confiscated specimens. The purposes of EU-TWIX are to assist with strategic analyses and with carrying out field investigations
Relationship to organised crime (if any)?	Seizures of stockpiles of illegally traded wildlife can be used as an indication of organized crime.
Other issues/comments	• NO ACCESS! • Co-funded by the European Commission, the Belgian Federal Police, Customs and CITES Management Authority together with TRAFFIC Europe developed the internet based EU-TWIX to which the access is granted exclusively to officials designated by the 25 Member States. • The success of EU-TWIX largely depends on the regular input of information relating to new seizures and offences by national law enforcement agencies. The contribution of all designated enforcement officers in each EU Member State is therefore essential to increase significantly the efficiency of this tool in a short-term period.

Species Specific Databases			
Table 8: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**

Type of environmental crime	Trade in Ivory		
Title of information/data source	**Elephant Trade Information System (ETIS):** a global monitoring system for tracking illegal ivory trade.		
Where is the data source? Link if available?	http://www.cites.org/eng/prog/etis/index.shtml		
Method used for data collection	ETIS contains records of reported elephant product seizures. Countries submit information. Managed by TRAFFIC on behalf of Parties to CITES.		
Geographic scope of data (country coverage), including if transboundary	Global		
Temporal coverage of data (start and end date)	Records of reported ivory seizures starting from 1989.		
Extent of environmental crime	It includes information on the year in which the seizure was made, the country that made the seizure, the quantity of raw ivory in kg or number of pieces, the quantity of worked ivory in km or number of pieces.		
Relationship to organised crime (if any)?	Use of the same smuggling networks for smuggling arms, drugs and wildlife; laundering of drug money through the wildlife trade; growing involvement of organised crime syndicates in ivory trade		
Qualitative impacts	**To environment**		
	Social	Frequency of large-scale ivory transactions indicates a significant increase in raw ivory supply. (organised crime)	

		Increase in "worked ivory" indicates increase in end-use demand.	
	Economic	Use of the same smuggling networks for smuggling arms, drugs and wildlife; laundering of drug money through the wildlife trade; growing involvement of organised crime syndicates in ivory trade	
Quantitative impacts	**To environment**	Elephant population decline: indicated by increase in ivory transactions in both raw and worked ivory. Measures by weight indicates more specifically the number of elephants/extent of the trade. Data from ETIS shows, a gradual increase in illegal ivory trade activity since 1989, becoming progressively greater in each successive year, with a major surge in 2011.	Compatible with CITES Trade Database
	Social	High Market Score: indicates which countries have strong domestic ivory markets.	
	Economic	The number of seizures could help gauge the amount of ivory on the illegal market and thus estimate the net worth of the ivory trade.	Seizures only indicate what is caught by police and does not provide information for the unknown amount of illegal trade that occurs without ever being brought to the attention of the authorities.
Other issues/comments	Reliant on country self-reported data. Although "checks and balance" system of countries helps. Some countries may report little to 0 seizures but may be implicated in the reports by other countries, thereby, giving an indication of which countries are heavily involved in illegal trade.		

Table 9: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Monitoring the Illegal Killing of Elephants (MIKE): ILLEGAL POACHING		
Title of information/data source	Monitoring the Illegal Killing of Elephants (MIKE) Objective: Resolution Conf. 10.10 (Rev. CoP16) states that the system known as MIKE, established under the supervision of the Standing Committee, shall continue and be expanded with the following objectives: i) measuring and recording levels and trends, and changes in levels and trends, of illegal elephant killing and trade in ivory and other elephant specimens in elephant range States, ivory consumer States and ivory transit States;		

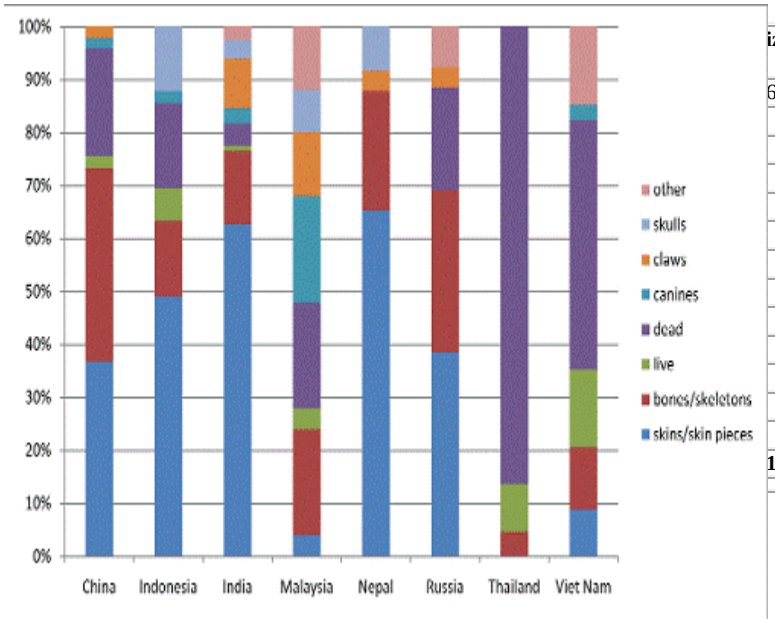
	ii) assessing whether and to what extent observed trends are related to: measures concerning elephants and trade in elephant specimens taken under the auspices of CITES; changes in the listing of elephant populations in the CITES Appendices; or the conduct of legal international trade in ivory;		
Where is the data source? Link if available?	http://www.cites.org/eng/prog/mike/index.php		
Method used for data collection	For specific information consult the: MIKE DATA ANALYSIS STRATEGY Produces carcass encounter data reported mainly by anti-poaching patrols. Data Collection covers: 1) elephant population data/trends 2) incidence and patterns of illegal hunting 3)measuring the effort and resources employed in detection and prevention of illegal hunting and trade. The methodology of site selection was aimed at providing a representative sample of sites based on a combination of various factors: a)forest vs. savannah; b) relative size of elephant populations; c) protection status of site; d) historical incidence of illegal killing; e) ivory trade situation; f) incidence of civil strife and military conflict; g) level of law enforcement; and h) CITES Appendix status. Ground-based data collection for recording information on carcasses and illegal activities (ground patrols, anti-poaching patrols etc). Desk-based collation of direct and indirect sources of information about the socio-economical and socio-political context, incidence of illegal activities and conservation & protection effort at each site.		
Geographic scope of data (country coverage), including if transboundary	A minimum of 45 sites in 27 range States have been initially selected in Africa and 15 sites in 11 range States in Asia.		
Temporal coverage of data (start and end date)	2002-Present		
Extent of environmental crime			
Relationship to organised crime (if any)?	Use of the same smuggling networks for smuggling arms, drugs and wildlife; laundering of drug money through the wildlife trade; growing involvement of organised crime syndicates in ivory trade		
Qualitative	**To environment**	• elephant population data/trends	Measuring the effort and resources employed in detection and

impacts		• incidence and patterns of illegal hunting	prevention of illegal hunting and trade.
	Social	-Extent of community involvement in conservation -Presence or recent cessation of civil strife near or in site -Increasing levels of human activity or trade in other illicit commodities (e.g. diamonds)	Measure of protection and law enforcement effort in terms of budget, staffing, vehicles, equipment and staff in field
	Economic	Measure of protection and law enforcement effort in terms of budget, staffing, vehicles, equipment and staff in field	
Quantitative impacts	**To environment**	-Elephant population (numbers and trends) -Mortality rates (natural and illegal killing) -#of poaching camps found within a site	
	Social	-Human infant mortality in and around MIKE sites, which is used as a proxy for poverty at the site level, is the single strongest site-level correlate of PIKE, with sites suffering from higher levels of poverty experiencing higher levels of elephant poaching.	
	Economic		
Other issues/comments			

Table 10: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal trade in tiger and tiger parts		
Title of information/data source	**Tiger Tracker:** The map plots data of seizures of tigers and tiger parts and products in Asia. In future it will show poaching incidents and market observations data internationally as that data is compiled and validated. Developed by: **TRAFFIC/WWF Wildlife Trade Tracker** an interactive online mapping tool that represents global wildlife trade data on a google maps platform. System to map trade data, flows, volumes, types.		
Where is the data source? Link if available?	http://wildlifetradetracker.org		
Method used for	The data were compiled from various sources, including: the Governments of India, Thailand, Bangladesh and Myanmar; WWF Nepal and WWF-US; TRAFFIC		

data collection	offices in India, China, the Russian Far East and South-east Asia; MYCAT Malaysia; WCS Indonesia Programme and open sources such as the Internet and other media. Analysis of seizure data: For each seizure, estimates were made of the minimum and maximum number of Tigers involved.		
Geographic scope of data (country coverage), including if transboundary	Tiger Tracker: Only information from Tiger range countries are included. Seizures are incomplete for some of these countries, and no data were recorded from Cambodia or Bhutan. (TRAFFIC is updating the seizures included in the Tiger tracker and will begin compiling data on seizures outside the Tiger range countries.)		
Temporal coverage of data (start and end date)	2000-2010		
Extent of environmental crime	Contains information on the # and location of seizures.		
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	• # and location of seizures • Type of item (e.g. live tigers or bones/canines)	The numbers of seizures do not necessarily reflect the levels of trade. Low numbers of seizures could indicate low levels of illegal trade or poor enforcement. Myanmar reported only one seizure over the 10 years, yet frequent market surveys by TRAFFIC indicate that Myanmar is a major trade hub for Tiger trade passing from South and Southeast Asia through Myanmar to China.
	Social	-Indicates what type of item has been seized which could incite a better understanding of consumer demands. (I.E. the comparison between consumer demands for skins or bones)	
	Economic		
Quantitative	**To environment**	Gives some indication of # of tigers or tiger parts	The mapping tool only considers seizures made in range

<table>
<tr><td>impacts</td><td></td><td></td><td>states which does not give a complete picture of the tiger trade and does not make it possible to understand global figures.</td></tr>
<tr><td></td><td>Social</td><td>Gives some indication of whether range states that are home to Tigers are also consumers of Tiger products.</td><td>Global picture remains incomplete because data is not global.</td></tr>
<tr><td></td><td>Economic</td><td></td><td></td></tr>
<tr><td>Other issues/comments</td><td colspan="3">Sources of information vary considerably. For seizures made in India, the source is often from newspapers or media. Some seizures are information provided by governmental authorities. Source is indicated.

Example of information:
 

<table>
<tr><th>izures</th><th>% of seizures</th><th>Min. # Tigers</th><th>Max. #Tigers</th></tr>
<tr><td>6</td><td>57.4</td><td>469</td><td>533</td></tr>
<tr><td></td><td>8.3</td><td>116</td><td>124</td></tr>
<tr><td></td><td>8.1</td><td>113</td><td>130</td></tr>
<tr><td></td><td>7.5</td><td>56</td><td>72</td></tr>
<tr><td></td><td>5.8</td><td>95</td><td>100</td></tr>
<tr><td></td><td>4.4</td><td>67</td><td>67</td></tr>
<tr><td></td><td>3.7</td><td>55</td><td>63</td></tr>
<tr><td></td><td>2.5</td><td>67</td><td>100</td></tr>
<tr><td></td><td>1.7</td><td>28</td><td>28</td></tr>
<tr><td></td><td>0.4</td><td>2</td><td>2</td></tr>
<tr><td></td><td>0.2</td><td>1</td><td>1</td></tr>
<tr><td></td><td>0.0</td><td>0</td><td>0</td></tr>
<tr><td></td><td>0.0</td><td>0</td><td>0</td></tr>
<tr><td>1</td><td></td><td>1069</td><td>1220</td></tr>
</table>
Additional Resources:
Tiger Report: TRAFFIC (2010) "Reduced to skin and bones: An analysis of Tiger seizures from 11 Tiger range countries".</td></tr>
<tr><td colspan="4">Other Approaches to Data Collection</td></tr>
</table>

Table 11: Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal trade of wildlife goods on the black market		
Title of information/data source	**HAVOSCOPE**		
Where is the data source? Link if available?	http://www.havocscope.com		
Method used for data collection	Data listed within Havocscope's website is collected from credible open-source documents such as newspapers, government reports and academic journals. The source for the figure is clearly listed on each data post. This allows users to see where the information has come from, judge the credibility of the source, and pursue further research if necessary. Starting in September 2013, Havocscope has also started to collect User Submitted information. The ability to tap into its user base allows Havocscope to present prices and other first-hand accounts of the global black market. When using User Submitted Data, the information is clearly marked as such. All Havascope's data on the black market is available for free to the public for personal use.		
Geographic scope of data (country coverage), including if transboundary	Global		
Temporal coverage of data (start and end date)			
Extent of environmental crime	Focuses specifically on illegal trade.		
Relationship to organised crime			

(if any)?			
Qualitative impacts	**To environment**		
	Social		
	Economic		
Quantitative impacts	**To environment**	Provides information of number of species killed in a specific year, for example, in 2013 1,004 Rhinos were illegally killed.	By using this "death rate" data, comparisons with birth/reproduction rates could be gauged to estimate rate of extinction.
	Social		
	Economic	Also indicates black market prices for goods. By collecting newspaper sources, etc., provides overview of specific crimes. E.g. in 2013 in Zimbabwe poachers put cyanide in water holes. Once the elephants died they were able to sell tusks for $482 (4,750 South African Rand) to cross-border traders in Zimbabwe, then the tusks are smuggled to South Africa where they are resold for ($1,604 or 815,800 Rand)	Provides some level of traceability not just end consumer market but the price and transport of the goods between countries and people.
Other issues/comments	You can use this source to find literature and studies that measure the cost of illegal wildlife trade. Source is regularly used by Bloomberg Media, the Atlantic, National Geographic and Haken et. al.		

