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# Industrial waste conflicts around the world

Case studies from India and Bulgaria:  
shipbreaking and incineration

Contributions by

Federico Demaria, Evgenia Tasheva and Ivaylo Hlebarov



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## Case studies from India and Bulgaria: shipbreaking and incineration

**Report written by:**

Federico Demaria (ICTA UAB)

Evgenia Tasheva (Za Zemiata)

Ivaylo Hlebarov (Za Zemiata)

**Design:**

Jacques bureau for graphic design  
(Netherlands)

**Layout:**

Beatriz Rodríguez-Labajos

Nick Meynen

**Series editor:**

Beatriz Rodríguez-Labajos

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## Abstract

Rich societies use large amounts of resources. Conflicts of resource extraction and waste disposal, such as the conflict over the excessive production of carbon dioxide, arise as a consequence of this. Rich societies generate large quantities of all kinds of waste, facing rising management costs and awakening opposition to waste treatment and disposal sites, such as incinerators and landfills. This is also the background of a rapidly changing and lucrative trade, global in nature, in which waste flows towards developing countries or poorer areas of developed countries.

This report, through in-depth case studies from India and Bulgaria, aims to link the increased social metabolism (energy and material flows) of the economy to waste disposal conflicts. The first case study is about shipbreaking (the dismantling of obsolete ocean-going ships) in Alang-Sosiya (India), an example of how the North dumps toxic waste in the South. The second case study is about a failed attempt to build an hazardous waste incinerator in Radnevo (Bulgaria).

Waste disposal conflicts often arise not because of externalities but due to successful cases of cost shifting, or else, capital accumulation by contamination. As a consequence, ecological distribution conflicts emerge as valuation conflict where actors deploy different valuation languages to affirm their right to use a safe environment, from which their health and livelihood often depends upon. Key lessons and mutual learning from both cases is then discussed paying particular attention to the political strategies which can be adopted in environmental conflicts, including grass roots mobilization, cases in the Courts, popular epidemiology, national and international alliances.

## Keywords

waste disposal conflicts

environmental justice

accumulation by contamination

cost-shifting

Ecological unequal exchange

Lawrence Summers' principle

value incommensurability



# Contents

<b>Preface</b>	<b>5</b>
<b>1 Introduction</b>	<b>7</b>
1.1 Preliminary remarks: social metabolism and waste disposal conflicts	7
1.2 Case studies	8
1.2.1 Shipbreaking at Alang-Sosiya (India)	8
1.2.2 Toxic waste incinerator in Radnevo (Bulgaria)	8
1.3 Theoretical framework	9
<b>2 Case study: Shipbreaking at Alang-Sosiya (India)</b>	<b>11</b>
2.1 Background	11
2.2 Methods and study region	12
2.3 The Shipbreaking industry	13
2.3.1 The Shipping industry	13
2.3.2 History of an industry	19
2.3.3 From the ship owner to the ship breaker through cash buyers	19
2.3.4 ASSBY: Alang–Sosiya Shipbreaking Yard	20
2.3.5 Shipbreaking process	21
2.4 Hazardous waste and socio-environmental impacts	23
2.4.1 Hazardous waste generation and management	23
2.4.2 Pollutants discharged	24
2.4.3 Socio-environmental impacts	24
2.4.4 Emergence of a conflict: From material origins to cultural discourses	31
2.5 Looking closer at the ecological distribution conflict: The ‘Blue Lady’ case at the Supreme Court (2006–2007)	31
2.5.1 Three spatial scales for the conflict: International, national and local	31
2.5.2 History of the ‘Blue Lady’ last voyage	32
2.5.3 The case in the Supreme Court: Arguments and languages of valuation	33
2.5.4 The final Court Order on ‘Blue Lady’	36
2.5.5 Ships: which and from where?	37
2.6 Policy recommendations	38





<b>3</b>	<b>Case study: Hazardous waste centre in Radnevo (Bulgaria)</b>	<b>39</b>
3.1	Background	39
3.1.1	Chronology of events	39
3.1.2	Geographical background	40
3.1.3	Social background	41
3.1.4	Economic background	42
3.1.5	Environmental background	42
3.2	Description of the project	45
3.3	Impacts of the project	46
3.4	The conflict	47
3.4.1	Stakeholders	47
3.4.2	History of the conflict	50
3.5	Policy recommendations	58
<b>4</b>	<b>Conclusions</b>	<b>59</b>
4.1	Analysis of the cases	59
4.2	So, what has to be done and how?	60
4.3	Mutual learning	61
4.3.1	Role of the Courts	61
4.3.2	Different social alliances of stakeholders	61
4.3.3	Popular epidemiology, parallels in issues of health, uncertainties about toxics and manufacturing of uncertainty by authorities	62
4.3.4	Links to international aspects, both in the promotion of projects and in the resistance	62
4.3.5	Toxic waste goes to relatively poor areas, a general phenomenon?	62
	<b>Acknowledgments</b>	<b>64</b>
	<b>References</b>	<b>65</b>



## Acronyms

ASSBY	Alang–Sosiya Ship Breaking Yard	LDT	Light Displacement Tonnage
BAN	Basel Action Network	MFA	Material Flow Analysis
BELA	Bangladesh Environmental Lawyers Association	MOEF	Ministry of Environment and Forestry
CBA	Cost-Benefit Analysis	MOEW	Ministry of Environment and Water
CEIE	Centre for Environmental Information and Education	MSC	Mediterranean Shipping Company
COD	Chemical Oxygen Demand	NGO	Non-government organisations
CSO	Civil society organizations	NHWC	National Hazardous Waste Centre
CVM	Co-operation and Verification Mechanism	NIOH	National Institute of Occupational Health
EC	European Commission	OECD	Organisation for Economic Co-operation and Development
EIA	Environmental Impact Assessment	PCB	Polychlorinated Biphenyl Compounds
EIB	European Investment Bank	POP	Persistent organic pollutant
EJO	Environmental justice organization	PHARE	Poland and Hungary: Assistance for Restructuring their Economies
EJOLT	Environmental Justice Organisations, Liabilities and Trade	PVC	Polyvinyl Chloride
GMB	Gujarat Maritime Board	SAPARD	Special Accession Programme for Agriculture and Rural Development
GPCB	Gujarat Pollution Control Board	SEEC	Supreme Environmental Expert Council
HPC	High Powered Committee (also called Menon Committee)	TEC	Technical Experts Committee
ILO	International Labour Organization	TPP	Thermal power plant
IMO	International Maritime Organization	UNCTAD	United Nations Conference on Trade and Development
IPEN	International POPs Elimination Network	UNEP	United Nations Environment Programme
ISPA	Instrument for Structural Policies for Pre-Accession	WIMBY	Welcome Into My Backyard



# Preface

Conflicts over resource extraction or waste disposal increase in number as the world economy uses more materials and energy. Civil society organizations (CSOs) active in Environmental Justice issues focus on the link between the need for environmental security and the defence of basic human rights.

The EJOLT project (*Environmental Justice Organizations, Liabilities and Trade*, [www.ejolt.org](http://www.ejolt.org)) is an FP7 Science in Society project that runs from 2011 to 2015. EJOLT brings together a consortium of 23 academic and civil society organizations across a range of fields to promote collaboration and mutual learning among stakeholders who research or use Sustainability Sciences, particularly on aspects of Ecological Distribution. One main goal is to empower environmental justice organizations (EJOs), and the communities they support that receive an unfair share of environmental burdens to defend or reclaim their rights. This will be done through a process of two-way knowledge transfer, encouraging participatory action research and the transfer of methodologies with which EJOs, communities and citizen movements can monitor and describe the state of their environment, and document its degradation, learning from other experiences and from academic research how to argue in order to avoid the growth of environmental liabilities or ecological debts. Thus EJOLT will increase EJOs' capacity in using scientific concepts and methods for the quantification of environmental and health impacts, increasing their knowledge of environmental risks and of legal mechanisms of redress. On the other hand, EJOLT will greatly enrich research in the Sustainability Sciences through mobilising the accumulated "activist knowledge" of the EJOs and making it available to the sustainability research community. Finally, EJOLT will help translate the findings of this mutual learning process into the policy arena, supporting the further development of evidence-based decision making and broadening its information base. We focus on the use of concepts such as ecological debt, environmental liabilities and ecologically unequal exchange, in science and in environmental activism and policy-making.

The overall **aim** of EJOLT is to improve policy responses to and support collaborative research on environmental conflicts through capacity building of environmental justice groups. A key aspect is to show the links between increased metabolism of the economy (in terms of energy and materials), and resource extraction and waste disposal conflicts so as to answer the driving questions:

*Which are the causes of increasing ecological distribution conflicts at different scales, and how to turn such conflicts into forces for environmental sustainability?*



This first EJOLT report is the product of such a collaboration. Activists from the Bulgarian EJO Za Zemiata and researchers from the Autonomous University of Barcelona have engaged in a mutual learning process to analyse waste disposal conflicts in India and Bulgaria.

Two case studies involving industrial waste show how struggles for environmental justice contribute to the environmental sustainability of the economy. On the one hand, the export of European ships to be dismantled in Alang-Sosiya, India, is examined on the light of the occupational health of local workers and other local impacts. On the other hand, a case on dioxin exposure risks from a planned incinerator in the region of Radnevo, Bulgaria, also illustrates the interplay of compelling value frameworks. Policy recommendations and key lessons from both cases are finally presented.





## 1

# Introduction

## 1.1 Preliminary remarks: social metabolism and waste disposal conflicts

Conflicts of resource extraction and waste disposal, such as the conflict over the excessive production of CO<sub>2</sub>, arise as a consequence of the large amount of resources used by rich societies

Rich societies use large amounts of resources. Conflicts of resource extraction and waste disposal, such as the conflict over the excessive production of carbon dioxide, arise as a consequence of this. Rich societies generate large quantities of all kinds of waste, awakening local opposition to local waste treatment and disposal sites, such as incinerators and landfills (Pellow, 2007) and facing rising management costs (Pearson, 1987). This is also the background of a rapidly changing and lucrative trade, global in nature, in which waste flows towards developing countries or poorer areas of developed countries (McKee, 1996). Under a world-system perspective, the core, through unequal power relations, manages to export entropy to distant sinks in the periphery (Scott Frey, 1998; Hornborg et al., 2007). These flows, legal or not (with mafias as important players), consist of urban and industrial waste, hazardous and non-hazardous waste, and waste intended for reuse, recycling and final disposal (Clapp, 1994; D'Alisa et al., 2010). In the literature the debate over this phenomenon remains open. If one only looks at official statistics, OECD nations tend to appear as net importers of toxic waste, rather than net exporters (Baggs, 2009). However the official databases should be complemented by information from environmental crime cases in the Courts and environmental conflicts where the victims (sometimes helped by civil society organizations like NGOs or trade unions) generate relevant complementary information for scientific analysis and policy making.

This report, through in-depth case studies, aims to link the increased social metabolism (energy and material flows) of the economy to waste disposal conflicts, investigating the following three hypothesis:

- Increased social metabolism (energy and material flows) due to economic growth, globalization and urbanization increases flows of waste from rich areas to marginal (or poor) areas, both internationally and at the urban level;
- An unequal distribution of benefits and burdens/risks is particularly unfavorable for marginal/poor people and areas;
- Environmental conflicts arise from one system of valuation or across them.



## 1.2 Case studies

Hereafter we present two cases. The first is about shipbreaking (the dismantling of obsolete ocean-going ships) in Alang-Sosiya (India) and the second is about a failed attempt to build a hazardous waste incinerator in Radnevo (Bulgaria). The two cases were selected for their representativeness, the first of conflicts linked with international export of toxic waste and the second as a conflict within national borders. In this sense the first is an example of an external frontier of social metabolism and the second of an internal one. Both cases are based on “collaborative research”, with results written together by academic researchers with help from activists from EJOs (India) or by an EJO itself (Bulgaria) through processes of mutual learning. The report will conclude with an analysis of the two cases, policy recommendations and a discussion about grassroots strategies in environmental conflicts (judicial activism, people's mobilization,...).

Our cases are based on 'collaborative research', written together by academic researchers and activists from India and Bulgaria

### 1.2.1 Shipbreaking at Alang-Sosiya (India)

In the first case, shipbreaking, the industry provides steel at cheap prices and employment, which contributes to economic growth meanwhile generating serious concerns about negative environmental and social impacts. More than 80% of international trade in goods by volume is carried by sea (UNCTAD, 2011). The shipping industry constitutes a key element in the infrastructure of the world's social metabolism. Ocean-going ships owned and used for their trade by developed countries are often demolished, together with their toxic materials, in developing countries. Ship breaking is the process of dismantling an obsolete vessel's structure for scrapping or disposal. The Alang–Sosiya yard (India), the world largest shipbreaking yard, is studied here with particular attention to toxic waste management. Ship owners and ship breakers obtain large profits dumping the environmental costs on workers, local farmers and fishers. This unequal distribution of benefits and burdens, due to international and national uneven distribution of power, has led to an ecological distribution conflict. The controversy at the Indian Supreme Court in 2006 over the dismantling of the ocean liner 'Blue Lady,' shows how the different languages of valuation expressed by different social groups clashed and how a language that expresses sustainability as monetary benefit at the national scale, dominated. Shipbreaking in the developing world is not just an externality but a successful case of cost shifting, or else, profit accumulation by contamination (Demaria, 2010).

### 1.2.2 Toxic waste incinerator in Radnevo (Bulgaria)

In the second case, Radnevo, a hazardous waste incinerator would have supposedly improved hazardous waste management and generated employment. The attempts of the Bulgarian Ministry of Environment and Water to construct a centralised facility for managing hazardous wastes - the National waste treatment centre - date back from 2000. The selected site is located in the Stara Zagora region, which is heavily polluted by intensive industrial activities: large coal mines,



three coal-fired power plants and a coal-cake factory. The staunch opposition of the local population backed by NGOs campaigning efforts were successful in preventing the financing of this project from international public funds (an ISPA grant and an EIB loan), thus rendering it infeasible. In 2001 the European Commission refused to finance the project because of the faulty public consultation process, economic deficiencies in the project design and a strong opposition from the local people, Bulgarian and international NGOs. When the project was revived in 2004, the campaign launched by local initiative committees and NGOs resulted in an official confirmation by EC in June 2005 that funding for the NHWC project had been rejected again, due to serious deficiencies in the human health and plant emissions sections of the EIA report.

### 1.3 Theoretical framework

Do our case studies fall under a 'Welcome Into My Backyard' logic or are they cases of (environmental) injustice?

These cases were selected because they are indicative of many other environmental conflicts around the world where a valuation conflict emerges with different actors engaging in a debate on whether the projects are desirable, due to positive impacts like economic development and employment generation, or disruptive for the environment and society as a whole.

How are these two cases to be understood? Do shipbreaking in India and the hazardous waste incinerator in Bulgaria fall under a WIMBY (Welcome Into My Backyard) logic or are they cases of (environmental) injustice (Singh, 2001)? This report discusses the controversy under a framework of ecological economics and political ecology.

Changing social metabolism (meaning the flows of energy and materials in the economy) (Fischer-Kowalski, 1998; Foster, 1999), driven by economic and population growth, generates growing quantities of waste. Georgescu-Roegen proposed a paradox highlighting that 'technical evolution leads to an increase in the rate at which society "wastes resources"... the economic process actually is more efficient than automatic shuffling in producing higher entropy, i.e. waste' (Georgescu-Roegen, 1971). In other words, the more developed a society, the higher its rate of generation of wastes per capita (Giampietro and Mayumi, 2009). It is generally accepted that under a fair allocation of responsibility, developed countries should deal with their own waste. Principles such as 'the polluter pays' and 'producer liability' appear to be legally settled through the Basel Treaty and other mechanisms. However, cases in which countries from the North 'externalize the costs' of toxic waste disposal outside their own national borders (notably to the South, i.e. India) are not rare. The pollution haven hypothesis (Antweiler, 2001) refers to the idea that lower trade barriers will shift pollution to those countries with less stringent environmental regulations, which are normally also poorer. This is consistent with the postulates of economic efficiency in neoclassical economics. We could also add poorer or marginal regions of rich countries (i.e. Bulgaria) where law enforcement is weaker which sometimes appear as internal peripheries (or frontiers).



According to the Lawrence Summers' Principle, Southern countries have an environmental 'comparative advantage' regarding waste treatment (Pearson, 1987). In an internal memo leaked to the press<sup>1</sup>, Lawrence Summers, then chief economist at the World Bank in 1991, wrote: "I think the economic logic behind dumping a load of toxic waste in the lowest-wage country is impeccable and we should face up to that." Pollution should be sent to places where there are no people, or where the people are poor, since "the measurements of the costs of health impairing pollution depend on the foregone earnings from increased morbidity and mortality. From this point of view a given amount of health impairing pollution should be done in the country with the lowest cost, which will be the country with the lowest wages." The cost of internalizing the externalities would be the lowest.

The question is whether decisions on matters of life and death should be taken only on economic grounds (Martínez-Alier, 2002). In such waste disposal conflicts, actors deploy different valuation languages to affirm their right to use a safe environment (Martínez-Alier, 2009).

This article investigates shipbreaking in India and hazardous waste incineration in Bulgaria from the vantage point of political ecology, paying attention to the unequal distribution of benefits and burdens (already in the present generation) in a context of growing global social metabolism that leads to greater generation of waste, and with an analytical focus on the ways actors express alternative claims in the political arena and the valuation conflicts that hence emerge.

*"I think the economic logic behind dumping a load of toxic waste in the lowest-wage country is impeccable and we should face up to that"*

Lawrence Summers,  
former chief  
economist at the  
World Bank

<sup>1</sup> "Let them eat pollution." The Economist, 8 February 1992.

# 2

## Case study: Shipbreaking at Alang-Sosiya (India)

### 2.1 Background

In August 2009, a fire broke out aboard the European ship MSC Jessica killing six workers on the Indian ship-breaking beaches of Alang<sup>2</sup>. The fire erupted as they were dismantling the cargoship's engine room. It took place as the ship had neither been decontaminated by the original owner nor made safe by the local enterprise. These kind of tragedies are rather common in Alang. Can anyone stop them? This report deals with this question.

In the 1970s and 1980s scandals of toxic waste dumping in the South led to attempts to stem these flows, such as the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal of 1989<sup>3</sup>. Yet, India, among others, has been increasingly used as a dumping ground for toxic industrial waste (like asbestos and mercury) from developed countries (Singh, 2001). Environmental and social consequences are potentially severe.

The issue of shipbreaking is examined here as an example of toxic waste trade (Alter, 1997). Shipbreaking is the process of dismantling an obsolete vessel's structure for scrapping or disposal. Conducted at pier or dry dock, or directly on the beach as in Alang–Sosiya, it includes a wide range of activities, from removing all machineries and equipment to cutting down the ship infrastructure. It is the destiny of ocean-going ships like oil tankers, bulk carriers, general cargo, container ships and others like passenger ships. Depending on their interests, stakeholders will call it breaking, recycling, dismantling or scrapping (Stuer-

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<sup>2</sup> "Six die in fire at Alang Ship Breaking Yard" The Indian Press ([www.indianexpress.com/news/six-die-in-fire-at-alang-ship-breaking-yard/498063/](http://www.indianexpress.com/news/six-die-in-fire-at-alang-ship-breaking-yard/498063/) Accessed in January 2012).

<sup>3</sup> Available online at [www.basel.int](http://www.basel.int).

Lauridsen et al., 2004). It is a challenging process, owing to the many problems of safety, health and environmental protection (OSHA, 2001).

We describe below the process through which a ship becomes waste for the ship owner, enters the scrapping market through a cash buyer and is finally dismantled by a ship breaker. We present different options for the management of the ship's toxic waste and analyses the socio-environmental impacts resulting from current practices. The conflict in the 'Blue Lady' case at the Supreme Court of India is analysed with particular attention to the valuation languages used by the different social groups.

## 2.2 Methods and study region

Data from interviews, official documents, direct and participant observation have been combined using the case study research methodology (Yin, 2003). Research started, in collaboration with activists, in April-June 2009, and in a second period in March-October 2011. The access of researchers to the industry site is strictly regulated and workers' freedom of expression is limited. Semi-structured or in-depth interviews with 64 respondents were conducted with local villagers (10), farmers (8), fishers (9), shipbreaking entrepreneurs (4), workers (11), political and administrative authorities (6), legal experts (4), academics (5) and activists (7). Interviewees were selected to represent a broad spectrum of interests and knowledge regarding shipbreaking, using both random and snowball sampling methods. Moreover focus groups have been led with farmers, fishers and workers. Interviews were conducted in English or with the help of local translators in Hindi, Gujarati and other Indian languages. National and international documentation was researched with special focus on the 'Blue Lady' case at the Indian Supreme Court during 2006 and 2007 (Civil Writ Petition No. 657 of 1995). Official documents were examined under the guidance of the lawyer Sanjay Parikh and the petitioner Gopal Krishna. Media coverage on shipbreaking has been extensively examined on the web and at the Centre for Education and Documentation in Mumbai.

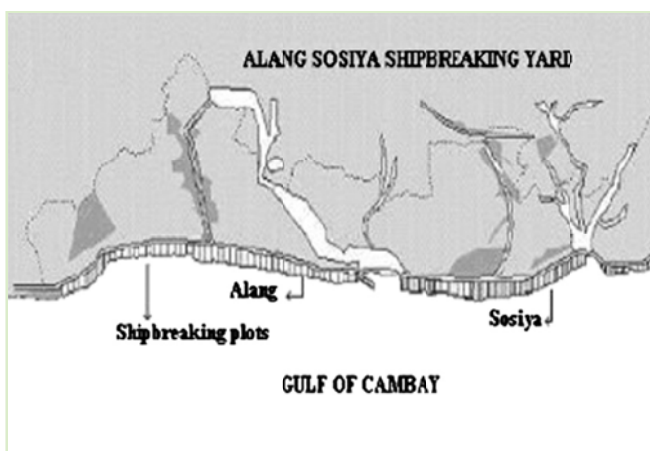
**Fig. 1**  
**Location map of Alang-Sosiya in the State**  
**of Gujarat (India)**

Source: Demaria, 2010





The case study area is in the Gulf of Cambay (also known as Gulf of Khambhat), Bhavnagar District of Gujarat State in the north-west of India (**Fig. 1**). Gujarat State, historically a main centre of trade and commerce, has one of the fastest growing economies in India. Alang and Sosiya are the two local villages that give the name to the Ship Breaking Yard (ASSBY). ASSBY is located at latitude 21.24430 and longitude 72.12100 (**Fig. 2**). The District, originally based on farming and fishing, is under rapid industrialization and urbanization which resulted in the degradation of the environment and decline in biodiversity (Gov. of India, 2002).