Table 12: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Any kind of wildlife crime		
Title of information/data source	WildLeaks: WildLeaks is a whistleblower platform for Wildlife and Forest Crime		
Where is the data source? Link if available?	https://wildleaks.org/		
Method used for data collection	Everyday citizens can report poaching, wildlife trafficking and illegal logging. Citizens can submit photos, video or documents. Individuals are able to maintain safety by submitting content confidentially or anonymously using TOR software.		

	See Editorial Guidelines: https://wildleaks.org/data-management-and-editorial-policies/		
Geographic scope of data (country coverage), including if transboundary	Global		
Temporal coverage of data (start and end date)	Launched in 2014.		
Extent of environmental crime	Since its open source and designed to be a whistle blowing platform, it might be useful in indicating particular individuals involved in the trade, including criminal organized networks.		
Other issues/comments	Not for Profit: (Funded by Elephant Action League and in collaboration with UK-based EIA, Us based journalist network 100Reporters.		
Table 13: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Trade (Seizure data from items entering the USA)		
Title of information/data source	**LEMIS Tracker**		
Where is the data source? Link if available?	http://wildlifetradetracker.org/?db=lemis		
Method used for data collection	The map plots data and flows of wildlife and wildlife products that were seized or abandoned upon entering the United States. The data are from the U.S. Fish and Wildlife Service Law Enforcement Management Information System called LEMIS.		
Geographic scope of data	USA		

(country coverage), including if transboundary			
Temporal coverage of data (start and end date)			
Extent of environmental crime	The options are to select maps that show trade flows by species, display seizures information by detail based on the country of export or a cross reference of species and source country		
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**		
	Social		
	Economic		
Quantitative impacts	**To environment**		
	Social	**LEMIS:** The source country identifies where the shipment that was seized originated from, making it possible to monitor where populations are most quickly being killed off. Biodiversity indicator.	**LEMIS:** The source only shows the last step in the journey of the item, which may or may not have travelled elsewhere before arriving in the US.
	Economic		
Other issues/comments			

Thematic Issues and Literature Review			
Table 14: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**

Type of environmental crime	Illegal poaching of wildlife and the sale of wildlife parts fuels political instability and civil conflict. Destabilizing agents (e.g. rebel groups) use profits from wildlife trafficking in order to fund military operations. (Focus on Wildlife Crime fueling Civil Conflict)
Title of information/data source	Several reports, case studies, and literature cite specific examples where armed rebel groups are using wildlife trade as a means to fund/continue their military activities.
Where is the data source? Link if available?	'Blood ivory': Brutal Elephant Slaughter Funds African Conflicts (Speigal 2012) Elephants Dying in Epic Frenzy as Ivory Fuels Wars and Profits (New York Times 2012) Africa´s White Gold of Jihad: al-Schabaab and Conflict Ivory (Elephant Action League) Leggett, T. And Dawson J. 2011. Organized Crime and Instability in Central Africa: A Threat Assessment. UNODC, Vienna (p. 17, 81) Ivory and Insecurity: The Global Implications of Poaching in Africa. Washington, DC Global Financial Integrity. 2012. Milliken, T., R.W. Burn and L. Sangalakula. The Elephant Trade Information System and the Illicit Trade in Ivory. COP15, Doc 44.1, CITES, 14 October 2009, p3 Resource Wars and Conflict Ivory: The Impact of Civil Conflict on Elephants in the DRC- The Case of the Okapi Reserve (2011) Conflict Ivory: Elephant Poaching and Ivory Traffic in the Ituri Forest during the Congolese Civil War: 1994-2004 A Collaborative Documentation: ICCN, WCS, MIKE and Gilman International Conservation, US Fish and Wildlife Service (2003)
Method used for data collection	Investigative Journalism; interviews with former poachers; UNODC
Geographic scope of data (country coverage), including if transboundary	Source Countries: Mostly in Africa, specific focus on DRC; transit countries (Kenya Tanzania)
Temporal coverage of data (start and end date)	
Extent of environmental crime	Extent of environmental crime needs to be evaluated on a case-by-case basis. Armed groups operating in govern-less states have the resources at their disposal to do great harm rapidly as the scale of killing is much larger. (E.G Since 2003, Sudan´s Janjaweed militia have slaughtered hundreds of elephants in neighboring Chad's Zakouma National Park, using the money to purchase AK-47s and other arms used in the killing fields of Darfur.)

Relationship to organised crime (if any)?	Yes, Large seizures demonstrate that well resourced and organized groups are consolidating the product of many individual poaching or carrying out mass poaching. In April 2011, two tons of ivory were seized in Thailand, 120 elephants. Also, "anti trafficking" movement of small amounts of ivory by a large number of individuals is evident. (UNODC p92)		
Qualitative impacts	**To environment**	Scale/speed of biodiversity loss is much greater when there is conflict/state instability involved. Armed groups operating in govern-less states have the resources at their disposal to do great harm rapidly as the scale of killing is much larger.	
	Social	-Poaching undertaken by military and rebel groups to fund activities. -Long-term economic instability and migrant populations, mean that damage/looting is done in less organized, decentralized way by populations forced to survive on what they can gather (UNODC 81) -Prone to countries where rule of law is weak and where state does not maintain full control of its territory. E.G. "cease fire zones" are especially vulnerable because rebel groups control these areas.Also, "anti trafficking" movement of small amounts of ivory by a large number of individuals is evident. (UNODC p92)	Evidence is patchy. Testimonies from former rebels (See Resolve and Invisible Children 2013) Wildlife traffickers profit from a state´s weakness in areas of territory control, governance and economic opportunity. In this context it is easy to entice people to become poachers, to operate in territories with little governmental presence, to bribe customs officials in order to facilitate smuggling.
	Economic	Focus is on the impact/structural damage imposed on already weak developing states. Related to long-term poverty, economic instability; common in states experiencing civil conflict, or states without functioning government.	Traffickers have an interest in actively preventing a source country from developing economically or structurally.
Quantitative impacts	**To environment**		
	Social	Loss of human life: rangers/rebel groups DRC: 1996-2004: 105 park rangers killed (source: http://news.bbc.co.uk/2/hi/africa/3667560.stm) -Massive loss of life in situations where wildlife trafficking	

		provides funds that perpetuate and prolong conflict (i.e. Sudan and the janjaweed who kill elephants to buy AK47s)	
	Economic	-Loss of potential tourism revenue (UNODC 81) in source country. -Loss of natural resource base and public goods of country -Perpetuation of conflict and chaos, have untold costs on long-term economic development	-International security threat with implications for global community. EG US State Department and Interpol report that Somali warlords and two Islamic extremist groups in India with ties to Al Qaeda, Harakat ul-Jihad-I-Islami-Bangladesh (Huji-B) and Jamaatul Mujahedin Bangladesh (JMB) sponsor illegal elephant and rhino poaching.
Other issues/comments	Evidence of insurgent groups funding activities from illegal wildlife trade (Terrorism): coordinated violence (Schmid 2008) Organisations that fit this definition, such as Al Qaeda are thought to play some role in wildlife trafficking, receiving money from the black market to fund violent activities (Wyler and Sheikh 2008; Wyatt 2011). Falcon Smuggling: smugglers put in an order, and organized criminal groups in the Middle East connected to Al Qaeda arrange for the order to be filled by employing specialists to capture the birds. Profits from obtaining the falcon USD 100,000 are used to by weapons and support training camps of terrorists (Wyatt 2011)		

Table 15: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Poaching as it relates to lost revenues in wildlife tourism.		
Title of information/data source	1. United Nations World Tourism Organisation (UNWTO) Study on the Economic Value of Wildlife Watching Tourism in Africa (forthcoming) 2. EVRI Database (Literature valuation database) Environmental Valuation Reverence Inventory		
Where is the data source? Link if available?	http://sdt.unwto.org/content/unwto-study-economic-value-wildlife-watching-tourism-africa-0		
Method used for data collection	UNTWO: Desk Research on publications, case studies and other studies; Analysis of available economic data on tourism and wildlife watching tourism; Surveys with tour operators, tourism ministries and tourism agencies, national parks; Exchange of experiences with other organisations EVRI: collection of scientific studies on methodologies and approaches to valuation techniques		
Geographic scope of data (country	Global		

coverage), including if transboundary			
Temporal coverage of data (start and end date)	Not known, study is in process of development.		
Extent of environmental crime			
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	Loss of biodiversity and ecosystem services. Decrease in variety of species, and decrease in specific species. Tourism also provides direct income for nature conservation, if wildlife tourism is no longer viable because the animals no longer exist, the loss of incentives/funds to conserve nature/biodiversity also disappear.	Most studies are case specific.
	Social	Loss of natural/cultural heritage. Tourism is an important source of employment for local rural communities.	
	Economic	Mismanagement of natural resources.	
Quantitative impacts	**To environment**		
	Social	Loss of rural employment opportunities for rural communities	
	Economic	National economies and governments lose significant revenue if the wildlife as a key resource is managed poorly and depleted irreversibly. Wildlife tourism in many African countries is an important	World Travel and Tourism Council (WTTC): Economic Data Search Tool provides information on each country and the % derived from tourism, could be used to gauge value of current and future tourism countries with known wildlife

		source of national income (GDP), as well as, an important provider of jobs, particularly in rural areas. Inadequate natural resource management robs future populations of the potential economic value of their countries resources.	tourism. It also allows you to search what percentage of the population is employed in tourism-related activities. Available at: http://www.wttc.org/research/economic-data-search-tool/
Other issues/comments	• UNWTO is currently conducting a study to assess the importance of wildlife for the development of tourism in Africa, to be presented at the upcoming UNWTO Regional Commission Meeting for Africa (Luanda, Angola, 28-30 April 2014). • World Tourism Organisation provides data the % of employment due to tourism and the % tourism contributes to a country's GDP.		
Table 16: Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Smuggling, trafficking, trading live animals across borders: Wildlife Crime as it relates to Public Health		
Title of information/data source	• Remarks by Hillary Rodham Clinton, U.S. Secretary of State, at Partnership Meeting on Wildlife Trafficking: Available at: http://newswatch.nationalgeographic.com/2012/11/08/u-s-pursues-global-strategy-to-end-trafficking-in-wildlife/ • Jeremy Haken (2011). Transnational Crime in the Developing World, in *Global Financial Integrity* (p23) • Wyler, Lia na Sun and Pervaze A. Sheikh. "International Illegal Trade in Wildlife: Threats to US Policy," Congressional Research Service, February 2, 2009. p12		
Where is the data source? Link if available?	The connection between illicit wildlife trafficking and potential human health impacts is mentioned in some reports, (e.g. Hillary Clinton Speech but is not measurable or recorded in a data source to my knowledge.		
Method used for data collection	Literature and reports		
Geographic scope of data (country coverage), including if transboundary			
Temporal			

coverage of data (start and end date)			
Extent of environmental crime			
Relationship to organised crime (if any)?			
Qualitative impacts	**To environment**	Biodiversity loss and might lead to a faster rate of emergence and re-emergence of infectious diseases, such as Hantavirus, and therefore infect a greater proportion of the human population (Source: TEEB case (2011) Biodiversity decline can increase the spread of infectious diseases. Compiled by Matt F. and R. Gebser mainly based on Keesing et al. 2010. Available at: www.TEEBweb.or)	TEEB may have reports/literature/cases on biodiversity loss and impact on human health, however, this is not directly related back to wildlife crime.
	Social	The Center for Disease Control, 75% of emerging diseases reach humans through animals. Avian Influenza (H5N1), Secure Acute Respiratory Syndrome (SARS), Heartwater Disease and Monkeypox are some examples. The social cost in terms of loss of life, if such diseases reach pandemic levels is extraordinary.	Viruses and diseases have the potential to impact human health, even causing death.
	Economic		The illicit-cross border flow of wildlife severely undermines national health bodies' attempts to protect, monitor and control potentially dangerous species and the associated health threats.
Quantitative impacts	**To environment**		So far, connections between wildlife trafficking and human health remains a potential RISK that is difficult to quantify or measure.
	Social	The social cost in terms of loss of life, if diseases reach	So far, connections between wildlife trafficking and human

		pandemic levels is extreme.	health remains a potential RISK that is difficult to quantify or measure.
	Economic	The economic cost of such diseases if they reach pandemic levels is extreme.	The costs incurred resulting from undermining the efforts and work of Governmental institutions set up to protect, monitor and control international health threats.
Other issues/comments			

Other Thematic Topics: (Note to reader: In the cases where a summary has been included of the literature source, it was directly taken from the Chatham House Report that conducted an extensive literature review available online here: Global Impacts of the Illegal Wildlife Trade)

Wildlife crime as a Public Health Issue

- Jeremy Haken (2011). Transnational Crime in the Developing World, in *Global Financial Integrity* (p23)
- Wyler, Lia na Sun and Pervaze A. Sheikh. "International Illegal Trade in Wildlife: Threats to US Policy," Congressional Research Service, February 2, 2009. p12
- Remarks by Hillary Rodham Clinton, U.S. Secretary of State, at Partnership Meeting on Wildlife Trafficking: Available at: http://newswatch.nationalgeographic.com/2012/11/08/u-s-pursues-global-strategy-to-end-trafficking-in-wildlife/

According to the Government Accountability Office and the Center for Disease Control, 75% of emerging diseases reach humans through animals. The illicit-cross border flow of wildlife severely undermines national health bodies' attempts to monitor potentially dangerous species. Avian Influenza (H5N1), Secure Acute Respiratory Syndrome (SARS), Sweetwater Disease and Monkeypox are some examples.