**Fig. 2**  
Map showing shipbreaking plots at Alang and Sosiya

Source: Demaria, 2010

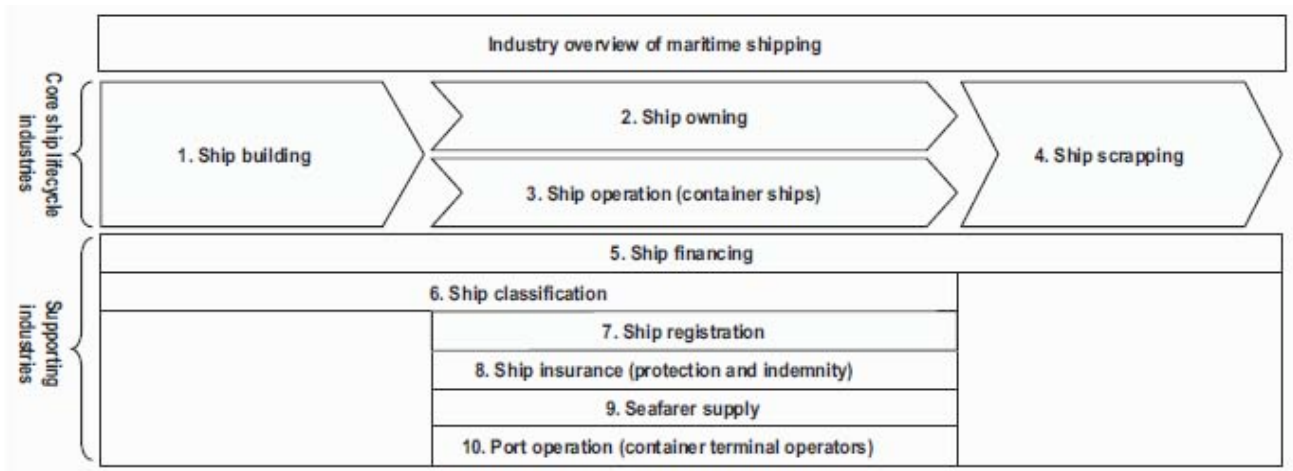
## 2.3 The shipbreaking industry

### 2.3.1 The shipping industry<sup>4</sup>

More than 80% of international trade in goods is carried by sea

The shipping industry (**Fig. 3**) constitutes a key infrastructure for the world's social metabolism as more than 80% of international trade in goods (both raw materials and manufactured goods) by volume is carried by sea. Material flows resulting from international trade (direct import and export flows in terms of their weight) are part of physical accounting methods, such as Material Flow Analysis (MFA) (EUROSTAT, 2001; Vallejo, 2010), used to quantify “social metabolism” processes (Fischer-Kowalski, 1998). In 2010 developed countries accounted for 34% of goods loaded and 43% of goods unloaded in tons, while developing countries accounted for 60% and 56% respectively (post-communist European transition economies account for the rest). Some regions are characterized by a physical import surplus while others face a physical trade deficit (Eisenmenger, 2004).

<sup>4</sup> If not diversely specified, data for this section comes from Review of Maritime Transport (UNCTAD, 2011). All presented data refers to vessels of 100 gross tons (GT) and above.



**Fig. 3 Maritime sectors along a ship's lifecycle**

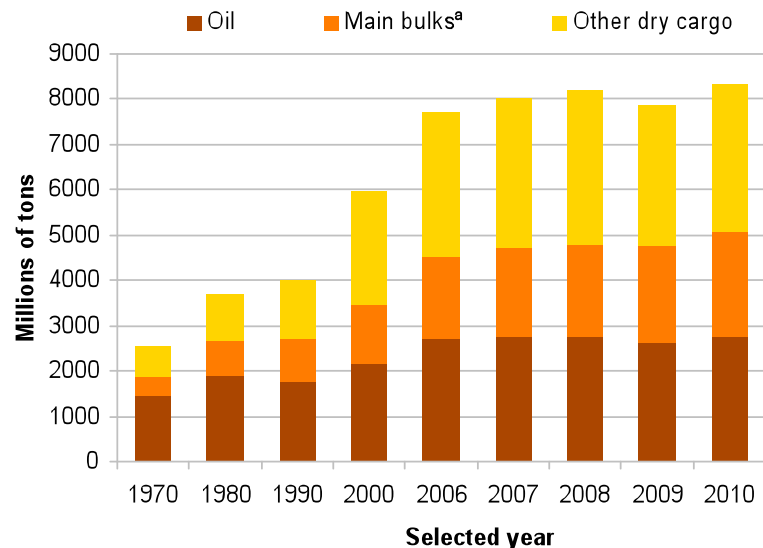
Source: UNCTAD Secretariat

Since the 1990s 'International seaborne trade' (goods loaded) increased faster than world GDP, highlighting the effects of changing production processes, consumption patterns and the deepening of economic integration (globalization). In 2010 this trade reached 8.4 billion tons, from 2.5 billion tons in 1970. **Fig. 4** shows the historical evolution per type of cargo for selected years. Data from 2009 reflects the economic crisis.

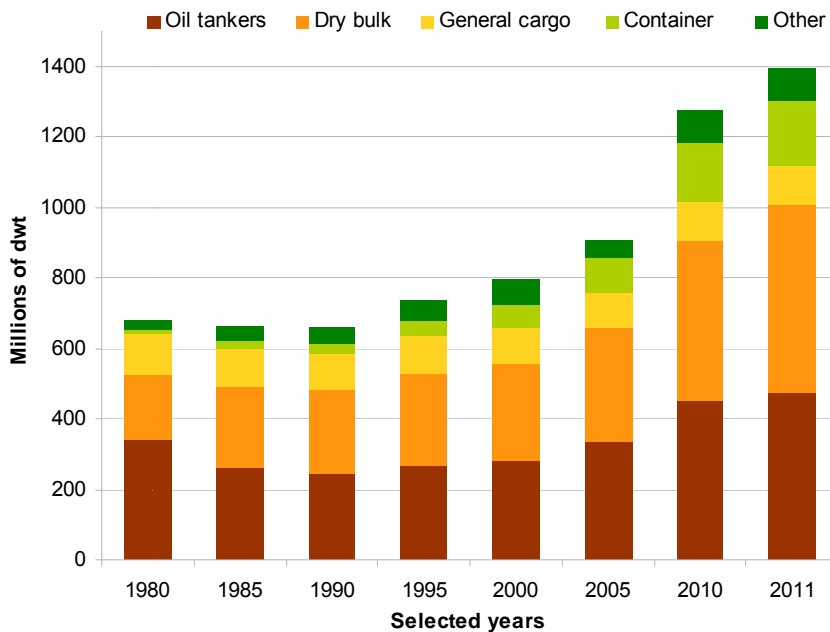
**Fig. 4**  
**Development of International seaborne trade, selected years (millions of tons loaded)**

<sup>a</sup> Iron ore, grain, coal, bauxite/alumina and phosphate.

Source: UNCTAD, Review of Maritime Transport, various issues.



As a direct consequence, the number and capacity of ships has significantly increased. In 1960, the world ocean-going fleet was composed by 15,000 ships (84 million of deadweight tons; DWT a measure of how much weight a ship is carrying or can safely carry), while in 2011 it had reached 103,392 (1,396 million of DWT). **Fig. 5** shows the composition of the world fleet by principal types of vessel, selected years.

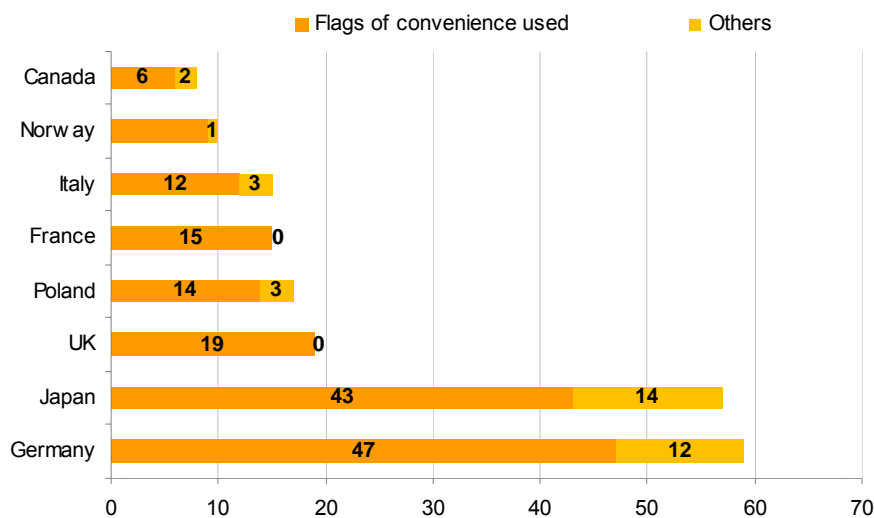


**Fig. 5**  
World fleet by principal types of vessel, selected years

Note: vessels of 100 GT and above

Source: UNCTAD, 2011

In 2007, developed countries controlled about 65.9% of the world DWT, developing countries 31.2% and economies in transition the remaining 2.9%. In 2011 the four top ship owning economies (Greece, Japan, Germany and China) together controlled 50% of the world fleet. Fleet ownership, however, does not always reflect ship registration. Foreign flagged ships accounted in 2011 for 68.1% of the world total, most of them registered in the so called states of convenience (or open registers). The top five registries (Panama, Liberia, Marshall Islands, China Hong Kong and Greece) together accounted for 52.6% of the world's DWT. **Fig. 6** shows ship entries at Alang–Sosiya Shipbreaking Yard (India) in 2004–2005 by shipowner's country: 82.5% of them used a flag of convenience.



**Fig. 6**  
Ship entries at Alang–Sosiya Shipbreaking Yard (India), 2004–2005 (No. ships)

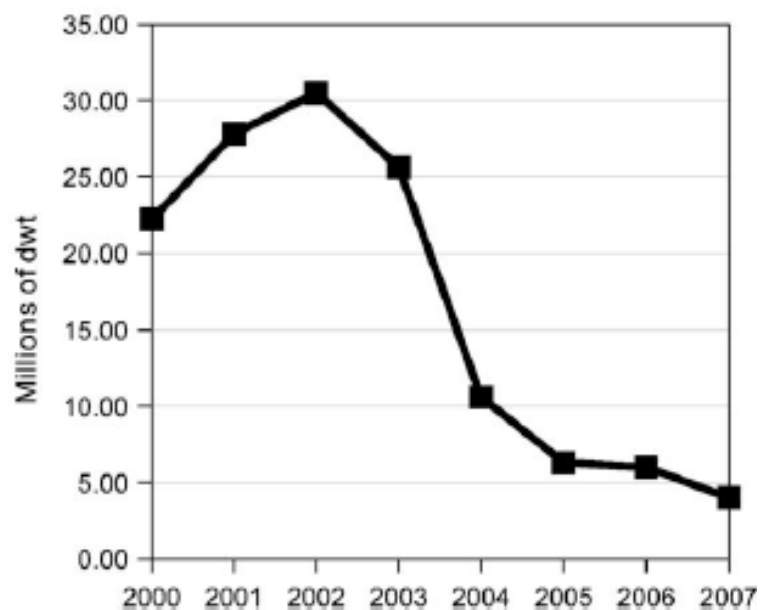
Source: GMB (Gujarat Maritime Board; [www.gmbports.org](http://www.gmbports.org))



Flags of convenience, together with fiscal havens, shell companies and cash buyers, allow under-invoicing (resulting in evasion of import tax and money laundering) and facilitate ship owner's access to the shipbreaking market.

This increase in the size of the world fleet does not immediately lead to a general increase in the supply of ships for scrap (**Fig. 7**). Ship owners evaluate the expected future earning potential and the expected cost of keeping the ship in operation against the revenue obtained when the vessel is sold for scrap. This mainly depends on the price of steel. Potential earnings are more important in the decision than the scrapping price. The 2008–2009 economic crisis resulted in a boom of shipbreaking because of excess shipping capacity (**Fig. 9, Table 3**), with ship owners associations planning to eliminate 25% of the world fleet.

**Fig. 7**  
Tonnage reported sold for breaking at the world level, 2000–2007 (millions of DWT)  
SOURCE: UNCTAD, 2007



In fact, according to the data elaborated by the French NGO *Robin de Bois*, if in 2006 demolitions were equivalent to only 0.6% of the existing fleet (293 vessels), the economic crisis reversed the situation (288 vessels in 2007, 456 in 2008, 1,006 in 2009<sup>5</sup>, 956 in 2010<sup>6</sup> and 854 until November 2011). The excess supply is reflected since 2009 in the spectacular fall in the Baltic Dry Index that measures the rates charged for chartering dry bulk cargoes. In 2011 strong steel prices and the recovery of maritime business increased costs for ship procurement but at the same time significantly increased the margins in the ship scrapping business.<sup>7</sup> In general ship owning companies look to sell their ships for demolition at the best price.

<sup>5</sup> In 2009 of 1,006 vessels (8.2 million tons), 435 were demolished in India (43%), 214 in Bangladesh (21%), 173 in China (17%), 87 in Pakistan (9%), 42 in Turkey (4%). Robin de Bois, Information Bulletins on Ship Demolition: #17, September 2009; #18, January 2010. [www.robindexbois.org](http://www.robindexbois.org).

<sup>6</sup> In 2010 of 956 vessels (6.5 millions tons), 422 were demolished in India (44%), 135 in Turkey (14%), 125 in China (13%), 90 in Pakistan (9%), 79 in Bangladesh (8%), 5 in Europe (1%), 100 in other countries (10%). Robin de Bois, Information Bulletins on Ship Demolition: #19 to 22, January 2011. [www.robindexbois.org](http://www.robindexbois.org).

<sup>7</sup> Article by Xu Hui, Executive Manager, China Ship Fund. Available at [www.chinadaily.com.cn/bizchina/2010-04/08/content\\_9703387.htm](http://www.chinadaily.com.cn/bizchina/2010-04/08/content_9703387.htm) (accessed in January 2012).

The 2011 UNCTAD report rightly argues that the “the competitiveness of a country's scrapping industry is mostly influenced by labour costs and the regulatory environment. All major ship scrapping countries are developing countries” (pp. 151). In other words ships go for scrapping wherever is easier to externalize social and environmental costs.



**Fig. 8**

**Alang-Sosiya Shipbreaking yard  
(April 2009)**

Photo credit: F. Demaria

South Asian yards are main destinations. For processing capacity ASSBY in India and Chittagong in Bangladesh are the world's biggest yards (**Fig. 8**); Chinese yards are catching up to them.

Again, according to *Robin de Bois* (**Table 1**), in 2011 India continues to be the undisputed leading country not only per number of units, but also for tonnage (44% of the total 6.5 millions tons) followed by Bangladesh (24%), China (19%), Pakistan (11%) and Turkey (2%).<sup>8</sup>

Country	Nº vessels	%	Tons of metal	%
India	373	44	2.810.000	44
Bangladesh	145	17	1.550.000	24
China	119	14	1.208.000	19
Pakistan	83	10	737.000	11
Turkey	55	6	144.000	2
USA	19	2	-	-
Europe	5	1	-	-
Others	55	6	-	-
<i>Total</i>	<i>854</i>	<i>100</i>	<i>6.449.000</i>	<i>100</i>

**Table 1**

**Numbers and tonnage of ships dismantled (January-November 2011)**

Source: *Robin de Bois*, Information Bulletins on Ship Demolition: #23 to 25, November 2011

<sup>8</sup> Robin de Bois, Information Bulletins on Ship Demolition: #23 to 25, November 2011, [www.robinderbois.org](http://www.robinderbois.org).



Country	Scrapped amount, dwt	Number of ships scrapped	Rank	Scrapped ships, percentage of total volume				
				Bulk carriers	Dry cargo / passenger	Offshore	Tankers	Others
India	9.287.775	451	1	9.7	32.8	5.3	46.2	5.9
Bangladesh	6.839.207	110	2	15.1	5.5	5.7	71.1	2.5
China	5.769.227	189	3	46.6	36.3	2.5	12.2	2.4
Pakistan	5.100.606	111	4	8.1	2.9	6.2	80.6	2.2
Turkey	1.082.446	226	5	24.3	48.7	0.2	14.1	12.8
United States	217.980	15	6	0.0	19.9	0.0	80.1	0.0
Romania	16.064	4	7	0.0	100.0	0.0	0.0	0.0
Denmark	15.802	25	8	0.0	53.4	22.7	0.0	23.9
Japan	13.684	1	9	0.0	100.0	0.0	0.0	0.0
Belgium	8.807	12	10	0.0	100.0	0.0	0.0	0.0

**Table 2 Top ten ship-scraping nations, 2010**

Source: Compiled by the UNCTAD secretariat on the basis of data from IHS Fairplay

Data on ships sent for scrapping are not easily accessible<sup>9</sup>. The 2011 report by UNCTAD presents statistics (**Table 2**) based on data from the information company IHS Fairplay (Maritime Intelligence and Publications). Data differ significantly in terms of tonnage but the country ranking remains the same, where the four largest ship scrapping countries covered 98.1 per cent of the activity in terms of recycled DWT in 2010. This data series allows to see on which types of ships the different countries specialize: India on tankers, dry cargo and passenger ships, Bangladesh and Pakistan on tankers, China on bulk carriers.

In Bangladesh, in May 2010, the Supreme Court had suspended the authorization of beaching following an umpteenth fatal accident in 2009 and a new action by the NGO Bangladesh lawyers Association (BELA<sup>10</sup>) who demanded compliance with environmental and social standards (UNCTAD, 2011). Attempts by shipyards to circumvent the Court's decision had been successful, but the activity was then again suspended due to new fatal accidents (at least 12 workers have died in 2011). All site activity is now stopped pending an investigation report and dismantling authorizations for new ships are suspended (Robin de Bois, 2011). In any case this is probably not the end point of shipbreaking in Bangladesh<sup>11</sup>.

<sup>9</sup> Database from the French NGO Robin de bois is public and presents a lot of details for each ship sent for scrapping. Instead IHS Fairplay data might be more exhaustive, but is less transparent and detailed (therefore difficult to assess), and only accessible by paying an expensive fee. For the purpose of this analysis the two are complementary and do not contradict each other.

<sup>10</sup> <http://www.belabangla.org/>

<sup>11</sup> "Recovery in Bangladesh shipbreaking tonnages", Recycling International ([www.recyclinginternational.com/recycling-news/5930/ferrous-metals/bangladesh/recovery-bangladesh-shipbreaking-tonnages](http://www.recyclinginternational.com/recycling-news/5930/ferrous-metals/bangladesh/recovery-bangladesh-shipbreaking-tonnages))





China has overtaken Pakistan and keeps growing rapidly thanks to modernization of its industry, lower taxes and the complete lack of democratic control over accountability for social and environmental impacts. New large facilities have been built near Shanghai in association with major shipping and other companies (including the Peninsular & Orient Steam Navigation Company and British Petroleum) who have guaranteed a steady supply of ships for breaking. In exchange the Chinese firms have promised good environmental controls and safe working conditions for the workers. In fact ship owners are under public scrutiny in their countries for being the source of alleged misery in shipbreaking countries (Wayne Hess et al., 2001). Then, one could wonder why they are doing it in the less transparent country (China) which keeps strictly under control labour trade unions and environmental NGOs, a part from denying access to researchers.

Shipbreaking yards in Europe and USA receive very few ships, as the prices they can offer are close to zero, and tend to receive state-own ships, like the ones from the navy.

### 2.3.2 History of an industry

Shipbreaking first developed in the USA, UK and Japan during WWII because there were many ships damaged by war, and an urgent demand for steel. In the 1960s it moved to less industrialized European countries such as Spain, Italy and Turkey. In the 1970s it left Europe and established itself in Asia, first in Taiwan and South Korea, and then during the 1980s, in China, Bangladesh, India, Pakistan, Philippines and Vietnam (Chaudhari, 1998; Dubey, 2005).

South Asian countries have benefited from favourable natural characteristics (high tidal ranges, gentle sloping and rocky bottom beaches) which allow the vessels to be beached, turning a highly mechanized industry into a labour intensive one.

### 2.3.3 From the ship owner to the ship breaker through cash buyers

Ship owners sell their ships through brokers operating in London, Dubai, Singapore and Hamburg. All ships are sold per ton (LDT<sup>12</sup>) at a price ranging from 100 to 400 dollars, depending on the ship type and on the market. In the last ten years 'cash buyers' have emerged as important intermediaries officially to assure fulfilment of the contract. They differ from traditional ship brokers because they acquire ship ownership, becoming themselves ship owners (although only for a limited period pending its sale or during the handing over of the ship to a recycling facility). Original (last operational) ship owners get lower prices, but this system allows them to bypass liabilities and regulations.

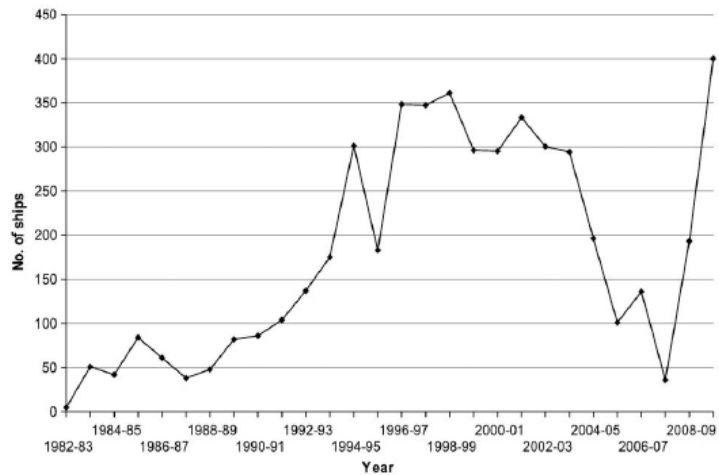
<sup>12</sup> LDT (Light Displacement Tonnage) is the mass of the ship excluding cargo, fuel, ballast water, stores, passengers and crew.

### 2.3.4 ASSBY: Alang–Sosiya Shipbreaking Yard

The first ship, called ‘MV Kota Tenjong,’ was beached in Alang on the 13th of February 1983. Alang–Sosiya Ship Breaking Yard (ASSBY), which occupies 10 Km of coastline, became in the 1990s the world largest shipbreaking yard (**Fig. 1, Fig 9**). In 2011 India accounted for 44% of the world's recycling capacity (**Table 1**), 90% of it taking place in ASSBY (see **Table 3**) and the rest in small yards elsewhere like Mumbai and Kolkata.

**Fig. 9**  
Number of ships broken per year at ASSBY.

Source: GMB (Gujarat Maritime Board; [www.gmbports.org](http://www.gmbports.org)).



**Table 3**  
Number and LDT (Light Displacement Tonnage) of ships broken at ASSBY

Note: LDT is the mass of the ship excluding cargo, fuel, ballast water, stores, passengers and crew.

Source: GMB ([www.gmbports.org](http://www.gmbports.org))

Year	No. of ships	LDT
1982-1983	5	24.718
1983-1984	51	259.387
1984-1985	42	228.237
1985-1986	84	516.602
1986-1987	61	356.139
1987-1988	38	244.776
1988-1989	48	253.991
1989-1990	82	451.243
1990-1991	86	577.124
1991-1992	104	563.568
1992-1993	137	942.601
1993-1994	175	1.256.077
1994-1995	301	2.173.249
1995-1996	183	1.252.809
1996-1997	348	2.635.830
1997-1998	347	2.452.019
1998-1999	361	3.037.882
1999-2000	296	2.752.414
2000-2001	295	1.934.825
2001-2002	333	2.727.223
2002-2003	300	2.424.522
2003-2004	294	1.986.121
2004-2005	196	938.975
2005-2006	101	480.405
2006-2007	136	760.800
2007-2008	36	643.437
2008-2009	193	-
2009-2010 (estimated)	400	-
<b>Total</b>	<b>5033</b>	<b>31.877.972</b>

**Fig. 10**

**Shipbreaking process on  
Plot N° 84 in ASSBY  
(April 2009)**

Photo credits: F. Demaria

### 2.3.5 Shipbreaking process

Once a ship arrives in the Gulf of Cambay it is inspected and checked by the competent authorities which issue (occasionally after receiving bribes) the relevant certificates. The ship is then beached by its own propulsion power at high tide and during low tide is laid down stable on its flat bottom (**Fig. 10**). At this point cutters and their helpers, using simple LPG gas and oxygen torches, can start taking apart the vessel structure.