1

Social and Economic Drivers of Wildlife Crime:

- UNEP (2013). Elephants in the Dust (p41): poaching is exacerbated by poverty and food insecurity. Poachers may be driven by poverty or are exploited by criminal organizations seeking to recruit hunters with knowledge of local terrain. Poverty and inadequate bureaucracy enable criminal groups to corrupt poorly paid enforcement authorities.

- TRAFFIC (2013). What´s Driving the Wildlife Trade? A Review of Expert Opinion on Economic and Social Drivers of the Wildlife Trade and Trade Control Efforts in Cambodia, Indonesia, Lao PDR and Vietnam. (p xiv): Wealth is a stronger driver of illegal and unsustainable wildlife trade in East Asia than poverty due to a growing middle class population that is more affluent.

2

Economic Development in Developing Countries:

Jeremy Haken (2011). Transnational Crime in the Developing World, in *Global Financial Integrity* (p11):

2012 OECD. Illegal Trade in Environmentally Sensitive Goods. The report undertakes three sets of data comparisons A) between customs and licensing schemes, B) between customs data from importing and exporting countries, and C) between licensing system data from importing and exporting countries for selected environmentally sensitive goods, including wildlife, fish, timber, ozone-depleting substances (ODS) and hazardous waste. It examines the extent to which this information can be used to identify and measure illegal trade. It provides an overview of the economic and environmental impacts of such trade.

WWF 2012 (Dalberg Paper). Fighting Illicit Wildlife Crime trafficking: A Consultation with Governments. Estimates that wildlife crime is worth 19 billion USD annually. The report focuses on the socio-economic and political impacts of illegal trafficking, with specific emphasis on wildlife trafficking impact on political stability in source countries. Focus is mainly on African countries.

Civil Conflict and Institutional Weakness:

Literature Review:

- Agger, Kasper and Jonathan Hutson, 'Kony's Ivory: How Elephant Poaching in Congo Helps Support the Lord's Resistance Army', Enough Project (June, 2013)

Summary: Agger and Hutson set out recommendations to local authorities and the international community following reports that the LRA has been sustaining its activities in the DRC through ivory poaching. During a visit to Garamba National Park, the authors documented evidence of LRA poaching operations which are undermining the efforts of African Union (AU) and US-backed Ugandan troops to combat the movement. Recommendations include expanding US advisory programmes to encourage defections from the LRA and improving governance. The report urges further investigation into the role of the LRA in elephant poaching, noting that the United Nations Security Council's 2012 call for the UN and the AU to investigate the LRA's logistical networks and illicit funding has not been observed.

Key words: Armed NSAs, DRC, Garamba National Park, LRA, Ugandan army, AU, US

- Human Security Baseline Assessment for Sudan and South Sudan, 'Lord's Resistance Army', Small Arms Survey,76 Graduate Institute of International Studies, Geneva, Switzerland (March 2013)

- Beyers, Rene L. et al., 'Resource Wars and Conflict Ivory: The Impact of Civil Conflict on Elephants in the Democratic Republic of Congo – The Case of the Okapi Reserve', PLOS ONE, Vol. 6, No. 11 (November 2011)

Summary: Using data from distance sampling surveys collected before and after the 1995–2006 conflict in the DRC, the authors observed changes in elephant abundance and distribution in the Okapi Faunal Reserve, a World Heritage Site in the DRC. The results showed that elephant populations declined by nearly 50 per cent, coinciding with a major increase in poaching. From 1996, militia groups moved into the reserve, to be replaced by Uganda-backed rebels. The Congolese army (FARDC) originally cooperated in Operation Tango, a collaborative effort between the ICCN, the military and NGOs to combat poaching, but was later implicated in the ivory trade. The installation of SPLA forces near the park boundaries following civil war in Sudan also caused an increase in ivory poaching.
Key words: Civil conflict, armed NSAs, Great Lakes, elephant poaching, FARDC, SPLA

- Douglas-Hamilton, Iain, 'Time Running Out to Save Elephants from Ivory Trade', *SWARA Magazine,* Issue 1, January–March 2013

Summary: In this article, Douglas-Hamilton, founder of Save the Elephants, highlights the deepening crisis of the ivory trade in Africa. Militia groups such as the Janjaweed and the LRA are using the dwindling elephant populations of Central Africa to fund their operations. Global Impacts of the Illegal Wildlife Trade Douglas-Hamilton states that the notion of a well-regulated legal ivory trade is 'utopian', given widespread corruption, weak penalties for wildlife crime and a lack of political will to tackle poaching. Many African elephant range states cannot finance national conservation schemes indefinitely. According to the author, the root of the problem lies in excessive demand, which must be tackled through greater engagement by the international community with demand countries.
Key words: Armed NSAs, Janjaweed, LRA, AERS, international engagement

- International Fund for Animal Welfare, 'Criminal Nature: The Global Security Implications of the Illegal Wildlife Trade 2013' (2013)

Summary: An update of IFAW's 2008 report on the same topic (see below), this report goes further into the illegal wildlife trade's links to armed non-state actors and organized crime. The international community has become increasingly aware of this problem, highlighted by then Secretary of State Hillary Clinton's declaration in November 2012 that the illegal wildlife trade posed a national security threat.78 According to the report, Somalia- and Sudan-based militias have hunted elephants in Central Africa, and there have been reports of militants affiliated with Al-Qaeda being involved with the illegal trade in ivory, tiger pelts and rhino horns in India, Nepal, Burma and Thailand.
Key words: International engagement, armed NSAs, Al-Qaeda

- UNODC, 'Organized Crime and Instability in Central Africa: A Threat Assessment' (2010)

Summary: This report states that organized crime, including the exploitation of natural resources nand trafficking of wildlife products in the Great Lakes region, is fuelled by instability, institutional weakness and lawlessness. In eastern DRC, there are an estimated 6,500–13,000 active members of militia groups benefiting from criminal

activity.91 The ivory trade from Central Africa is classed as a transnational organized crime with a clear commercial motive, unlike the bushmeat trade, which rarely crosses international borders. This report argues that much of the elephant poaching in the DRC is conducted by elements of the Congolese army as well as armed non-state actor including Mai Mai rebel groups and the FDLR.
Key words: Great Lakes, ivory trade chain, DRC, Congolese army, Mai Mai rebels, FDLR

Estimates of Economic Value of Wildlife Trade

- WWF International, 'Fighting Illicit Wildlife Trafficking: A Consultation with Governments' (December 2012)

Summary: In this study, WWF and TRAFFIC urge governments to prioritize the issue of wildlife trafficking as a crime with wide-reaching security implications and not just as an environmental issue. The lack of an effective response could potentially lead to economic losses for governments, and is putting national and international security at risk. The blame for the illegal wildlife trade is passed back and forth between wildlife source and consumer countries, and there must be collaboration across the trade chain to promote accountability. Illegal wildlife crime needs to be tackled alongside other transnational crimes, such as illegal trafficking and money-laundering. According to this report, illicit wildlife trafficking (excluding fisheries and timber) is worth between $7.8 billion and $10 billion per year.
Key words: Economic losses to governments, illegal wildlife trade chain, crime crossover

TRANSNATIONAL CRIME AND ORGANISED NETWORKS

- EUROPOL, 'EU Serious and Organized Crime Threat Assessment' (2013)

Summary: In this strategic report, trafficking in endangered species (TES) is highlighted as an area of serious organized crime in the EU. It is a niche market attracting highly specialized organized crime groups, which are innovative in obtaining products – from stealing rhino horn in exhibition halls and museums to theft during auction sales. The perception of low risk and high profitability associated with this crime continues to attract interest from criminal organizations. Crime enablers include the economic downturn, cross-border opportunities and the use of th internet, as well as weak legislation. The report notes that more than 30 per cent of crime groups in the EU are poly-crime organizations, although the crossover potential between TES and other areas such as arms-trafficking are not explored. Convergence between organized criminal groups and terrorist groups is briefly noted as a marginal issue in the EU.
Key words: EU, organized crime groups, crime enables, crime crossover

- EUROPOL, 'Threat Assessment 2013: Environmental Crime in the EU' (November 2013)

Summary: EUROPOL's threat assessment of environmental crime notes that the EU remains one of the most important markets for the trafficking of endangered species (TES), with rhino horn and ivory comprising typical trafficked animal products. The human impact of TES can lead to the loss of state revenues and impoverishment of

rural communities where livelihood options are removed; while corruption associated with wildlife trafficking undermines state institutions and the rule of law. Organized criminal groupings involved in TES in the EU are dominated by EU nationals, who exploit the Schengen Agreement to engage in cross-border transportation of products.
Key words: Trafficking, EU, Schengen, TOC, corruption

- International Fund for Animal Welfare and INTERPOL, 'Project Web: An Investigation into the Ivory Trade over the Internet within the European Union' (February 2013)

Summary: Project Web was an INTERPOL-led information-gathering and analysis campaign that took place in the EU over a period of two weeks. Participating member states conducted surveillance on national auction sites to identify advertisements involving the sale of ivory, and identified 702 advertisements from 83 auction sites. The illegal ivory trade over the internet is stimulated by high profits and the lack of e-commerce-adapted legislation implemented by CITES or the EU.
Key words: EU, internet ivory sales, IWT legislation

7. Protected Areas

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime			
Title of information/data source	World Database on Protected Areas		
Where is the data source? Link if available?	http://www.wdpa.org/ and http://www.protectedplanet.net/		
Method used for data collection	It contains crucial information from national governments, non-governmental organizations, academic institutions, international biodiversity convention secretariats and many others. It is used for ecological gap analysis, environmental impact analysis and is increasingly used for private sector decision-making.		
Geographic scope of data (country coverage), including if transboundary	global		
Temporal coverage of data (start and end date)			
Extent of environmental crime		Provides only spatial information on number and area size of protected areas!	Data provided in the form of a world map and an overlaying shapefile with all the protected areas, one can choose a protected area and the information provided then includes name, country, IUCN category, designation type (national, international), English designation (like ecological important area; special protection area/Bird directive etc.), status and status year
			No categorization of ecosystems
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social		
	Economic		

Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments	Statistics: information on Growth in global number of protected areas (1911-2011); Growth in global extent of protected areas (1911-2011) ProtectedPlanet.net: provides spatial information; answers simple questions such as how many protected areas are there in the area of interest and what is their total area.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
	TEEB: Valuing benefits of ecosystem services		
Title of information/data source	- TEEB database: a searchable database of 1310 estimates of monetary values of ecosystem services. - UK National Ecosystem Assessment. Technical Report. - Economic valuation of upland ecosystem services (Natural England Commissioned Report) - Socio-economic importance of ecosystem services in the Nordic Countries. Synthesis in the context of The Economics of Ecosystems and Biodiversity (TEEB) - Estimates of Monetary Values of Ecosystem Services - Communicating values and benefits of protected areas in Europe		
Where is the data source? Link if available?	- Download TEEB database at: http://www.fsd.nl/esp/80763/5/0/50 - http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx - http://publications.naturalengland.org.uk/publication/48003?category=38019 - http://www.teebweb.org/wp-content/uploads/2013/01/TEEB-Nordic-Synthesis-Report.pdf - http://eprints.port.ac.uk/4745/1/FAILLER_2010_pre_ChA3_Estimates_of_Monetary_Values_of_Ecosystem_Services.pdf - http://www.bfn.de/fileadmin/MDB/documents/service/skript260.pdf		
Method used for data collection			
Geographic scope of data	- UK		

(country coverage), including if transboundary	- Denmark, Finland, Iceland, Norway and Sweden - European protected areas - Netherlands		
Temporal coverage of data (start and end date)			
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social		
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments	TEEB database: database on monetary values of ecosystem services which now contains over 1350 data-points from over 300 case studies. Data is provided in categories that can be filtered: ecosystem type (choose e.g. case studies for marine ecosystems, forests, floodplains…), type of ecosystem service (choose e.g. air quality, pollination, recreation…), case study location (select by continent, country or region), value information (like the valuation method used in the reference study – e.g. avoided cost, benefit transfer, direct market pricing, replacement cost…)		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime			
Title of information/data source	Economic Benefits Generated by Protected Areas: the Case of the Hoge Veluwe Forest, the Netherlands		
Where is the data source? Link if available?	http://www.ecologyandsociety.org/vol16/iss2/art13/		
Method used for data collection	The study follows the general approach of the Millennium Ecosystem Assessment with regard to the identification, analysis, and valuation of ecosystem services. All services are quantified in ecological or physical units, such as for example, amount of wood harvested and the annual number of visitors. Second, the services are valued in monetary terms. Where data were available, this study values ecosystem services based on estimation and aggregation of producer and consumer surpluses. For some services, in particular the regulating services, consumer and producer surpluses could not be calculated, and alternative, though less accurate, valuation methods have been applied. The following categories of information are provided: 1. Identification of case study area/borders 2. Identification of relevant ecosystem services (ES)in the case study area 3. Quantification of ES / physical supply in ecological/physical units (amount of harvested wood, groundwater replenishment rate etc.) 4. Valuation of ES (estimation of consumer-/producer surplus) 5. Aggregation of values for the study area		
Geographic scope of data (country coverage), including if transboundary	Hoge Veluwe Forest, the Netherlands		
Temporal coverage of data (start and end date)			