All operations take place directly on the beach in a relatively small and congested area called a plot (**Fig. 11**). Machinery and heavy equipment (engines, compressors, generators, boilers), together with other dismantled components (navigation equipment, life saving equipment, furniture, electrical cables, utensils, etc.) are sold to traders for reuse. These operations do not require investment in infrastructure or technology, as they are labour intensive and moving cranes and motorized winches are reused from the same ships.

	Weight (%)	Value (%)
Re-rollable ferrous scrap and iron plates	75-85	65
Re-conditioned machinery	10-15	25
Re-melting scrap	3	2
Non-ferrous metal	1	7
Furnace oil and oils	2	0.5
Wooden and furniture	2	0.5
Burning, cutting losses and waste	5-10	0
	100	100

**Table 4**

**Average components (both in  
Weight and Value) obtained by a  
demolished ship**

Source: Interviews with ship  
breakers; Upadhyay, 2002

Depending on their size and type, scrapped ships have an unloaded weight of between 5000 and 40,000 tons, with an average composition as shown in **Table 4**. It requires from 3 to 6 months for an average ship (15,000 tons) to be dismantled with a variable number of workers involved at different stages (from 150 to 300). The industry requires relatively low fixed capital (plot lease, machinery and equipment) and high working capital. The cost of the vessel itself corresponds to more than 50% of the total cost. Interests on investment, duties (customs, excise, value added tax — VAT, etc.) and port charges represent the second important item. Labour and energy (torch oxygen and fuel) constitute each between 3 and 6% of the total expenditure (Upadhyay, 2002; Dubey, 2005). Environmental, safety and health insurance costs do not appear in the accounting.

**Fig. 11**

**Beaching on a plot:  
before and after  
(April 2009)**

Photo credit: F. Demaria



## 2.4 Hazardous waste and socio-environmental impacts

### 2.4.1 Hazardous waste generation and management

Ships contain (in-built and on board) hazardous and non-hazardous substances, significant both in quantity and toxicity, which cannot (or should not) be totally reused or recycled. The waste output of the process represents between 0.5 to 10% of the ship's total weight. Composition is diverse, mainly constituted by scrap wood, plastic, paper, rubber, glass wool, thermocol, sponge, PVC pipes, oil, metals, heavy metals, paints, cement, asbestos and radioactive waste. Independent and reliable statistics on quantity and composition are not available, while estimates are difficult because there are many different types of ships, which vary considerably in their structure (Reddy et al., 2005a,b).

The controversy over shipbreaking mainly concerns the disposal of hazardous waste. There are three methods of disposal:

#### 1) Decontamination prior to export

Decontamination is the process of removing hazardous materials contained in the ship structure (partially or totally), normally without endangering sea-worthiness. This must be done by ship owners. It is a costly operation that requires expertise and technology. A totally decontaminated ship would not fall under the Basel Convention and could be legally dismantled in Bangladesh under the May 2010 Order by the Supreme Court.

#### 2) Environmental sound management on site

Hazardous materials are safely removed and then properly disposed once the ship has been beached. This is the option recommended by the International Convention for the Safe and Environmentally Sound Recycling of Ships adopted in May 2009 by the IMO (International Maritime Organization).

#### 3) Dumping

Hazardous materials are freely released into the environment. ASSBY, since the beginning, has used the third method (HPC, 2003; Reddy et al., 2003, 2005a,b). Waste, hazardous or not, has generally been directly released into the sea from the ship or the plot, burnt on the plot or dumped during the night in surrounding villages (**Figs. 12 and 13**). Some has been transported and dumped in areas (like the surroundings of the industrial city of Surat) where other industries undertake similar actions so that it is impossible to identify the source of waste and enforce any liability.





**Fig. 12** Dumping sites in grazing land around ASSBY, burnt waste on the left and glass wool on the right (April 2009)

Photo credit: F. Demaria



**Fig. 13** Dumping sites in agriculture fields around ASSBY, thermocol on the left and asbestos on the right (April 2009)

Photo credit: F. Demaria

### 2.4.2 Pollutants discharged

Scrapping activity discharges a number of liquid, gaseous and solid pollutants which are hazardous for the environment and human beings (Islam and Hossain, 1986; Zhijie, 1988; Hossain and Islam, 2006). Most common are oil, bacteria, asbestos, heavy metals (Mercury (Hg), Lead (Pb), Arsenic (As), Chromium (Cr), Copper (Cu), Manganese (Mn), Zinc (Zn) and Nickel (Ni)) and persistent organic pollutants (Polychlorinated Biphenyl Compounds (PCBs), Dioxins, Polyvinyl Chloride (PVC), Polycyclic Aromatic Hydrocarbons (PAHs) and Organotins (Monobutyltin — MBT, Dibutyltin — DBT, Tributyltin — TBT, etc.).

### 2.4.3 Socio-environmental impacts

#### Environmental impacts

In ASSBY waste materials accumulate over the soil and then leach to seawaters in a stepwise manner through tidal and sub-tidal zones, through the deep sea and the ocean bed (**Fig. 14**). This has led to a deterioration of physico-chemical properties of seawater and intertidal sediments. COD (Chemical Oxygen Demand)



and BOD (Biological Oxygen Demand), used as indicators of degradation of water quality, are present at high levels.

Shipbreaking activity has substantially affected the ecosystem at Alang–Sosiya (GEC, 1997; Tewari et al., 2001; Reddy et al., 2003; Reddy et al., 2004a,b, 2005a,b). System stress has led to a decline in biotic structure: a decrease in biomass, abundance and species diversity has been measured. Pollutants mix with suspended solids and migrate long distances, carried by high currents (Bhatt, 2004). They have been found, to a lesser extent, together with floating objects and oil, all along the 100 Km of coastline on the East and West side of Alang (Pathak, 1997; Mehta, 1997). The exact spatial dispersion of contaminants remains unknown as all selected control sites (10, 30 or 50 Km away from Alang) have always been affected by pollution (Dholakia, 1997; Gov. of India, 2002). The intertidal zone around ASSBY has practically no vegetation. Mangroves disappeared over a span of thirty years, meaning after the industry began, due to oil pollution, discharge of chemicals and other pollutants (Gov. of India, 2002).

The sea off ASSBY has very poor biological production potential with very low phytoplankton pigment concentration, low zooplankton standing stock, very poor macrobenthic standing stock and low numerical abundance of fish eggs and larvae (Soni, 1997; Majumdar, 1997; Gov. of India, 2002). Exotic species might have been carried in with ballast water, which represents a serious biological risk. The population and diversity of fish have decreased and species tolerant to petroleum hydrocarbons seem to have adapted better to the environmental stress (Mandal, 2004).

The absence of sanitation facilities for the workers has led to the presence of pathogenic and non-pathogenic bacteria (faecal and non-faecal coliforms, salmonella, clostridium, staphylococcus) in the water of the ASSBY area (surface and underground) rendering it unsafe for human consumption while marine coastal water has become harmful for fish population and unsuitable for recreation (Desai and Vyas, 1997; Trivedi, 1997; MECON, 1997). Ecosystems might have been damaged irreversibly, as is the case for the tissue of marine biota due to bio-accumulation and bio-magnification of pollutants (Gov. of India, 2002).

There is a lack of studies into the potential impacts on local terrestrial ecosystems. GPCB (Gujarat Pollution Control Board), a local government agency, claims to keep a complete monitoring, but it has not made data available. For a comprehensive environmental impact assessment one should go beyond local impacts and analyze the complete material recycling chain (ancillary industries). The furnace emissions of re-rolling mills are rendered toxic by the presence of volatile organic matter of marine paints and anti-fouling paints (such as lead, arsenic and pesticides) which has resulted in acid rain during the monsoon season (Bhatt, 2004). The 1997 Report by the Gujarat Ecology Commission 'Ecological Restoration and Planning for Alang–Sosiya' (GEC, 1997) remains the most comprehensive study to date. None of its suggestions have been followed. The assessment maintains its validity as confirmed by more recent studies of the 'Central Salt & Marine Chemicals Research Institute' (Tewari et al., 2001; Reddy et al., 2003, 2004a,b, 2005a,b; Mandal, 2004) and the Report on the 'Critical

Habitat Information System for the Gulf of Khambat' by the Department of Ocean Development (Gov. of India, 2002).



**Fig. 14 Beaches up to 50 Km from ASSBY are covered by oil and floating solid waste**

Photo credit: F. Demaria

### Impacts on workers

Workers in ASSBY, mainly seasonal migrants from the poorer states of India (Orissa, Bihar, Uttar Pradesh, Jharkhand), live and work in pitiable conditions (FIDH, 2002; IMF, 2006). They migrate as a survival strategy because with their previous jobs (at USD 1 per day) and small farms they are unable to maintain their families. Their number varies from 5000 to 50,000. They work under contractors, on a daily basis and with no contract or rights. They work 12 h per day, six days per week. During the field work in Spring 2009, their daily salaries ranged from a minimum of 150 Rs (USD 3) for helpers and loaders to a maximum of 375 Rs (USD 7) for experienced cutters.

They live, without their families, in shared shanties, locally called Kholi, close to the yard with no running water, electricity or sanitation (**Fig. 15**). They are continuously exposed to pollutants, from the air they breathe, the water they drink and the fish that they eat. Notably their jobs present a number of hazards. Frequent accidents are caused by fire and explosion, falling objects, trapping or compression, snapping of cables, falls from heights, and lack of personal protective equipment, housekeeping standards and safety signs (ILO, 2004). In case of injury or death, they are rarely compensated (Rousmaniere and Raj, 2007). Local fishers report that severely injured workers are sometimes dumped at sea and left to drown. The Final Report of the Technical Experts Committee, presented in 2006 to the Indian Supreme Court, offers an insight into the hazards faced by these workers.

With regard to accidents, the Final Report notes that “the average annual incidence of fatal accidents in the ship breaking industry is 2.0 per 1000 workers while the all India incidence of fatal accidents during the same period in the mining industry, which is considered to be the most accident-prone industry, is 0.34 per 1000 workers.”<sup>13</sup> This is based on official data from 1995 to 2005 (roughly 40 traumatic work fatalities per year). Indian media reported twenty-seven fatal

<sup>13</sup> “Current reality and progress towards change”, Transport International Online, ([www.itfglobal.org/transport-international/ti26-beaking2.cfm](http://www.itfglobal.org/transport-international/ti26-beaking2.cfm); accessed in January 2012).

accidents between January and September 2011. It would be methodologically more accurate to correlate the number of fatal accidents to the number of dismantled ships, as workers do when they say 'one ship, one death.' Others say, 'one per day.' With regard to pollutants, the Final Report cites the "Medical Examination of the Asbestos Handlers" by a team from the National Institute of Occupational Health (NIOH) which concludes, "The X ray examination by NIOH showed linear shadows on chest X rays of 15 (16%) of 94 workers occupationally exposed to asbestos. These are consistent with asbestosis..." There are no medical records on the short and long term effects of the workers' exposure to contaminants.



**Fig. 15. Workers' housing conditions, ASSBY (April 2009)**

Photo credit: F. Demaria

### Impacts on fishing communities

The South Saurashtra coastal area has always been well known for fisheries of Bombay Ducks (*Harpodon neherius*), Hilsa, prawns and other species. Fish catch in the gulf of Khambhat is found to be rich on the western side over 100 Km away. Data for fish catch for 1991 and 1995 are indicative. **Table 3** shows the fish landing situation at Gogha, Bhavnagar Lockgate and Katpar.

Gogha and Bhavnagar Lockgate are on the East side of ASSBY about 50 Km away. Katpar is on the West side of ASSBY again 50 Km away. From the data available for the commercially important fishes, a definite fall can be observed in the fish catch, apart from disappearance of certain species (Gov. of India, 2002). In the same area there are about 2500 fishers living in small communities on the beach and in villages (from East to West: Gogha, Mithi Viridi, Sosiya, Alang, Talaja, Sartampar, Gopnath — Gadhula, Mahuva — Katpar).

Fishing activity constitutes the main source of livelihood for about 10,000 people. Apart from Gogha where the majority is Muslim, they all belong to the Koli community. Kolis belongs to the Scheduled Tribes (ST), that (together with the Scheduled Castes, SC) are unprivileged population groups explicitly recognized by the Constitution of India. Fishers report that, since shipbreaking began, the quantity, variety and size of fish has decreased, the flavour has changed, and a



number of species have disappeared (**Table 5**). Others like mudskippers (*Periophthalmus barbarus*, an amphibious fish with a special air breathing system) have better adapted, but are normally less commercially valuable (apart from being contaminated).

Fishers report not to have noticed any damage to their own health due to pollution. However a number of pollutants can bio-accumulate and enter the food chain. Heavy metals bioaccumulating in the fish have been found to be many times higher than the maximum prescribed (Mehta, 1997). These highly toxic fish are not suitable for human consumption. However they are locally caught, consumed (mainly by fishers and shipbreaking workers) and go in dried or fresh form all over India and abroad. Fish can swim long distances and be caught elsewhere. High levels of butyltin, a POP, have been found in fish for consumption in the entire Asian–Pacific region. Shipbreaking, along with sewage disposal and anti-fouling paints, is considered the main source of this (Kannan et al., 1995).

There is no simple solution for fishers. They cannot easily fish elsewhere for a better quality of catch: the area of pollution is very wide, and fishers are not readily mobile. They are also constrained by legal restrictions on where they may fish. In consequence, the quality of life of all the community has worsened significantly. The most vulnerable have to work as unskilled labourers while others have emigrated in search of better opportunities. This picture is very similar to the one of Chittagong (Bangladesh), the world second largest shipbreaking yard: “As the commercially important species are replaced by low priced species and scarcity of fish, many coastal fishers are leaving their hereditary profession and moving around everyday as environmental refugees in a state of under employment and poverty to unemployment and grim poverty” (Hossain and Islam, 2006).

**Table 5**  
**Fish landing in Kg**  
**for some species**  
**at different**  
**centres near**  
**ASSBY**

Source: Dholakia,  
1997

Name of fish	Ghogha		Katpar		Bhavnagar Lockgate	
	1991	1995	1991	1995	1991	1995
Bombay duck	102,069	93,862	116,865	46,129	74,792	32,596
Hilsa	7020	Nil	31,762	15,860	-	-
Culpid	1860	Nil	22,905	23,390	-	-
Mullet	44,308	24,809	112,695	12,776	-	5689
Catfish	21,715	-	13,950	2250	Nil	-
Colmi (shrimp)	175,250	909,151	30,015	48,072	20,240	62,004
Medium prawn	704,179	408,121	108,121	18,690	78,180	27,831
Jumbo prawn	214,314	80,400	30,225	Nil	-	-
Lobster	87,141	21,199	1500	2769	3162	110,639
Colia	-	-	3348	-	-	-
Dhoma	-	-	11,487	3565	-	-
Other fish	420,538	186,427	106,951	27,854	34,056	-





**Fig. 16 Fishing communities: housing conditions, waste all over the beaches, nets marked with oil and a fisher complaining about skin problems. ASSBY (April 2009)**

Photo credit: F. Demaria

### Impacts on villagers

The ten villages in a radius of 12 Km (Alang, Sosiya, Manar, Sathara, Kathwa, Bharapara, Mathavada, Takhatgadh, Jasapara, Madva) have experienced great economic and social changes because of shipbreaking (UNESCO, 2001). Previously working mainly in agriculture, after the arrival of ASSBY they could find new employment and business opportunities (often in accordance to their caste) in transportation, trade and retail (Chaudhari, 1999).

Some of the environmental impacts are of concern for the villagers. Those living close to the operation yards are affected by noise pollution. More generally people complain to Sarpanches (heads of villages) and local authorities about the dumping of waste from the dismantled boats as there are hundreds of dumping sites in all the surroundings (**Figs. 12, 13 and 16**). Preferred sites are waste lands, traditionally used for grazing, but also farming fields; people report that oxen and cattle have died because of eating waste. Villagers report respiratory and skin problems particularly when the waste is set on fire. Most of the villages along the coastline in this region suffer from water scarcity and salinity.

The industry has worsened the problem of overexploitation of water reserves (through population growth and workers immigration) leading to a decrease in groundwater level. Apart from the deterioration of agriculture and animal husbandry, villagers report kidney diseases that are related to both salinity and pollutants. A number of wells are so polluted that they have been abandoned. Modern and traditional forms of agriculture co-exist — for respectively large and small farms — growing mangos, chikos, coconuts and onions. Since the industry has settled, land and labour prices have increased locally. On the other hand the quantity and size of fruits have decreased, and the flavour has changed (**Fig. 17**).

**Fig. 17**

**Thin layer of dust and chemicals on the leaves of plants in agriculture fields one kilometre from ASSBY (April 2009)**

Photo credit:  
F. Demaria





#### 2.4.4 Emergence of a conflict: from material origins to cultural discourses

If this was the end of the story, it would simply confirm the Lawrence Summers' Principle. Instead the next section shows the emergence of a conflict where disputes about values are vocalized. The conflict has material origins that are then shaped by cultural discourses. As discussed in social movement theory, diagnosing a problem (such as shipbreaking) turns out to be a very contentious process, where the different actors try to affirm and impose their interpretative frame to the detriment of representations proposed by the others (Snow et al., 1986). The construction of reality is inextricably linked to asymmetries of power (Della Porta and Diani, 2006).

### 2.5 Looking closer at the ecological distribution conflict: The 'Blue Lady' case at the Supreme Court (2006–2007)

#### 2.5.1 Three spatial scales for the conflict: International, national and local

In the 1990s, the Alang and Sosiya landscape attracted worldwide interest in terms of its aesthetics as an industrial and social inferno (as shown in the images by the Brazilian photojournalist Sebastiao Salgado shot in 1989). Although environmental and labour groups started structuring their complaints, its socio-environmental aspects are still neglected. The conflict has developed at three different scales (international, national and local) with environmentalists playing a major role, accompanied by trade unions and human rights groups, together with industrial lobbies, the Gujarat and Indian governments, and as so often in India, the judiciary.

At the international level, environmental NGOs, including Greenpeace and BAN (Basel Action Network), carried out campaigns to raise public awareness in developed countries and lobby for the implementation of regulations (notably the Basel Convention). In 2005 the 'Platform on Shipbreaking' ([www.shipbreakingplatform.org](http://www.shipbreakingplatform.org)) was created as an international network of environmental, human and labour rights organizations to challenge the global shipping industry. In India, environmental NGOs (like Toxic Links, Corporate Accountability Desk, Human Rights Law Network) and independent activists (like the researcher Gopal Krishna, the activist Madhumitta Dutta, the lawyers Bushan Oza and Colin Gonsalves) engaged in judicial activism and fight to this day on the Civil Written Petition on Hazardous Waste Management first filed in 1995 to the Supreme Court by the 'Research Foundation for Science, Technology and Natural Resources policy.'

At the local level the conflict has remained latent. Seasonal workers are vulnerable because of their precarious social and economic condition and so can be easily kept under pressure and domination. A local trade union (Alang Sosiya Ship Recycling and General Workers' Association), with limited power, exists,



accepted since 2005 by ship breakers to negotiate wages. Workers report the use of violence (by the local police) against sporadic attempts of strikes over dispute about salary, safety, working and living conditions.

Villagers have expressed oral complaints to authorities, normally through the heads of villages. Some attempts of frame bridging (Snow et al., 1986) are being undertaken by national activists between villagers (environmental issues) and workers (working and living conditions). The alliance could potentially be strong, especially in case a common organizational base can be built. Shipbreakers actively oppose the process with threats and a 'divide et impera' strategy.

Media coverage of the human and environmental conditions at ASSBY obliged competent Indian authorities and International Organizations (UNEP, ILO and IMO) to react. Both attempted to assess the main issues at stake, tackling them with detailed policy-making initiatives (mostly technical guidelines) and more effective implementation (Basel Convention, 2002; IMO, 2003; ILO, 2004). The proposed practices (i.e. technology to improve labour safety and environmental protection) are similar to the ones used in developed countries. The industry left those shores to avoid the rules. Technically correct, but politically naive, none of them has been enforced. Instead, in order to understand the situation, the case of the 'Blue Lady' at the Supreme Court of India is presented hereafter. This is not the most famous one (this would be the *Clemenceau* in 2006) but it illustrates the issues at stake, the decision making process and the valuation languages deployed at different scales by different actors of the conflicts over this type of waste disposal.

Attempts of frame bridging between villagers and workers, undertaken by national activists, is opposed by shipbreakers with a 'divide et impera' strategy

## 2.5.2 History of the 'Blue Lady' last voyage

SS France was built in 1960 by the French Line and was at that time the longest passenger ship ever built. It had a mass of 45,000 tons, was 316 m long and 34 m wide, and had 16 floors and 1400 rooms.

In 1979 it was sold to Norwegian Cruise Line (the mother company Star Cruise Ltd — SCL), renamed SS Norway and transformed into the world's most glamorous cruise ship. Seriously damaged in 2003 by a boiler explosion in Miami, it was towed to Germany where repairs were planned. A feasibility study, in 2004, estimated that to decontaminate part of the in-built asbestos would cost 17 millions Euros. In 2005 the ship left Germany, its official destination being Singapore, for reuse. The ship owner intentions were to discard the ship, and therefore the SS Norway became 'waste' under the EU Waste Shipment Regulations. Moreover, since it contained hazardous substances, it could have been considered hazardous waste for the purpose of the Basel Convention. Under Article 9 and Basel Ban Amendment, the export of ships from OECD countries to non-OECD countries, should be conceived as illegal traffic (Moen, 2008). The ship arrived in Malaysia and was planned to be scraped in Bangladesh.

However, due to protest by BELA (Bangladesh environmental lawyers association) the sale was declared invalid. In 2006 SS Norway left Dubai the



authorities being informed that it was going for repairs, as in reality it was sailing towards Alang, to be dismantled.

In June 2006 the mother company Star Cruise (Malaysia) sold it through Norwegian Cruise Line (Bermuda) to the Liberian (shell) company Bridgeed Shipping for, officially, \$10 (as indicated in the Bill of sale for Bahamian ships). Bridgeed sold it, after 1 month, to the Indian shipbreaking company Hariyana Steel Demolition Pvt. Ltd. The ownership was then transferred again to another shipbreaking company, Priya Blue Industries Pvt. Ltd. The ship, finally renamed Blue Lady, apart from the common practice of under-invoicing, had a real price of about 15 million dollars.

On May 2006, the ship was initially prevented from entering Indian waters by an application of the activist Gopal Krishna to the Supreme Court of India. On humanitarian grounds, because of the monsoon, the ship was allowed, on June 2006, to anchor at Pipavav port near Alang. It was finally beached (without permission) on the 3rd of August 2006 and allowed to be dismantled by the Final Court Order of the 11th September 2007.