Extent of environmental crime	**Table 4**. Ecosystem services supplied by the Hoge Veluwe park Service / Value (1000 euro/year) / Valuation approach Wood production / 354 / Preference based Game (deer and wild boar meat) / 50 / Preference based Groundwater infiltration / 1,950 / Cost-based Carbon capture / 33 / Cost-based (conservative estimate) Air pollution removal / 2,100 / Cost-based (conservative estimate) Recreational hunting / 125 / Preference based (conservative estimate) Recreation / 6,140 / Preference based Nature conservation / - / Not expressed in monetary terms Total / 10,750		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social		
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime			
Title of information/data source	The regional economic impact of Bavarian Forest National Park		
Where is the data source? Link if available?	http://www.nationalpark-bayerischer-wald.de/doc/service/publikationen/d_berichte/en_studie_job_kurz_ba.pdf		
Method used for data collection	Interviews/surveys		
Geographic scope of data (country coverage), including if transboundary	Germany – Nationalpark Bayerischer Wald		
Temporal coverage of data (start and end date)	Interviews throughout 2007		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Measures income from tourism (no ecosystem services!)	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social		
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic	Cost-benefit analysis: benefits compensate for the costs related to the designation. Bavarian federal state government spends EUR 12 million/year on the National Park. This sum is contrasted by 200 persons directly employed in the National Park administration as well as an indirect income equivalent of 939 persons induced by the national park tourism - a total of 1139 jobs.	

		Every Euro that the government invests in the Bavarian Forest National Park is more than doubled by the amount spent in the park by its visitors	
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime			
Title of information/data source	ECOSYSTEM SERVICES EVALUATION IN THE ŠKOCJAN CAVES REGIONAL PARK		
Where is the data source? Link if available?	http://www.park-skocjanske-jame.si/download/Ecosystem_Services_Evaluation.pdf		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	Slovenia, Skocjan Caves Regional Park		
Temporal coverage of data (start and end date)			
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Detailed assessment of the market value of the national park (valuation of ecosystem services); with current use, potential use and potential gains	

Table 42: Market value and gross value added of the current use of ecosystem services in the Škocjan Caves Regional Park in 2011

CURRENT USE OF ECOSYSTEM SERVICES	Welfare measures - constituent of TEV (in €)			Contribution to the economy (in €)
Type of service	MV	Consumer surplus	Estimation of total WTP (e.g. damage cost avoided)	GVA
PROVISONING SERVICES	**491,830**	-	**0**	**473,860**
Food	13,586	-	-	3,381
Fibre and fuel	48,559	-	-	40,793
Ornamental	2,610	-	-	2,610
Fresh water	427,076	-	-	427,076
Genetic resources	-	-	-	-
REGULATING SERVICES	**0**	-	**5,259**	**4,923**
Air quality	-	-	538	538
Climate regulation	-	-	4,720	4,384
Buffer	-	-	-	-
Erosion	-	-	-	-
Water quality regulation	-	-	-	-
CULTURAL SERVICES	**12,358,749**	-	**0**	**11,041,703**
Cultural heritage	35,852	-	-	35,852[11]
Tourism and recreation	10,993,764	-	-	9,676,718[12]
Aesthetic value	-	-	-	-
Employment	1,039,781	-	-	1,039,781
Scientific value	-	-	-	-
Education	100,540	-	-	100,540[12]
Mental and physical health	-	-	-	-
Social relations	188,812	-	-	188,812[12]
Sense of place	-	-	-	-
TOTAL ANNUAL VALUE	**12,850,578**	-	**5,259**	**11,520,486**

Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social		
	Economic		
Quantitative impacts	To environment		

	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
	Reforestation		
Title of information/data source	Republic of Croatia. Coastal Forest Reconstruction and Protection Project		
Where is the data source? Link if available?	http://siteresources.worldbank.org/INTEEI/214574-1153316226850/20486362/AnalysisoftheBenefitsofWatershedProtectionandRelatedForestryDevelopmentinCroatia1996.pdf		
Method used for data collection	Economic analysis		
Geographic scope of data (country coverage), including if transboundary	Croatia		
Temporal coverage of data (start and end date)			
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Estimates of willingness to pay for forest landscapes by tourists; costs of reforestation; benefits for hunting, wood production, non-timber products, recreational value, erosion protection	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social		
	Economic		
Quantitative impacts	To environment		

	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Criminal offences against the environment, space and natural resources		
Title of information/data source	Environmental Crime Trends in Slovenia in the Past Decade		
Where is the data source? Link if available?	http://www.fvv.uni-mb.si/rV/arhiv/2013-2/07_Eman.pdf		
Method used for data collection	Official crime statistics & expert interviews		
Geographic scope of data (country coverage), including if transboundary	Slovenia		
Temporal coverage of data (start and end date)	2000-2010		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Number of criminal offences against the environment, space and natural resources, which were dealt with and investigated by the Slovenian police (statistics) Table of most often encountered forms of environmental crime (interviews)	Recorded types of crime: Burdening and destruction of environment and space; Marine and water pollution by ships; Import and export of dangerous substances into the country; Unlawful acquisition or use of radioactive or other hazardous substances; Contamination of drinking water; Tainting of foodstuffs or fodder; Unlawful occupation of real property; Destruction of plantations by a noxious agent; Destroying of forests; Torture of animals; Game poaching; Fish poaching; Illegal handling with protected animals and plants; Transmission of contagious diseases in animals and plants; Production of injurious medicines for treatment of animals; Unconscionable veterinary aid
	Number of individuals involved in criminal activity	Number of criminal charges filed by the state prosecutionOffice and number of convicted offenders for crimes against the environment	

Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social		
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments	No specific data on crimes in protected areas, no information on impacts		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal construction, illegal deforestation		
Title of information/data source	Environmental Protection and major ecological problems in the national park Durmitor		
Where is the data source? Link if available?	http://www.dgt.uns.ac.rs/zbornik/issue42/en/08%20Srdanovic.pdf		
Method used for data collection	Field research		
Geographic scope of data (country coverage), including if transboundary	Montenegro, Durmitor national park		
Temporal coverage of data (start and end date)			
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	350 illegal buildings built on the territory of the national park; permanent degradation of more than 2,000 ha of land	
	Number of individuals involved in criminal activity		

Relationship to organised crime (if any)?			
Qualitative impacts	To environment	Complete or partial degradation in some of the park's areas; undermining the concept of environmental protection in the construction area (deforestation, destruction of habitats for plant and animal species, etc.)	
	Social	possible exclusion of villages from the park area; ambient disturbance of the wider suburban area; problems of installing necessary infrastructure in an area with very scarce infrastructure options	
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments	Description of problems (illegal construction & logging) and impacts, but superficial; only limited data For additional information of illegal construction and its environmental, social and economic impacts in Montenegro in general: http://www.kartverket.no/PageFiles/22701/Final%20report%20Chryssy.pdf (though no specifics on protected areas)		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal Logging		
Title of information/data source	Impacts of Reduction of Illegal Logging in European Russia on the EU and European Russia Forest Sector and Trade		
Where is the data source? Link if available?	http://www.efi.int/files/attachments/publications/tr_19.pdf		
Method used for data collection	Wood-flow balance calculation of production and consumption; remote sensing; scenario analysis of the impacts of a possible EU-Russia FLEGT Partnership Agreement; economic impact assessment		
Geographic scope of data (country coverage), including if transboundary	Russia (global forest sector model EFI-GTM was applied to assess the impacts on the EU forest sector of implementing a licensing scheme in Russia)		
Temporal coverage of data (start and end date)	Study conducted in 2005		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social		
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic	Loss of gross income to timber production as a result of lower roundwood prices; Assessment of	

		economic impacts based on a comparison of possible income from stumpage fees; Assessment of economic impact based on the value of punitive fees	
Other issues/comments	Not on protected areas		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Wildlife crime (Illegal vehicle use; Damage caused by the building and construction industry; damage caused by the introduction of non-native species; illegal actions such as shooting and illegal burning; bat crime; illegal fishing)		
Title of information/data source	House of Commons Environmental Audit Committee: Environmental Crime: Wildlife Crime. Twelfth Report of Session 2003–04		
Where is the data source? Link if available?	http://www.publications.parliament.uk/pa/cm200304/cmselect/cmenvaud/605/605.pdf		
Method used for data collection	Inquiries on wildlife crime by the sub-committee on environmental crime, oral evidence from (environmental) organisations and agencies		
Geographic scope of data (country coverage), including if transboundary	England & Wales		
Temporal coverage of data (start and end date)			
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Number of incidents, increase/trend, percentage of sites in unfavourable condition	
	Number of individuals involved in criminal activity	fines, prosecutions	
Relationship to organised crime (if any)?			
Qualitative impacts	To environment	Impact on species; impact on sites described	
	Social		
	Economic		

Quantitative impacts	To environment		
	Social		
	Economic	Losses in timber production due to invasive species; costs for clearing sites from invasive tree species	
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments	Long report, good data included on scale and impact of the different types of wildlife crime, (although organisations decry the absence of a national record system) There is also a similar report on "Environmental Crime: Fly–tipping, Fly–posting, Litter, Graffiti and Noise" under http://www.publications.parliament.uk/pa/cm200304/cmselect/cmenvaud/445/445.pdf → topic of waste is covered by UCT		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime			
Title of information/data source	Criminal and civil sanctions undertaken by Natural England (public register of the cases of prosecution or civil sanction. Also recorded: Enforcement and Third Party Undertakings that have been offered and accepted, and whether a person has fulfilled all the requirements satisfactorily and in the time agreed by reporting whether a completion certificate has been served or not)		
Where is the data source? Link if available?	http://www.naturalengland.org.uk/freedom_of_information/class6.aspx Tables: - Public register - civil sanctions and prosecutions: (114kb) - Prosecutions under Section 28 of the Wildlife and Countryside Act 1981: (24kb) (as substituted by Schedule 9 of the Countryside and Rights of Way Act 2000) - Prosecutions under Regulation 23 of The Conservation (Natural Habitats, &c.) Regulations 1994: (16kb) ('the Habitat Regulations) - Prosecutions under Section 28 of the Wildlife and Countryside Act 1981: (20kb) (as amended)		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	England		

Temporal coverage of data (start and end date)	Since 1993		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social		
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal construction/activities Violations of Environmental Impact Assessment Acts: expansion of the ski slopes and facilities beyond the territory provided for in the EIA; large-scale excavation; construction of earth piling on river beds; use of explosives; uprooting of tree logs; use of chemicals and fertilizers; night illumination; construction of temporary roads; logging; construction of water drainages…		
Title of information/data source	- **Bansko Ski Zone – Crime against UNESCO site (Report by Save Pirin NGO coalition)** - World Heritage Committee Information Document: Report of the International Mission to Pirin National Park, Bulgaria, 11-16 February 2002 - Bansko ski area in Pirin National Park - Facts contradicting to the statements of uncertainties in the concession of Bansko Ski Zone		
Where is the data	**http://forthenature.org/upload/documents/2011/07/Report_on_the_illegal_construction_of_Bansko_ski_zone_2006.pdf**		

source? Link if available?	http://unesdoc.unesco.org/images/0012/001287/128746e.pdf http://en.forthenature.org/cases/35 http://en.forthenature.org/news/2845		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	Pirin National Park, Bulgaria		
Temporal coverage of data (start and end date)			
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment	Report describes impact of ski zones on habitats and species (destruction of habitats, wildlife avoidance, habitat quality deterioration, pollution, invasion of alien species, poaching, illegal logging) Examination of erosion processes	Detailed description of impacts on selected species! (and how to avoid them)
	Social	Report: Socio-economic poll among random citizens of Bansko: deterioration of quality of life because of pollution, deteriorating state of public infrastructure; economic returns of the project not as high as the population expected	
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		

	Social		
	Economic		
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Pressures (already occurring) and threats (likely to occur in the future). Categories of threats and pressures: Logging, changes of planned use, changes of land use, abandonment of traditional use, intensive grazing/mowing, intervention in riverine/riparian areas, hunting/fishing, mining, non-timber forest product collection, tourism, waste disposal, cross-border impacts, invasive alien species		
Title of information/data source	Kus Veenvliet, J. & A. Sovinc, 2009. Protected area management effectiveness in Slovenia, Final report of the RAPPAM analysis		
Where is the data source? Link if available?	http://www.parki.mop.gov.si/Slovenia_RAPPAM_report.pdf		
Method used for data collection	RAPPAM methodology (questionnaire; scoring system of the answers allowing mathematical operations and presentation in graphs)		
Geographic scope of data (country coverage), including if transboundary	Slovenia (9 protected areas, representing 78% of the surface of Slovenian protected areas)		
Temporal coverage of data (start and end date)	Analysis carried out in 2008		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		
	Social		
	Economic		
Quantitative impacts	To environment		
	Social		

	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments	Identified threats can include both legal and illegal activities and can be a direct or indirect consequence of activities in the protected area; no data on specific crimes, just on perception of general threats		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Land cover clearing		
Title of information/data source	Nagendra (2008): Do Parks Work? Impact of Protected Areas on Land Cover Clearing		
Where is the data source? Link if available?	http://www.bioone.org/doi/abs/10.1579/06-R-184.1		
Method used for data collection	metadata analysis of information on 49 locations from 22 countries; remote sensing Rates of land-cover change were assessed by calculating the loss or increase in area for the land-cover category of interest as a percentage of the total geographic area, divided by the number of years in the time step		
Geographic scope of data (country coverage), including if transboundary	global		
Temporal coverage of data (start and end date)			
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Comparison of rates of land cover change within and outside protected areas and before and after their establishment	Land cover category of interest: almost in all cases forest; so this is basically just about the impact PAs have on forest clearing rates, no information on land use after the clearing. Conclusion for the selected European PAs: on their way to forest recovery
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment		

	Social		
	Economic		
Quantitative impacts	To environment		
	Social		
	Economic		
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments	Rates of landcover clearing are assessed, but no information if these are illegal activities		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Marine Litter		
Title of information/data source	Impact of marine litter (Fact sheet Umweltbundesamt)		
Where is the data source? Link if available?	http://www.marine-litter-conference-berlin.info/userfiles/file/Factsheet%201%20Impact-V2.pdf		
Method used for data collection	review of available data/reports		
Geographic scope of data (country coverage), including if transboundary	global		
Temporal coverage of data (start and end date)	Current review in 2012, last review 1997 (comparisons are made)		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment	Numbers of species interaction with marine litter, damages on coral reefs, impact of litter on invasive species,	

		Entanglement/ strangulation in marine litter	
	Social	Health risks for humans, Degradation of quality of water and beaches, health risk of fish consumption, safety risk for sea vessels and their crews	
	Economic		
Quantitative impacts	To environment	Abundance of microplastics in protected areas	
	Social		
	Economic	Fishing industry: loss of fish to ghost fishing, catch spoiled by contamination with debris, but also with paint and oil; damage to nets and to propellers entangled in litter, resulting in lost operating time and time spent cleaning nets	
Monetary impacts	To environment		
	Social		
	Economic	clean-up costs of beach litter	
Other issues/comments	Not only/directly on protected areas; and litter mostly not caused by illegal activities		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Marine debris		
Title of information/data source	Interagency report on marine debris sources, impacts, strategies and recommendations (Interagency Marine Debris Coordinating Committee)		
Where is the data source? Link if available?	http://c.ymcdn.com/sites/www.americancanoe.org/resource/resmgr/spp-documents/interagency_report_on_marine.pdf		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary			
Temporal coverage of data (start and end date)	Report from 2008		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment	adverse impacts on aquatic ecosystems, Derelict fishing gear can damage coral reefs, result in 'ghost fishing', malnutrition and starvation of marine birds	Description of impacts
	Social	danger to human health and safety	
	Economic	impacts on tourism (beach closures), losses in catch revenues, loss of fishing gear, damaged vessels, clean-up costs	
Quantitative impacts	To environment		
	Social		

	Economic	Losses of fishing revenues, reduction of standing stock of fish and reproduction capacity, Opportunity costs	Some numbers for specific examples given
Monetary impacts	To environment		
	Social		
	Economic		
Other issues/comments	Not directly on protected areas. Not necessarily caused by illegal activities. No overall impact assessment, but some numbers on specific examples given, and some estimations of costs (e.g. clean-up costs of a specific site)		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Toxic waste spillage		
Title of information/data source	Damage to fragile environments: Doñana National Park pollution. Cause: toxic waste spillage from the Boliden lead-zinc mine (Barcelona field studies centre)		
Where is the data source? Link if available?	http://geographyfieldwork.com/DonanaCauses.htm		
Method used for data collection			
Geographic scope of data (country coverage), including if transboundary	Spain, Doñana region (spillage near the national park)		
Temporal coverage of data (start and end date)	1998		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	10,000 hectares of farmland along the banks of the river poisoned	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To environment	High river acidity levels; River bank vegetation killed; Death of thousands	

		of fish and other wild life. The contamination reached the food chain and stork malformations and tumours have been detected; Wells and groundwater contaminated	
	Social		
	Economic		
Quantitative impacts	To environment		
	Social	Loss of farming land	
	Economic	Loss of tourist income	
Monetary impacts	To environment		
	Social		
	Economic	clean-up costs	
Other issues/comments	No data on protected area: sludge was stopped just before arriving to the Doñana National Park		

3

8. Chemicals

Issue (ODS)	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	**Illegal Trade in Chemicals**		
Title of information/data source	World Customs Organizations (WCO) ensures global compliance with Montreal Protocol by effectively controlling the trade in ozone depleting substances (ODS). An innovative mechanism to promote and observe formal compliance within UNEP is Informal Prior Informed Consent on Trade of Ozone Depleting Substances (iPIC).		
Where is the data source? Link	Access to detailed information is provided through the UNEP web interface: http://www.unep.org/ozonaction/ipic		

if available?		
Method used for assess the illegal trade flows	**It should be emphasized that there are no reliable sources of data on international environmental crime related to ODS.** However, there are possible indicators of illegal trade in chemicals. For example data on seizures or outcomes of court cases could be used to obtain an indication of trends. In principle it should be possible to obtain an indication of illegal trade in ODS by examining import and export data and analysing discrepancies between the two sources. Wide variations between different countries' statistics may indicate illegal trade in some form.	
Geographic scope of data (country coverage), including if transboundary	As of today, the online iPIC system contains data from 68 countries including details on more than 950 companies licensed to trade ODS, information on equipment or products with trade restrictions.	
Temporal coverage of data (start and end date)	iPIC started in 2007 as an initiative to combat illegal trade in ODS through informal prior informed consent by countries. Since that time, iPIC has grown significantly is now a global system with participating countries from all continents.	
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	India and China account for approximately 70 per cent of the total global production of chlorofluorocarbons (CFCs) (UNEP, 2013). Countries with high volume consumption are China, India, Malaysia, and Thailand. In developing countries, there is still a significant demand for CFCs as reliance on equipment using these chemicals remains high. Continued, even if not increased, dependency on CFCs, facilitated by low CFC prices on the international black market, encourages smuggling of these chemicals as controls reduce legal supplies.
	Number of individuals involved in criminal activity	No available information.
Relationship to organised crime (if any)?	The extent of criminal involvement in these trade networks is uncertain, but there is oftentimes anecdotal evidence of links between environmental and other areas of crime and of the involvement of criminal networks in illegal trade. For example, the same networks have been found to be used for smuggling arms and drugs as for chemicals (World Bank, 2006).	
quali-quantitative Impacts	To environment	Life on Earth depends on the protection provided by ozone in the stratosphere, which acts to screen harmful ultraviolet (UV) solar radiation from the Sun. Changes in the natural shield that protects us from UV radiation, although modest, are able to cause very negative consequences on the ecosystem affecting biodiversity and habitats also through the global warming (ODS are potent greenhouse gases)
	Social	Illegal trade in chemicals can have a detrimental effect on the functioning of societies and state authorities. Indeed, it is often associated with corruption and sometimes with other areas of crime (Banks et al., 2008). Moreover, Illegal trade can also have a negative impact on health. Higher levels of radiation are linked with increased incidences of skin cancer and eye disease and suppression of the immune system.
	Economic	The economic impacts are due to a variety of factors. Firstly, it can result in the loss of revenues due to the non-payment of taxes and other charges. Secondly, in addition to direct macroeconomic impacts, illegal trade also has indirect impacts. These include the loss of income and employment in related industries and activities, the depression prices for legal products in exporting sectors. Finally, illegal trade may also result in environmental or other damage that necessitates economic costs to clear up.
Monetary impacts	To environment	Not available data and/or studies
	Social	Increased exposure to UV radiation directly impacts human health. Effects include suppression of the immune system, photo aging of the skin, cataracts and skin cancer. Every year there are between two and three million new cases of non-melanoma

		skin cancers globally, with an estimated 66,000 annual deaths from various types of skin cancer and a 10% of total health expenditure around the World (WH, 2012).
	Economic	As noted by Chatham House and EIA, 2006, some studies of ODS illegal trade have estimated that in 2005 worldwide economic losses amounted to between USD 250 million and USD 600 million owing to the lost revenue for the government in terms of taxes and other charges and the costs of destruction of seized substances.
Other issues/comments		

9. Fires

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	**WILDFIRES**		
Title of information/data source	*European Fire Database* is an important component of the European Forest Fire Information System (EFFIS) with updated and reliable information on wildland fires in Europe.		
Where is the data source? Link if available?	Access to summarized information from the database is provided through the EFFIS web interface: http://effis.jrc.ec.europa.eu/fire-history		
Method used for data collection	According to Regulation **(EC) 2152/2003** (so called Forest Focus), now expired, and followed up by the Regulation **(EC) 614/2007** (so called LIFE+) Member States identify and implement national programs annually in order to collect comparable data and information and provide a final report.		
Geographic scope of data (country coverage), including if transboundary	Currently, 38 countries are signed up members of the Expert Group on Forest Fires (EGFF), including 24 EU Member States 10 European non-EU countries		
Temporal coverage of data (start and end date)	Information such as maps of the number of fires, burnt area and average fire size for a selected year are available for Mediterranean Countries since 1985 and for the entire EFFIS network since 2005 up to 2012		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	The database contains four types of information: about the time, location, size and cause of the fire (deliberate, accident/negligence, natural and unknown).	
	Number of individuals involved in criminal activity	The information on the causes of forest fires is very important in assessing the number of individual involved in criminal activity. The aforementioned scheme has been used to record information on fire causes since 1992. It is possible to retrieve such information looking at deliberate forest fire.	
Relationship to organised crime (if any)?	On the basis of data held it seems to be not possible to link the wildfires to organised crime.		
Qualitative impacts	To environment	Wildfires increase release of carbon dioxide into the air, affect biodiversity and habitats through damage caused to the vegetation, peat and soils. Gullett et al. (2003) measure dioxine emissions from Forest Fire Simulations. They found that every one kg of burnet biomass there is a release of 19 ng of polychlorinated dibenzofuran. To measure the overall dioxine emission because of fires we need data on the quantitative of biomass burnt on average in each hectare.	

	Social	They also have a direct impact on benefits that people receive from the environment, including: provision of food, water and fibre; regulation of floods, drought, land degradation and disease; loss of cultural services and recreational benefits, etc.
	Economic	Wildfires cause damage to some homes and buildings, as well as costly evacuations.
Quantitative impacts	To environment	The average area affected by fires annually across Europe reaches 550,000 ha, and 95% occur in the Mediterranean countries, with approximately 35,000 events a year. Assuming the phenomenon regularly distributed over time, it is about 100 fires a day, throughout the year.
	Social	The loss of human lives is the worst outcome of forest fires and this has repeatedly occurred in the last years. The number of lives lost of civilians and forest fire fighting crews has increased in the last decade. The number of fatal victims in forest fires related accidents in Mediterranean Countries has been 521 between 1982 and 2007(Recent Forest Fire Related Accidents in Europe, European Commission JRC, 2009) Moreover, very important are the effects of wildfires on the atmosphere and thus on human health. A study published in 2011 (An important fingerprint of wildfires on the European aerosol load, Barnabas et al.) measured the impact of the fires on the levels of air pollution particulate in Europe and the relation with human health.
	Economic	Landscape-scale damage and loss of specific infrastructure can impinge on tourism, with a consequence to local businesses and communities. Restoring damaged habitats is also becoming an important component of post-wildfire recovery in sensitive environments, which is typically a very costly and time-consuming process.
Monetary impacts	To environment	Some studies asses the monetary impact of wildfires (Italian Academy of Forest Sciences, University of Padova). They found that every year, in Italy, including costs related to the regular staff (a man of the Forestry Corps has a gross salary average of € 1,700 per month) and extraordinary (volunteers are not paid, but the equipment they use has an average price of approximately € 1,500), the cost of maintenance of helicopter and extinguishing means, the cost incurred for the restoration of forest structure (1500-2000 € per hectare) and for the damage caused by the decreased production of woodland products, we obtain a total cost estimation of over 500 million Euros. Each year, all Italians pay about 10 Euros per capita due to forest fires. We could apply this methodology of monetary cost estimation to the European context.
	Social	
	Economic	
Other issues/comments		