### 2.5.3 The case in the Supreme Court: Arguments and languages of valuation

The analysis of a judicial case, such as the 'Blue Lady' one, offers an insight into the framing conflict, meaning the struggle over reality construction. Different actors participated in the 'politics of signification' (Hall, 1982). There were environmentalists, villagers, shipbreakers and the Indian authorities. Actors involved are signifying agents engaged in the production of alternative and contentious meanings (Benford and Snow, 2000). They undertook two core framing tasks: diagnostic and prognostic. The first concerns the definition of what the problem is, who is responsible and who has the legitimacy to have an opinion on it; the second regards the proposed solutions. In particular, this section analyses the different attitudes expressed by these actors to the three methods of waste management, and the different valuation languages they used to frame the issue.

#### Environmentalists

Indian environmentalists, in alliance with international organizations, challenged shipbreaking according to languages of justice, economics and legality. Using a justice discourse and invoking the Basel Convention they described it as an 'illegal export of toxic waste' from rich to poor countries highlighting impacts on the environment, and the health and livelihood of workers and local communities. "Blue Lady" was a case of 'toxic imperialism,' Gopal Krishna argued. The practice is perceived as environmental injustice or environmental racism on a global scale (Lipman, 1998) and a human rights violation. Orthodox economic language (such as 'internalising externalities' or 'polluter pays principle') was also strategically adopted by Greenpeace, BAN and the Shipbreaking Platform. While they are



conscious of the pitfalls of economic values, the polluter pays principle offered a suitable language to link questions of economics with questions of justice. Finally, the last language used was one of compliance with the rule of law. Indian activists often claimed that existing legislation had been violated. Gopal Krishna, in his application, called for respect for the 2003 Supreme Court Order including prior informed consent, inventory of hazardous waste mandatory for ship owner, decontamination by the ship owner prior to export, proper removal and waste management (with special attention to asbestos) and transparent pollution monitoring by GPCB. He pointed that the Blue Lady carried 1250 tons of asbestos, the import of which is banned under the Basel Convention and Indian Hazardous Waste (management and handling) Rules, 2003. Lastly, he claimed that ILO standards on occupational and environmental health hazards had not been respected.

### **Ship breakers**

The position of ship breaking companies has always been articulated by Mr. Nagarsheth, historical president of the Iron Steel Scrap and Shipbreakers Association of India (ISCSAI). The argument was basically made on economic values, though also environmental values were employed.

In their Application on February 2006 (IA 25) they highlighted ASSBY's contributions to the economy claiming that more than 100,000 people were in direct and indirect employment, up to 2.5 million tons of good quality and cheap steel (approximately 5% of the domestic demand) had been returned to market, and that 20 billion of Rs (USD 400 million) had been raised by the authorities in the form of customs duties, income and sales taxes. Mr. Nagarsheth presented shipbreaking as an environmentally friendly activity because, by recycling the materials, it saves nonrenewable resources (such as iron ore and the energy needed to produce primary steel). In contrast to other methods of manufacture, especially steel manufacturing, it does not produce solid waste. This position is apparently supported by the IMO which has declared shipbreaking a Green industry.

Mr. Nagarsheth claimed that occupational hazard is the issue, and not the environmental impacts as publicized by media and activists. The recognized hazard could be met by resorting to new technologies. In fact Mr. Nagarsheth declared to be committed to proper waste management without causing any harm or damage to human life or to the environment. Finally he refused to see ships as hazardous waste, so that national and international legislation for the transport of hazardous waste would not apply. What is interesting here is that while business interests employ the same languages (economic, environmental, distributive) as the environmental groups, they frame very different and at very different scales the issues, to come to very different evaluative conclusions.



### Indian authorities

The Ministry of Environment and Forestry (MOEF) together with three other ministries (steel, shipping and labour) are in charge of the policy-making on shipbreaking; GMB (Gujarat Maritime Board) and GPCB (Gujarat Pollution Control Board) deal with the local implementation of rules and regulations. Their valuation premises and positions were very close to those of ship owners and ship breakers, emphasizing public benefits in terms of economic and environmental values at the national scale. According to the authorities, ships are not waste, hazardous substances are managed in an environmentally sound manner and workers safety is under control. Since there was never any pollution, no remediation is necessary. The Menon Committee (HPC), constituted by the Supreme Court in 1997, presented a Report (background to the 2003 Court Order) that represents the sole governmental admission of severe pollution and inhuman conditions of the workers.

In the 'Blue Lady' case, MOEF was in charge of the Technical Experts Committee (TEC) on Management of Hazardous Wastes that the Supreme Court had established on March 2006, to investigate environmental protection, workers' safety and health. Committee ship-inspections, such as the routine ones by GPCB, are visual, because in ASBBY there are no proper laboratory testing facilities. Gopal Krishna proved the conclusions of these inspections to be wrong. The Committee had declared that "presence of radioactive materials in a passenger ship like the 'Blue Lady' is quite unlikely." In fact, it contained 5500 fire detection points containing 1100 radioactive elements in the form of Americium-241.

### Villagers

On March 2007, Mr. Bhagavatsinh Halubha Gohil, Sarpanch of Sosiya (head of the village), filed an application on behalf of 12 sarpanches and 30,000 people who live within a distance of 1 to 25 Km from the shipbreaking yard. The applicants were opposing the dismantling of the ship because of the damage it would do to the health of workers and villagers and the environment (the soil, sea food, water, air, flora and fauna) on which the livelihood of the people depend (the majority of the population consist of farmers and fishers).

They acknowledged that the "scrapping of the ship was vigorously opposed by environmental groups in India, as the Indian breakers did not have the facility or technology to safely dispose off the estimated 1000 tons of asbestos." Three main reasons prompted them to take legal action. Firstly, they presented a study that they had commissioned to a consultancy about the potential health dangers due to carcinogenic effects of the airborne dispersion of the asbestos fibres contained in the ship. Secondly, they mentioned how open dumping of waste into the sea had affected fishers forcing them out into the sea beyond five or six kilometres because of the oil that spreads over the water, ruining fishing. Thirdly, they explained how in the past 15 to 20 years farmers had been noticing that the yield of their crops was diminishing. Even though its cause had not been easy to



pinpoint, they had come to the conclusion that this was related to air, water and soil contamination brought on by the work at ASSBY. The villagers requested their inclusion in the Civil Writ Petition No. 657 of 1995<sup>14</sup> (a public interest petition on the question of hazardous waste import), that the Blue Lady not be allowed to be dismantled at ASSBY and asked for social and environmental justice. Notably, in an interview for the Indian magazine Frontline, Mr. Gohil, promoter of the petition and Sarpanch of Sosiya, clarified their intentions declaring: “we don't want to stop shipbreaking because that would mean loss of jobs for hundreds of people. All we are asking is that it should be done in a responsible manner and our lives and earnings are not affected.”<sup>15</sup>

Witnesses report that a Judge snubbed the petition and the validity of the knowledge of the local people commenting “What do these people know about asbestos?”

#### 2.5.4 The final Court Order on ‘Blue Lady’

The final Court Order was passed the 11th of September 2007. The villagers' petition was never taken into consideration. The Court considered whether permission should be granted for dismantling of the ship “Blue Lady” at Alang, Gujarat. The Court mentioned that the vessel Blue Lady would give employment to 700 workmen, provide the country with 41,000 tons of steel and reduce pressure on mining activity elsewhere. So that, in the framework of sustainable development (recognizing recycling as a key element), the precautionary and polluter pays principles (said to be accepted and settled in Indian Law) should be considered together with the concept of balance (between economic development and environment) under the principle of proportionality (declared to be important in an emergent economy). These considerations, together with the technical and scientific suggestions by the TEC, supported the conclusion that: “It cannot be disputed that no development is possible without some adverse effect on the ecology and the environment, and the projects of public utility cannot be abandoned and it is necessary to adjust the interest of the people as well as the necessity to maintain the environment. A balance has to be struck between the two interests. Where the commercial venture or enterprise would bring in results which are far more useful for the people, difficulty of a small number of people has to be bypassed. The comparative hardships have to be balanced and the convenience and benefit to a larger section of the people has to get primacy over comparatively lesser hardship.” The intention, as declared by the Court, was to balance the priorities of development (generation of revenue, employment and public interest) on one hand and environmental protection on the other. Under a general admission that activity needed to be strictly and properly regulated, the breaking of the Blue Lady was allowed. No quantification of costs and benefits was asked for by the Supreme Court, and neither was a multi-criteria evaluation carried out.

<sup>14</sup> Available at <http://www.elaw.org/node/1400>.

<sup>15</sup> Shipload of trouble, Lyla Bavadam, Frontline, 16 Nov 2007.





### 2.5.5 Ships: which and from where?

Here we have analysed Blue Lady, but the same we could have been done with many other ships. *Robin de Bois* bulletins on shipbreaking offer a detailed list of ships sent for breaking with interesting information (i.e. year of construction, owning company, flag,...). Hereafter we present a few more cases from France and Spain, even though many more cases could be reported with details from Europe and other countries.

#### Clemenceau

The famous case is the French aircraft carrier *Clemenceau*, supposed to be dismantled in ASSBY. But in December 2004, before *Clemenceau* set sail for India, Greenpeace started protesting against France's plans to outsource the scrapping of the 27,000-ton warship laden with toxins such as asbestos, PCBs, lead, mercury and other toxic chemicals in India in violation of the Basel Convention. Despite, on 31 December 2005, *Clemenceau* left the French port of Toulon to be dismantled in Alang-Sosiya. On 6 January 2006 the Supreme Court of India temporarily denied access to Alang. Six days later the ship reached Egypt, where she was boarded by two Greenpeace activists. Egyptian authorities denied access to the Suez Canal. On 15 January the ship was finally allowed to pass. This decision was heavily criticised by Greenpeace and other environmental groups. That same day French President Jacques Chirac ordered *Clemenceau* to return to French waters and remain on standby following a ruling by France's highest administrative court, the Conseil d'État. After it had been lying off the French naval port at Brest for over two years, Able UK issued a press release on 1 July 2008 confirming that they had been given the contract to dismantle the *Clémenceau* at its TERRC (Teesside Environmental Reclamation & Recycling Centre) facility at Graythorp, Hartlepool. Special dispensation was given to Able by the UK HSE to handle the asbestos content of the carrier which would normally have been prohibited by its Control of Asbestos Regulations 2006. Although highly controversial, the quality of the dismantling operation has been complimented by independent environmental groups.

#### From Spain to ASSBY

Less famous than the *Clemenceau*, there are cases from three Spanish boats of Acciona Trasmediterranea S.A. The first is Ciudad de Cádiz, owned by Trasmediterranea since January 1981. On the 4<sup>th</sup> of March 2003 it changed name to Ciudad and adopted Panama flag. On the 2<sup>nd</sup> of April 2003 it arrived in Alang where has been dismantled. The second is Ciudad de Alicante, owned since April 1981 by the same company. On the 6<sup>th</sup> of May 2003 it changed its name to Alicante with San Vicente and Granadinas flag. It was then sold to a logistic Indian company that sold it again fifteen days later to an Indian ship breaking company. On the 5<sup>th</sup> may 2003, the boat was in Alang.



In any case the third case is undoubtedly the most interesting. The ship Beni Ansar, built in 1975, was registered in Moroni (Comoros). During its life cycle it had been called Wisteria, Princesa Maria Esmeralda, Beni Ansar and finally Aqaba Express. It was owned by the Moroccan company Limadet (owned at 35% by Transmediterranea) and managed by the naval company Comanav. It was detained on 12 July 2007 in the port of Almeria by order of the Ministry of Environment to ensure compliance with the Basel Convention. It sailed off from Almeria in August 2007 for Costanza in Romania, where it was to undergo repairs, but it changed course and sailed to Alang. Surprisingly enough, the Spanish authorities, even though being informed, did not take any action to ensure the enforcement of both European and International legislation.