10. Marine

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Marine Pollution through leak of petrol from offshore facilities		
Title of information/data source	Accident statistics for fixed offshore units on the UK Continental Shelf 1980-2005		
Where is the data source? Link if available?	http://www.hse.gov.uk/research/rrpdf/rr566.pdf		
Method used for data collection	Data gathered by Det Norkse Veritas (DNV) on behalf of the UK Health & Safety Executive (HSE). Three databases were interrogated for the purpose: (a) ORION (the former Sun Safety System), (b) Offshore Blowout Database (SINTEF, Norway), (c) Worldwide Offshore Accident Databank WOAD.		
Geographic scope of data (country coverage), including if transboundary	UK Continental Shelf		
Temporal coverage of data (start and end date)	1980-2005		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	The number of occurrences are reported in the annex to the report.	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised	N/A		

crime (if any)?			
Qualitative impacts	To Environment		
	Social		
	Economic		
Quantitative impacts	To Environment	Quantifies the number of leakages (p. 4)	
	Social		
	Economic		
Monetary impacts	To Environment		
	Social		
	Economic		
Other issues/comments	The report is interested as it combines the data gathered from three different databases for the period 1980-2005. The report contains interesting data on the number of accidents on offshore platforms in the UK territory, divided according to the type of accident and the type of facility.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal Water Pollution through Oil Spilling in Offshore Operations		
Title of information/data source	Offshore injury, ill health and incident statistics 2012/2013		
Where is the data source? Link if available?	http://www.hse.gov.uk/offshore/statistics/hsr1213.pdf		

Method used for data collection	The data is provided by the HSE (Health and Safety Executive).		
Geographic scope of data (country coverage), including if transboundary	United Kingdom		
Temporal coverage of data (start and end date)	1 April 2012 to 31 March 2013, with data from 1995/96 included for comparison		
Extent of environmental crime	Number of well related dangerous occurrencies	Detailed classification with number of occurrences of each type of well related incident. (p. 23-24)	
	Number of pipeline dangerous occurrencies	Number of occurrences of each type of pipeline related incident classified according to the type of accident. (p. 24)	
Relationship to organised crime (if any)?	N/A		
Qualitative impacts	To Environment	Figure 12 shows the split between releases described as 'Minor', 'Significant', or 'Major' based on severity classification definitions agreed with the offshore industry.	
	Social	Major injuries to workers on offshore facilities are analysed and categorised according to their source (p. 7-10)	
	Economic	N/A	
Quantitative impacts	To Environment	N/A	
	Social	The number of injuries to workers on offshore facilities are provided, and they are also classified depending on the type of injury (p. 17-22)	
	Economic	N/A	

Monetary impacts	To Environment	N/A	
	Social	N/A	
	Economic	N/A	
Other issues/comments	Data is provided regarding the number of occurrences of several types of oil spilling accidents in Offshore facilities. However, there is no elaboration upon the impact of the accidents.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Dumping of Debris		
Title of information/data source	Marine Debris in the North Pacific		
Where is the data source? Link if available?	http://www.epa.gov/region9/marine-debris/pdf/MarineDebris-NPacFinalAprvd.pdf		
Method used for data collection	The paper aims at gathering the general findings of a number of sources on the topic, and identifying the possible data gaps.		
Geographic scope of data (country coverage), including if transboundary	North Pacific		
Temporal coverage of data (start and end date)	The report was compiled in 2011. The oldest source dates back to 1972.		
Extent of environmental crime	Numbers of instances of the crime or other measure of	The location of marine debris is identified (p. 3)	

	scale (e.g. area affected)		
	Number of individuals involved in criminal activity	n/a	
Relationship to organised crime (if any)?			
Qualitative impacts	To Environment	Section 5 of the paper analyses the physical habitat impact, the chemical impact and the biological impact. The mechanisms of transportation of marine debris are identified (p. 3)	
	Social	n/a	
	Economic	Section 5.5 of the paper focuses on the impact of debris on human activities, including navigation, commercial and recreational fishing, tourism, and health and safety.	
Quantitative impacts	To Environment	The different densities of marine debris are identified, through a cross-check between different data sources (p. 5) The estimated weight of marine debris patches is identified (p. 3)	
	Social	N/A	
	Economic	N/A	
Monetary impacts	To Environment	N/A	
	Social	N/A	
	Economic	N/A	
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Marine pollution by organic compounds and metals		
Title of information/data source	Biochemical biomarkers in algae and marine pollution: A review		
Where is the data source? Link if available?	http://eportfolio.lib.ksu.edu.tw/user/G/9/G980N004/repository/PAPER/es10.pdf		
Method used for data collection	The data introduced is derived from other secondary sources.		
Geographic scope of data (country coverage), including if transboundary	Worldwide		
Temporal coverage of data (start and end date)	The article was written in 2007 and analyses the situation up to that time.		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Section 1.1 analyses the quantity of oil derivatives and organic compounds.	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	N/A		
Qualitative impacts	To Environment	The article tries to identify a path in the way pollutants have an impact on marine environment by using algae and biomarkers of aquatic hazards.	

	Social	N/A	
	Economic	N/A	
Quantitative impacts	To Environment	N/A	
	Social	N/A	
	Economic	N/A	
Monetary impacts	To Environment	N/A	
	Social	N/A	
	Economic	N/A	
Other issues/comments	The article does not provide any quantitative data itself, but it draws conclusions based on other reports.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Marine and terrestrial water pollution		
Title of information/data source	Molecular indicators for pollution source identification in marine and terrestrial water of the industrial area of Kavala city, North Greece		
Where is the data source? Link if available?	http://users.auth.gr/users/2/1/051412/public_html/ENVIR_POLLUTION.pdf		
Method used for data collection	The data the article elaborates upon are obtained by the analysis of 4 terrestrial and 4 water samples collected in Kavala, Greece.		
Geographic scope of data	Kavala (Greece)		

(country coverage), including if transboundary			
Temporal coverage of data (start and end date)	The article was written in 2006		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	N/A		
Qualitative impacts	To Environment	Section 3 analyses the data retrieved.	
	Social	N/A	
	Economic	N/A	
Quantitative impacts	To Environment	Section 3 of the paper describes the quantity of pollutants in the marine water samples analysed.	
	Social	N/A	
	Economic	N/A	
Monetary impacts	To Environment	N/A	
	Social	N/A	
	Economic	N/A	

Other issues/comments	The article unfortunately only covers a specific geographic area.

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Land based marine pollution (either point (e.g. municipal wastewater and industrial effluent) or diffuse sources (e.g. urban stormwater run-off, agricultural return flows, atmospheric pollution and solid waste disposal))		
Title of information/data source	Preliminary Transboundary Diagnostic Analysis on Land-based Activities: Marine Pollution		
Where is the data source? Link if available?	http://www.unep.org/NairobiConvention/docs/Draft_Regional_Synthesis_Report_on_%20Pollution.PDF		
Method used for data collection	Analysed data is retrieved from other secondary sources, listed at p. 3/4.		
Geographic scope of data (country coverage), including if transboundary	Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, Tanzania.		
Temporal coverage of data (start and end date)	The study was released in 2007.		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	The area affected is the WIO region.	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised	N/A		

crime (if any)?			
Qualitative impacts	To Environment	Chapter 2 analyses potential transport mechanisms for marine pollution. Chapter 4 analyses the causes of marine pollution in the area. The 5 top issues are identified as microbiological contamination, euthropication, marine litter, suspended solids and chemical pollution (p. 8) Environmental effects of euthropication are identified (p. 10) Environmental effects of marine litter are identified (p. 12) Environmental effects of suspended solids are identified (p. 13) Environmental effects of chemical pollution are identified (p. 14)	
	Social	Chapter 5 introduces a governance analysis. Sources of transboundary marine pollution are identified and laid out in a table (p. 18)	
	Economic	Socioeconomic impact of microbiological contamination is identified (p. 8) Socioeconomic impact of euthropication is identified (p. 10) Socioeconomic impact of marine litter is identified (p. 12) Socioeconomic impact of suspended solids is identified (p. 13) Socioeconomic impact of chemical pollution is identified (p. 14)	The data listed in this row is of socioeconomic character.
Quantitative impacts	To Environment	Chapter 2 focuses major marine pollution hot spots. The different level of microbiological pollution between urban and rural aquatic environments are provided (p. 9) Data about the concentration of heavy metals in waters is provided (p. 16)	
	Social	N/A	
	Economic	N/A	

Monetary impacts	To Environment	N/A	
	Social	N/A	
	Economic	N/A	
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Marine pollution caused by accidents by offshore/onshore activities		
Title of information/data source	OGP, Major Accidents		
Where is the data source? Link if available?	http://www.ogp.org.uk/pubs/434-17.pdf		
Method used for data collection	Most of the data used in the study is derived from a survey of the WOAD database.		
Geographic scope of data (country coverage), including if transboundary	Worldwide		
Temporal coverage of data (start and end date)	1971-2010		
Extent of environmental crime	Numbers of instances of the crime or other measure of	31 instances are analysed in the study, as it can be understood from the table at p. 3-5	

	scale (e.g. area affected)		
	Number of individuals involved in criminal activity	The numbers of individuals involved in criminal activity is not specified. However, the study specifies the number of fatalities for every accident.	
Relationship to organised crime (if any)?	N/A		
Qualitative impacts	To Environment	Analyses the proportions of incidents by spill volumes and materials spilt (p. 19)	
	Social	N/A	
	Economic	N/A	
Quantitative impacts	To Environment	Determines the number of blowouts of facilities leading to pollution (p. 17) Quantifies the dimension of large spills (>1000 BBL) in the US Gulf of Mexico (p. 18) Quantifies the dimension of spills in the UK and Norway (p. 20)	
	Social	N/A	
	Economic	N/A	
Monetary impacts	To Environment	N/A	
	Social	N/A	
	Economic	N/A	
Other issues/comments			

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Marine pollution caused by shipping incidents		
Title of information/data source	MARINE POLLUTION RISK ASSESSMENT FOR THE PACIFIC ISLANDS REGION		
Where is the data source? Link if available?	http://members.shaw.ca/brad.judson/SPREP.pdf		
Method used for data collection	The database on which the project is build are from 1997. Further information, extending the coverage to 2002, were retrieved from national authorities, web sources, and news reports.		
Geographic scope of data (country coverage), including if transboundary	Exclusive Economic Zones (EEZ's) of the Pacific Island Countries and Territories		
Temporal coverage of data (start and end date)	The study was published in 2003 and the data used date back to a 1997 report.		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	N/A	
	Number of individuals involved in criminal activity	N/A	

Relationship to organised crime (if any)?	N/A		
Qualitative impacts	To Environment	N/A	
	Social	N/A	
	Economic	N/A	
Quantitative impacts	To Environment	Section 5.1 of the study provides a database of shipping incidents, which is then used to draw conclusions in terms of risks assessment.	
	Social	N/A	
	Economic	N/A	
Monetary impacts	To Environment	N/A	
	Social	N/A	
	Economic	N/A	
Other issues/comments	The study assesses the risk of marine pollution caused by shipping incidents in the pacific islands area.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Marine chemical pollution		

Title of information/data source	Hannah Luhtala - Maritime Transportation of Chemicals in the Baltic Sea		
Where is the data source? Link if available?	www.merikotka.fi/julkaisut/Luhtala_kemikaalikuljetukset.pdf		
Method used for data collection	Data review of several primary sources.		
Geographic scope of data (country coverage), including if transboundary	Baltic Sea		
Temporal coverage of data (start and end date)	The review is carried out in 2010 and incorporates data from sources published before that year.		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Expresses the precise number of ships involved in accidents (p. 38)	
	Number of individuals involved in criminal activity	n/a	
Relationship to organised crime (if any)?	n/a		
Qualitative impacts	To Environment	Identifies the number of accidents which resulted in pollution (p. 38)	
	Social	Identifies the riskiest areas for chemical accidents (p. 36) Quantifies the percentage of accidents due to human factors (p. 37)	
	Economic		
Quantitative impacts	To Environment		

	Social	Divides the number of accidents into sinkings, groundings, collisions, fires and explosions, and other types of accidents, expressing the number of instances per each category (p. 38)	
	Economic	Clear overview of the quantity of hazardous chemicals transported on the Baltic sea.	
Monetary impacts	To Environment	n/a	
	Social	n/a	
	Economic	n/a	
Other issues/comments	n/a		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Marine Pollution		
Title of information/data source	Ecosystem Health of the Baltic Sea, HELCOM initial holistic assessment		
Where is the data source? Link if available?	http://www.helcom.fi/Lists/Publications/BSEP122.pdf		
Method used for data collection	Direct assessment: this is a primary source and the data analysed is gathered by HELCOM itself.		

Geographic scope of data (country coverage), including if transboundary	Baltic Sea		
Temporal coverage of data (start and end date)	2003-2007		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Geographical assessment of the presence of hazardous substances (p. 18)	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To Environment	Targeted Extraction of Minerals is identified as one of the possible causes of physical damage to the seabed (p. 29) Identifies a decreasing trend in the level of organic pollutants (p. 20) Identifies a decreasing trend in the number of deliberate illegal oil spills (from 763 spills in 1989 to 210 spills in 2008) (p. 32)	
	Social	Identifies the possible causes of the decreasing trend in the level of pollutants (p. 20)	
	Economic	n/a	
Quantitative impacts	To Environment	Quantifies the amount of macroscopic marine litter amounting to less than 20 particles per 100 meters of coastal strip (p. 31) Establishes that no significant illegal and accidental hydraulic oil spill from ships has occurred since the 'Fu Shan Hai' incident in 2003. The incident resulted in the release of 318 tonnes of fuel oil after 616 tonnes had been recovered from the sea (p. 31)	

		61 incidents occurred between 2000 and 2008 leading to oil discharge (p. 31)	
	Social	n/a	
	Economic	The cost of pollution in the Baltic sea is calculated (p. 52)	
Monetary impacts	To Environment	n/a	
	Social	n/a	
	Economic	n/a	
Other issues/comments	This is an extremely complete and extensive report which provides a multi-disciplinary analysis of pollution in the Baltic Sea, identifying its amount, its causes and reflecting upon such data.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Oil Pollution		
Title of information/data source	US Coast Guard, Report on Implementation of the Oil Pollution Act 1990		
Where is the data source? Link if available?	www.uscg.mil/npfc/docs/PDFs/Reports/osltf_report.pdf		

Method used for data collection	n/a		
Geographic scope of data (country coverage), including if transboundary	USA		
Temporal coverage of data (start and end date)	1990-2004		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	identifies the significant spills from Tank Barges and Tank Ships from 1994 to 2004 (p. 32-34)	
	Number of individuals involved in criminal activity	n/a	
Relationship to organised crime (if any)?	n/a		
Qualitative impacts	To Environment	Indicates that the number of infractions of the Oil Pollution Act 1990 keeps decreasing (p. 28)	
	Social	n/a	
	Economic	Analyses the Oil Spill Liability Trust Fund potential exposure of claims from spills (p. 20)	
Quantitative impacts	To Environment	Provides data on the number of infractions of the Oil Pollution Act 1990 (p. 29) Calculates the volume of spills per year, dividing it by type of vessel (p. 31)	
	Social	n/a	

	Economic	Identifies the amount of liability claims paid and pending and divides them into categories (p. 18)	
Monetary impacts	To Environment	n/a	
	Social	Identifies the funds which the single states/territories would have to provide in absence of the OSLTF fund (p. 20)	
	Economic	n/a	
Other issues/comments			

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Offshore Oil and Gas Pollution		
Title of information/data source	METRO, Civil Liability and Financial Security for Offshore Oil and Gas Activities		
Where is the data source? Link if available?	http://ec.europa.eu/dgs/energy/tenders/doc/2013/20131028_b3-978-1_final_report.pdf		
Method used for data collection	Traditional legal analysis, economic legal analysis, and empirical approach of primary data gathered from several data sources.		
Geographic scope of data (country coverage), including if transboundary	Concentrating on the EU and USA		

Temporal coverage of data (start and end date)			
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)		
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?			
Qualitative impacts	To Environment	n/a	
	Social	n/a	
	Economic	Identifies high profile oil spills and provides insured loss (p. 46)	
Quantitative impacts	To Environment	Identifies high profile oil spills and provides spillage quantity (p. 46) Provides data on amounts of oil spilled from installations (p. 40 (UK), 40 (NO))	
	Social	Provides data on fatal and major injuries per country (p. 38-39 (UK), 40 (NO), 42(NL)) Provides general data on fatalities and injuries from Offshore Oil and Gas Operations (p. 44)	
	Economic	n/a	
Monetary impacts	To Environment	n/a	

	Social	Identifies criminal penalty settlement amount for the Deepwater Horizon Oil Spill incident (p. 59) Analyses civil liability mechanisms and financial security (p. 285)	
	Economic	Identifies the 10 most expenses OEEs in history (p. 45)	
Other issues/comments	n/a		

11. Timber

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal trade in timber		
Title of information/data source	OECD, 'Illegal Trade in Environmentally Sensitive Goods' (2012)		
Where is the data source? Link if available?	http://www.keepeek.com/Digital-Asset-Management/oecd/trade/illegal-trade-in-environmentally-sensitive-goods_9789264174238-en#page1		
Method used for data collection	Analysis of data from World Bank, European Commission, American Forest and Paper Association, and Global Witness. Statistical data provided by Chatham House and EIA.		
Geographic scope of data (country coverage), including if transboundary	Worldwide: Indonesia, Honduras, Nicaragua, Liberia, Sierra Leone, Myanmar, Cambodia Democratic Republic of Congo, Equatorial Guinea, Tanzania, Russia, Papua New Guinea, Solomon Islands and Gabon (exporters); China, Japan, India, the US, Europe (Spain, Italy, Finland) and the UAE (importers)		
Temporal coverage of data (start and end date)	1997 - 2009		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Data provided on transports of timber from and to the above mentioned countries	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	Leads to financing military groups in conflict areas.		
Qualitative impacts	To environment	Addressing damaged ecosystems, unsustainable resource use, increased risk of natural disasters and health risks.	
	Social	Addressing the issues of corruption, armed conflict and negative impact on livelihood.	

	Economic	Addressing loss of government revenue due to illegal activities, limiting development of tourism and low profitability of illegal production.	
Quantitative impacts	To environment	N/A	
	Social	Data on the involvement of Vietnamese people in illegal logging at a specified period.	
	Economic	Detailed data on fluctuations in illegal logging in Indonesia; imports to China, Japan, the EU, the US, India and the UAE; exports from Russia, Equatorial Guinea, Indonesia, Myanmar, Papua New Guinea, the Republic of Congo, and Solomon islands.	Discrepancies in reporting of China and Tanzania.
Monetary impacts	To environment	N/A	
	Social	Monetary data on financing war in Cambodia from Illegal trade.	
	Economic	Monetary data on loss of government revenues in Tanzania and Indonesia; depression of global prices; and the value of illegal production and imports.	Estimated data on the monetary damages for year 2004 provided by the World Bank differ from the monetary damages provided by the World Resources International.
Other issues/comments	Some information is rather outdated and require review and comparison to the current trends of illegal trade in timber, i.e. if there is a decline in illegal timber trade. The source itself indicates that there are no reliable sources of data on environmental crime and it is impossible to measure the volume or value of illegal environmental trade directly; valuation based on extrapolations, proxy measurements and educated guesses. Little information is provided on environmental impacts (this is explained throughout the report as owing to the character of the environmental crime).		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal trade in timber		
Title of information/data source	INTERPOL and UNEP, 'Green Carbon, Black Trade: Illegal Logging, Tax Fraud and Laundering in The World's Tropical Forests' (2012)		
Where is the data source? Link if	http://www.unep.org/pdf/RRAlogging_english_scr.pdf		

available?			
Method used for data collection	Data collected by INTERPOL and UNEP. Statistical information provided by UNOCHA, Global Witness, Institute for Environmental Security, Instituto Brasileiro de Geografia e Estatística, UNODC – CIFOR, WWF, International Trade Centre and personal communications.		
Geographic scope of data (country coverage), including if transboundary	Amazon Basin, Congo Basin, Southeast Asia and Indonesia		
Temporal coverage of data (start and end date)	2000 - 2009		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Limited data on the scale of deforestation in Indonesia.	
	Number of individuals involved in criminal activity	Contains limited data on the number of actors involved.	
Relationship to organised crime (if any)?	Illegal logging helps to finance conflicts and arms sales.		
Qualitative impacts	To environment	Data on environmental damage to local communities.	
	Social	Addressing illegal logging operations, which involve murder, violence, threats and atrocities against indigenous forest-living peoples; and abuse of political power.	
	Economic	Data on methods of illegal trade in timber; and decline in illegal logging.	
Quantitative impacts	To environment	Data on the scale of deforestation.	
	Social	Data on corruption in specific areas and the number of illegal logging cases in Indonesia.	
	Economic	Detailed figured on illegally traded wood and types of illegal practices.	
Monetary impacts	To environment	N/A	
	Social	Data on criminal groups involved in	

		logging and the number of imprisoned loggers.	
	Economic	Monetary data on economic value of global illegal logging; loss of revenue and tax income and bribery.	
Other issues/comments	Little information is provided on environmental impacts. The data are often mere estimates and only a range of value is provided. Data from the recent period are missing.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal trade in timber		
Title of information/data source	TRAFFIC, 'Traffic Bulletin Seizures and Prosecutions: March 1997–October 2013' (2013)		
Where is the data source? Link if available?	http://www.traffic.org/august-2010-seizures-archive		
Method used for data collection	Data extracted from national governmental reports and newspaper articles		
Geographic scope of data (country coverage), including if transboundary	India, Malaysia, China, Guatemala, The Netherlands, Indonesia, Lao PDR		
Temporal coverage of data (start and end date)	2002 - 2012		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Specific instances and the extent of the crime mentioned.	
	Number of individuals involved in criminal activity	Contains data on the number of persons arrested.	
Relationship to organised crime (if any)?	Organized international smuggling rackets		
Qualitative impacts	To environment	Illegal logging in specific woods and the impact on the environment and	

		natural habitat mentioned.	
	Social	Tracking illegal smuggling of timber from custom invoices addressed.	
	Economic	Addressing law-based restrictions to trade as a response to illegal logging and transhipment hubs.	
Quantitative impacts	To environment	N/A	
	Social	Precise data on the number of people arrested and the amount of confiscated timber. Specifically mentioning also nationalities of the arrested people and species of the smuggled wood. Moreover, illegal smuggling practices of specific instances are briefly described.	
	Economic	Data on illegal logging networks, police investigations and seizures provided.	
Monetary impacts	To environment	N/A	
	Social	N/A	
	Economic	Data on fines imposed on smugglers provided.	
Other issues/comments	Primary focus on environmental significance and volume of imports from specific territories.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal trade in timber		
Title of information/data source	TRAFFIC - Chatham House Workshop: Tackling the Trade in Illegal Precious Woods, 'Precious Woods: Exploitation of the Finest Timber' (April 2012)		
Where is the data source? Link if available?	http://www.traffic.org/non-traffic/PreciousWoodsbackgroundpaper1ThetradeinpreciouswoodsTRAFFIC.pdf		

Method used for data collection	IUCN data, websites of wood suppliers worldwide		
Geographic scope of data (country coverage), including if transboundary	EU, US, China, Japan, Malaysia, Indonesia, India, Vietnam, Congo basin, Mozambique, Madagascar, Guatemala, Belize, Honduras, Solomon Islands etc.		
Temporal coverage of data (start and end date)	2000 - 2009		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	N/A	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	N/A		
Qualitative impacts	To environment	Illegal logging in specific woods (including vulnerability level) and the impact on the environment and natural habitat mentioned.	
	Social	Involvement of law enforcement agencies in organized crime addressed.	
	Economic	N/A	
Quantitative impacts	To environment	Facts and figures on the volume of logs in specific areas.	
	Social	Limited information on bans and penalties on illegal logging.	
	Economic	Percentages and/or volumes of illegal logs of certain countries provided.	
Monetary impacts	To environment	Value of logs in certain countries provided.	
	Social	N/A	
	Economic	The average amount of lost revenue for countries identified.	
Other issues/comments	The data provided are very detailed and precise. Information is recent and provided in chronological order.		

	The report has a broader scope and includes also data on illegal trade in wildlife across the hot spot countries.

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal trade in timber		
Title of information/data source	OECD, 'The Economics of Illegal Logging and Associated Trade' (2007)		
Where is the data source? Link if available?	http://www.oecd.org/sd-roundtable/papersandpublications/39348796.pdf		
Method used for data collection	Analysis of data from World Bank, FAO, ITTO, Seneca Creek Associates and Wood Resources International.		
Geographic scope of data (country coverage), including if transboundary	EU, US, Canada, Japan, China, Russia , Indonesia, Malaysia, Congo Basin, Brazil etc.		
Temporal coverage of data (start and end date)	1997 - 2006		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	N/A	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	N/A		
Qualitative impacts	To environment	Addressing the need to avoid deforestation and degradation of habitats.	
	Social	Addressing the importance of timber for livelihoods, of the very poor people in particular.	
	Economic	Economic consequences, e.g. loss of investments and political stability briefly addressed.	

Quantitative impacts	To environment	N/A	
	Social	Number of people relying on forests for their living specified.	
	Economic	Figures on volume of timber imports as per region and sector.	Discrepancies in reporting of China and Tanzania.
Monetary impacts	To environment	N/A	
	Social	N/A	
	Economic	Value of illegal logging per year worldwide and of individual countries, as well as loss incurred due to tax invasion provided.	
Other issues/comments	Specifications as to the trade distribution of wood products in particular countries.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal trade in timber		
Title of information/data source	WWF, 'Failing Forests: Europe's Illegal Timber Trade' (November 2005)		
Where is the data source? Link if available?	http://assets.panda.org/downloads/failingforests.pdf		
Method used for data collection	Data from World Bank, IMF, OECD, FAO, ITTO, IIED, UNECE, EFI, FSC, Rainforest Alliance, Greenpeace, and local/regional sources		
Geographic scope of data (country coverage), including if transboundary	EU, Baltic States Russia, Indonesia, Amazon Basin, Congo Basin, East Africa		
Temporal coverage of data (start and end date)	1999 - 2004		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Data on the estimated sum of illegal imports from the six above mentioned regions to the EU provided.	
	Number of individuals involved in criminal	N/A	

	activity		
Relationship to organised crime (if any)?	N/A		
Qualitative impacts	To environment	Addressing negative impact on biodiversity and people in specific regions.	
	Social	Poor governance identified as a driver of illegal timber trade in some countries.	
	Economic	Major importers and exporters of illegal timber identified.	
Quantitative impacts	To environment	Data on the forest area impacted by illegal logging.	
	Social	N/A	
	Economic	Detailed facts and figures on the volumes of imports and exports of illegal timber as per region.	
Monetary impacts	To environment	N/A	
	Social	N/A	
	Economic	Loss of income for national economies identified by providing specific figures.	
Other issues/comments	Primarily focused on trade-related data.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal trade in timber		
Title of information/data source	ITTO, 'Annual Review and Assessment of The World Timber Situation' (2012)		
Where is the data source? Link if available?	**http://www.itto.int/annual_review/**		
Method used for data	Analysis of data gained by UNECE, Eurostat, FAO, UN COMTRADE, UN Statistical Office, IMF and own questionnaires.		

collection			
Geographic scope of data (country coverage), including if transboundary	Australia, Brazil, Canada, Congo Rep. of, Czech Rep., Estonia, Finland, France, Ghana, Guatemala, Guyana, Honduras, Indonesia, Ireland, Japan, Korea, Rep. of, Lithuania, Malaysia, Malta, Myanmar, New Zealand, Norway, Panama, Peru, Philippines, Poland, Slovenia, Suriname, US, and Venezuela.		
Temporal coverage of data (start and end date)	2011 - 2012		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	N/A	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	N/A		
Qualitative impacts	To environment	N/A	
	Social	N/A	
	Economic	Increasing/decreasing trends in the volume of logs in individual countries identified.	
Quantitative impacts	To environment	Data on the volume of timber exported per country per species and percentages of fluctuations.	
	Social	N/A	
	Economic	Detailed data on the volume of logs as per county.	
Monetary impacts	To environment	Monetary value of the volume of timber exported per country per species.	
	Social	N/A	
	Economic	Monetary value of the volume of timber exported per country per species.	
Other issues/comments	Focus on economic and statistical data.		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal trade in timber		
Title of information/data source	Chatham House/Royal Institute of International Affairs, 'Illegal Logging and Related Trade Indicators of the Global Response' (2010)		
Where is the data source? Link if available?	http://awsassets.panda.org/downloads/chatham_house_illegallogging_2010.pdf		
Method used for data collection	Analysis of data from Seneca Creek, EIA, World Bank, WWF, Global Witness, IISD, Human Rights Watch, ITTO, own resources and local organizations.		
Geographic scope of data (country coverage), including if transboundary	Brazil, Cameroon, Ghana, Indonesia and Malaysia (producer countries); China and Vietnam (processing countries); Japan, US, UK, France and the Netherlands (consumer countries).		
Temporal coverage of data (start and end date)	2006 - 2009		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Figures with the rate of deforestation as per year provided.	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	N/A		
Qualitative impacts	To environment	N/A	
	Social	Relationship between corruption and illegal logging identified.	
	Economic	Drivers of reduced illegal logging identified as per country.	
Quantitative impacts	To environment	N/A	
	Social	Figures reflecting percentages of suspicious log supply as per country and as per year provided.	
	Economic	Addressing percentages for exports destined	The estimates are inadequate, since illegalities are not

		for sensitive markets as per country; volume of illegal log production; and estimates of illegal logging in specific countries.	captured in official reports.
Monetary impacts	To environment	N/A	
	Social	N/A	
	Economic	Reduction of illegal logging calculated in saved revenues.	
Other issues/comments	Primary focus on economic data.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal trade in timber		
Title of information/data source	EIA, 'Appetite for Destruction: China's Trade in Illegal Timber' accessible at (2012)		
Where is the data source? Link if available?	http://eia-global.org/images/uploads/Appetite_for_Destruction.pdf		
Method used for data collection	Field investigation and analysis of data from UNCOMTRADE, China Trade Information and Global Timber.		
Geographic scope of data (country coverage), including if transboundary	China (importer), Indonesia, Myanmar, Russian Federation, Mozambique, Madagascar (exporters).		
Temporal coverage of data (start and end date)	2000 - 2001		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Forest area affected by illegal logging identified in hectares.	
	Number of individuals involved in criminal activity		
Relationship to organised crime (if any)?	Illegal logging exacerbating armed conflict, and associated with violence and murders.		

Qualitative impacts	To environment	Destruction of vital forest ecosystems addressed.	
	Social	Increased corruption and conflict addressed.	
	Economic	Loss of revenue for developing countries addressed.	
Quantitative impacts	To environment	Amount of increase in imports of specific type of woods reflected.	
	Social	N/A	
	Economic	Percentages of illegal harvest and fluctuations of imports in cubic meters provided.	
Monetary impacts	To environment	Investments into reforestation identified.	
	Social	N/A	
	Economic	Trade data showing flows of illicit timber into China worth billions of USD a year and value of the global trade in illegal timber.	
Other issues/comments	A lot of data taken from other sources, e.g. INTERPOL – UNEP, Word Bank, TRAFFIC, CIFOR, Global Witness etc.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal trade in timber		
Title of information/data source	CIFOR, 'Cross-border timber trade in Indonesia: critical or overstated problem? Forest governance lessons from Kalimantan', *International Forestry Review* Vol.9(1) (2007)		
Where is the data source? Link if available?	http://www.cifor.org/publications/pdf_files/articles/AObidzinski0701.pdf		
Method used for data collection	Analysis of data from World Bank, EIA, WWF, and local sources.		
Geographic scope of data (country coverage), including if transboundary	Indonesia and its main importers – Malaysia, Singapore and China		
Temporal coverage of data	2002 - 2006		

(start and end date)			
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Number of undocumented logs mentioned.	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	International timber smuggling rings operating in Indonesia's border regions.		
Qualitative impacts	To environment	N/A	
	Social	Illicit wealth generated from illegal timber is a source of social conflict as well as widespread corruption.	
	Economic	Briberies at border checkpoints addressed.	
Quantitative impacts	To environment	N/A	
	Social	Reflecting the extent of timber smuggling in border regions of Indonesia.	
	Economic	Estimated volume of timber supply provided.	
Monetary impacts	To environment	N/A	
	Social	Amount of bribes by timber gangsters identified.	
	Economic	Estimates of lost national tax revenue provided and data on the amount of import taxes mentioned.	
Other issues/comments	Predominantly economic and other quantitative data.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal trade in timber		
Title of information/data	TRAFFIC, 'Opportunity or Threat: Role of the EU in Global Wildlife Trade' (2007)		

source			
Where is the data source? Link if available?	www.traffic.org/general-reports/traffic_pub_**trade**15.pdf		
Method used for data collection	Analysis of data from UN Comtrade, FAOSTAT, UNEP, EIA, WWF, ITTO, WTO, European Plywood Importers Association (UCIP), European Hardwood Importers Association (UCBD).		
Geographic scope of data (country coverage), including if transboundary	Africa, South America and Asia (exporters), EU (importer).		
Temporal coverage of data (start and end date)	1999 – 2006		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Decline in the area of habitat of certain species mentioned.	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	N/A		
Qualitative impacts	To environment	Addressing degradation and gradual extinction of wood habitats as well as illegal logging in parks and the reserves of indigenous people.	
	Social	Loss of massive revenue due to unsustainable forestry impacting rural populations in specific countries mentioned.	
	Economic	The EU identified as the global timber market force.	
Quantitative impacts	To environment	Specific data in hectares and percentages on tree densities in some countries.	
	Social	Percentage of people whose livelihood is dependent on forests identified for certain areas.	

	Economic	Volume of imports of specific wood species to the EU mentioned.	
Monetary impacts	To environment	N/A	
	Social	Value of demand and market prices for tropical timber identified.	
	Economic	Monetary value of the imports to the EU identified.	
Other issues/comments	The report is addressing more types of environmental crimes. It addresses environmental, social and economic impacts in proportion.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal trade in timber		
Title of information/data source	EFI, 'Impacts of Reduction of Illegal Logging in European Russia on the EU and European Russia Forest Sector and Trade' (2005)		
Where is the data source? Link if available?	http://www.efi.int/files/attachments/publications/tr_19.pdf		
Method used for data collection	Analysis of data from WWF, FAO, UNECE, Greenpeace, Seneca Creek Associates and Wood Resources International, Ministry of Natural Resources of the Russian Federation, State Committee for Statistics (GOSKOMSTAT), Federal State Statistics Service (ROSSTAT).		
Geographic scope of data (country coverage), including if transboundary	Russian Federation – European Russia (exporter), EU (importer)		
Temporal coverage of data (start and end date)	1996 - 2005		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	Data containing clearcut area gained from various sources provided, including the discrepancies between them.	
	Number of individuals involved in criminal activity	Mentioning only the number of illegal logging cases/breaches.	
Relationship to organised	N/A		

crime (if any)?			
Qualitative impacts	To environment	N/A	
	Social	N/A	
	Economic	N/A	
Quantitative impacts	To environment	Percentages of wood being cut and the proportion of illegal timber. Difference between legal industrial production and its consumption specified.	
	Social	Addressing the amount and the percentage of forest related abuses, including data on those turned into investigation, taken to court and found guilty respectively.	
	Economic	Percentages of scale of illegal logging addressed. Volumes of illegally harvested timber identified for specific regions.	
Monetary impacts	To environment	N/A	
	Social	Identifying the amount of money which should be recovered from fines if all cases would be detected and perpetrators found.	
	Economic	Direct and indirect losses of gross-income (using the market value of the timber, the value of stumpage fees, lost taxation income), and damage in punitive fees addressed.	
Other issues/comments	Very detailed quantitative data from one sector, i.e. illegal logging in a specific geographical area, i.e. Russian Federation. Less information is provided for some of these areas. Focused mostly on economic data.		

Issue	Sub-issue	Description of information and data available for subjects below	Other comments (including on quality of data, potential to aggregate data)
Type of environmental crime	Illegal trade in timber		
Title of information/data source	WWF, 'Illegal Logging - Cut it Out! : The UK's Role in the trade in illegal timber and wood products' (2007)		
Where is the data source? Link if available?	http://www.illegal-logging.info/sites/default/files/uploads/cut_it_out.pdf		
Method used for data collection	Analysis of data from FSC, Global Witness, UK Forestry Commission, and Timber Trade Federation.		
Geographic scope of data (country coverage), including if transboundary	UK (importer), Sweden, Finland, Russia, Estonia, Latvia, Malaysia, Indonesia, and Central and West Africa (transit countries and/or exporters).		
Temporal coverage of data (start and end date)	2001 - 2006		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	N/A	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	N/A		
Qualitative impacts	To environment	Addressing unsustainable forest management and loss of biodiverse forest in supplying countries.	
	Social	Addressing high levels of poverty in countries supplying timber.	
	Economic	Addressing high level of foreign debt of supplying countries.	
Quantitative impacts	To environment	N/A	
	Social	N/A	

	Economic	Volume of illegal trade originating from Europe and from elsewhere mentioned.	
Monetary impacts	To environment	N/A	
	Social	N/A	
	Economic	Amount of money spent on illegal timber per year by the UK identified.	
Other issues/comments	Trade related data dominate. Illegal logging as an environmental crime per se not addressed.		

Issue	**Sub-issue**	**Description of information and data available for subjects below**	**Other comments (including on quality of data, potential to aggregate data)**
Type of environmental crime	Illegal trade in timber		
Title of information/data source	BfU and Max Planck Institute, 'Organised environmental crime in the EU Member States' (2003)		
Where is the data source? Link if available?	http://ec.europa.eu/environment/legal/crime/pdf/organised_member_states.pdf		
Method used for data collection	Analysis of data from Europol, EIA, IAEA, IUCN, TRAFFIC, European Commission, World Bank, OECD, UNEP, UNICRI, FAO, Chatham House, and Friends of Earth.		
Geographic scope of data (country coverage), including if transboundary	EU, UK, China, Japan, US (importers), Brazil, Cameroon, Gabun, Indonesia, Malaysia, Russia (exporters).		
Temporal coverage of data (start and end date)	1993 - 2003		
Extent of environmental crime	Numbers of instances of the crime or other measure of scale (e.g. area affected)	No cases of illegal trade in timber officially reported (the only category of environmental crime where no case was reported).	
	Number of individuals involved in criminal activity	N/A	
Relationship to organised crime (if any)?	False declarations, corruption for veiling their illegal activities, violence and coercion serve as indicators of organized crime. Moreover, illegal production of wood is due to its profits replacing the production of diamonds as the method for procuring the means for the acquisition of weapons for civil wars.		

Qualitative impacts	To environment	Cutting off trees protected by CITES addressed.	
	Social	Addressing threat to political stability as a consequence of illegal logging.	
	Economic	It has been claimed that it is difficult to distinguish legal from illegal timber for consumer countries. However, illegally harvested timber is significantly cheaper and it is therefore assumed that the strong competitive pressure forces them to cut expenses.	
Quantitative impacts	To environment	N/A	
	Social	Proportion of traders who knowingly buy illegally harvested timber identified.	
	Economic	Proportion of illegally logged timber in woodproduction identified.	
Monetary impacts	To environment	Environmental costs defined as 'immeasurable'.	
	Social	N/A	
	Economic	Annual volume of illegally harvested timber identified in EUR.	
Other issues/comments	Statistical data on timber trade are not very precise, which makes it difficult to come up with reliable estimates. More data provided on other environmental crimes.		