## 2.6 Policy recommendations

Things could be done in a different (better) way and it is technically feasible to have a proper if more expensive dismantling operation (as in Europe). There are in fact many guidelines (Basel Convention, 2002; IMO, 2003; ILO 2004) which are simply not implemented. Ship owners could pay a deposit (or guarantee) throughout the ship life (**Fig. 3**) to be spent for proper dismantling, established as a requirement for allowing entrance at any harbour. This could allow investments to take the activity off the beach because dry docks operations potentially offer better labour and environmental standards. But all this would increase their costs, which is precisely the reason why they send boats to unregulated shipyards like those of ASSBY in the first place.

There are many guidelines (Basel Convention, 2002; IMO, 2003; ILO 2004) which are simply not implemented

# 3

## Case study: Hazardous waste centre in Radnevo (Bulgaria)

### 3.1 Background

The Radnevo case recounts a conflict related to toxic waste treatment and disposal, specifically to the attempt of the Bulgarian government to build a centralised facility for managing hazardous waste (NHWC – the National Hazardous Waste Centre), in the heavily polluted Stara Zagora region in Bulgaria. The project was successfully blocked by the resistance of local communities, with the support of Bulgarian and international EJOs.

#### 3.1.1 Chronology of events

1999	Preparation of the project “Construction of the National Enter for Hazardous waste” begins, financed by European Union's Phare program.
2000	Consultants were engaged for developing the feasibility study for the technologies to be used in the project, the economical and financial assessment and projections for the National Hazardous Waste Centre (NHWC); an information campaign; project site selection; the Environmental Impact Assessment (EIA) report; preparation of the project proposal and the application documents for the EU's Instrument for Structural Policies for Pre-Accession programme (ISPA).
2001	<p>January and February: Awareness campaigns were conducted among the local population.</p> <p>May: The EIA report was open for public review for one month before the two local public hearings.</p> <p>20 and 21 May local public meetings were held to discuss the EIA report.</p> <p>22 May: The project is approved by the Ministry of Environment and Water (MOEW)</p> <p>End of May: The application for financial assistance for the project from ISPA is</p>

	submitted.  10 September: An international EJO appeal addressed the ISPA demanding that a new approach be taken for managing hazardous waste in Bulgaria.  The European Commission decided not to finance the project due to the compromised public consultation process.
2003	MOEW restarted preparation of an application to ISPA with the same project.
2004	MOEW launched public consultations of the revised project, met once again by the opposition of the local people and EJOs, who held several demonstrations and sent numerous letters protesting against the project to the institutions involved.
2005	Early in 2005 EJO Za Zemiata conducted sampling of free-range chicken eggs for toxic chemicals in the vicinity of the proposed site, which revealed very high dioxin levels far in excess of EU limits.  In June the EC informed the EJOs that NHWC project would not receive ISPA funding because of serious deficiencies of the Environmental Impact Assessment report.
2012	The current National Programme for Waste Management Activities in the period 2009-2013 includes the construction of a National Hazardous Waste Centre under priority investment projects, but just disposal and other treatment facilities are mentioned, not including incineration. Current status of the project: unknown.

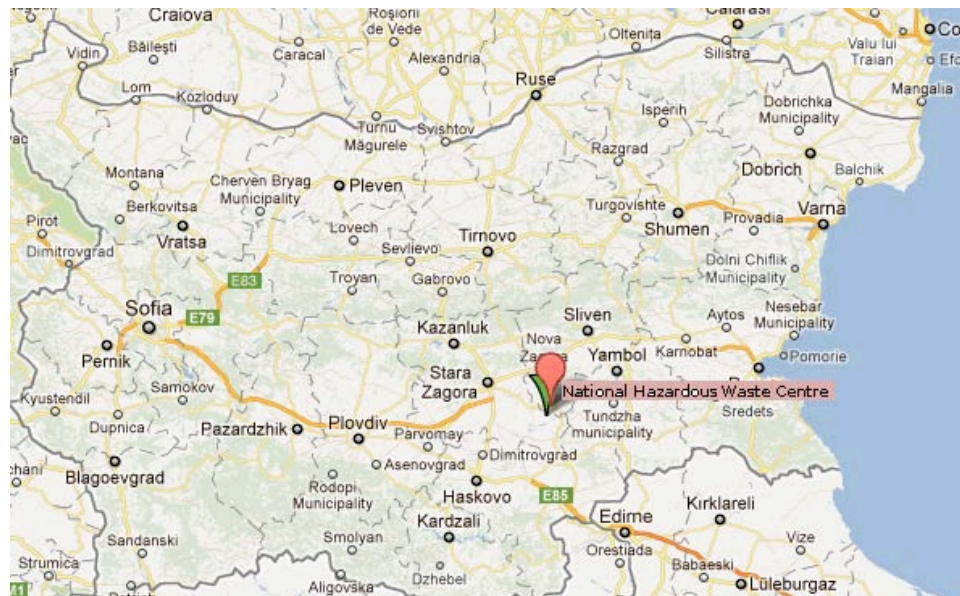
### 3.1.2 Geographical background

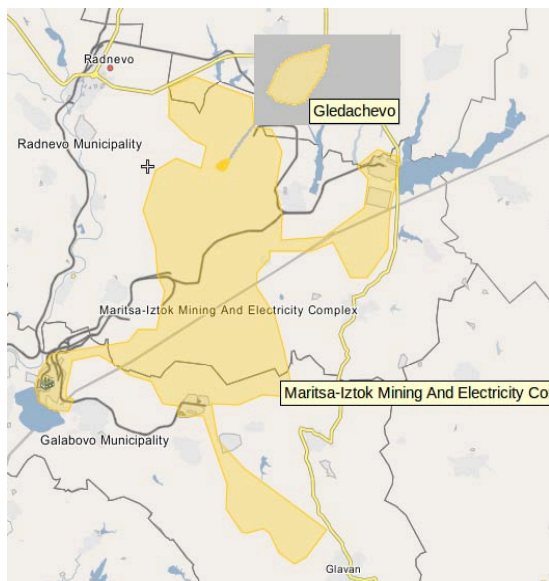
The plan was to site the NHWC in the abandoned village of Gledachevo, located in the Radnevo Municipality, part of Stara Zagora region in the South-East part of Bulgaria. The region of Stara Zagora is the heart of the coal industry in Bulgaria, with three open coal mines and three coal-fired power plants in operation.

**Fig. 18**

**Proposed location of the National Hazardous Waste Centre in Bulgaria**

Source: Za Zemiata based on Google Maps





**Fig. 19**

**The abandoned village of Gledachevo falls into the Maritsa-Iztok Mining and Electricity Generation Complex**

Source: Za Zemiata

### 3.1.3 Social background

Overall, the potentially affected population includes 21,745 people living in settlements within 10 km from the project site. The majority of the population in Radnevo Municipality in 2002 is Bulgarian (86%), with some Roma (7% ) and Turks (5%). There is no data on differentiation based on ethnicity. Men slightly outnumber women, unlike the average situation for the country, due to employment in the coal-mining and energy generation sectors.

The rate of natural increase of the population<sup>16</sup> in both the larger region of Stara Zagora and the smaller area of Radnevo Municipality has been negative for 2000-2002. While this is the general trend on national level, the depopulation trend in Radnevo is significantly higher than the average for the entire Stara Zagora region, which is higher than the country average. The demographic trend in Radnevo is characterised by a mortality rate (15 in one thousand in 2000, 17.2 in one thousand in 2002) that is twice as high as the birth rate (8.2 in one thousand in 2000, 7.6 in one thousand in 2002)<sup>17</sup>. Although a thorough investigation of the long-term trends in the health status in Stara Zagora region is not currently available, several trends are symptomatic of the environmental and health costs internalised by the local residents and workers employed in the Maritsa-Iztok energy industrial complex. Disabilities of children aged under 16 appear to be the highest in the country (6.4 in 1000, the national average is 3.3 in 1000 for 2009).<sup>18</sup> Child mortality rates are also higher than the national average: 11.9 per 1000 live

<sup>16</sup> Not including migration.

<sup>17</sup> Доклад за ОВОС на Инвестиционно предложение: "Национален Център за Третиране на Отпадъци", изготвено от фирма ПОВВИК ООС ООД, Март 2004 / Povvik LTD, March 2004. Environmental Impact Assessment report for Investment proposal "National Centre for Waste Treatment".

<sup>18</sup> National Centre of Health Informatics, 2010. Annual Public Health Statistics for Bulgaria.



births as compared to 9 per 1000 live births.<sup>19</sup> Death caused by respiratory diseases is higher in Stara Zagora region than the country average (4.9 per 1000 as compared to 3.7 per 1000 in 2010)<sup>20</sup>, indicating health impacts from increased levels of specific pollutants related to the operation of coal mines and coal-fired power plants, such as fine particulate matter and dioxins.

### 3.1.4 Economic background

Not only the local economy, but also the economy of the entire Stara Zagora region is dominated by the extractive industry: it provides the largest share of employment in the region, while the chief economic activities are related to coal extraction, energy generation and maintenance of the mining and energy-related facilities and infrastructure. In Radnevo Municipality, coal mines are the largest employer. Radnevo and Galabovo municipalities share an area of 240 square kilometres of coal mines that contain the largest deposit of lignite coal in Bulgaria, amounting to some 2100 million tonnes of coal. Maritsa-Iztok coal mines account for nearly 90% of all coal extracted in the country. Between 25 and 35 tonnes of coal are extracted from those mines annually. The projected extraction in 2012, calculated based on the demand by the regional coal-fired power plants, is estimated at 32 million tonnes of coal<sup>21</sup>. In Bulgaria, the average salary level in the extractive industry sector is higher than that in most other sectors. Stara Zagora region ranks third (after capital Sofia and Vratsa) based on average salary level, and is 18% higher than the country average for 2010, and has been the case in the period 2000-2009.<sup>22</sup> The energy produced by the Maritsa-Iztok complex contributes almost 30% of the energy produced nationally, coming second only to the Kozlodui nuclear power plant.<sup>23</sup> The Maritsa-Iztok complex is the first industrial cluster in Bulgaria, named “The energy heart of Bulgaria”.

### 3.1.5 Environmental background

The proposed project site comprises mostly meadow-type vegetation without any protected flora species. Most of the landscape is pasture land on top of recultivated coal-mines, some riparian areas, human habitations, roads, industrial areas (the coal-fired power plants, the coal mines, the technical repair sites, the enrichment facilities), the so-called 'anthropogenic-technogenic' landscapes (include very large tracts of land, disturbed by industrial excavation works, tailings, landfills, roads, abandoned or operational facilities and sites, etc.), and some reclaimed and “recultivated” landscapes. In close proximity there are nine water dams that serve as wintering habitat for several bird species of international importance: around 50 thousands birds of 29 water bird species, notably

<sup>19</sup> Ibid.

<sup>20</sup> Regional Health Inspectorate-Stara Zagora, 2010. Disease and disability in Stara Zagora region.

<sup>21</sup> Mini Maritsa Iztok EAD Web site ([www.marica-iztok.com/en/](http://www.marica-iztok.com/en/)).

<sup>22</sup> National Statistics Institute, 2010. Average monthly salary level by region for 2010.

<sup>23</sup> Stara Zagora Regional Authority, 2006. Regional development strategy for Stara Zagora, 2005-2015.



cormorants (*Phalacrocorax carbo*, *Phalacrocorax crispus*) and geese (*A. albifrons*, *B. ruficollis*) spend the winter there in significant numbers. As a minimum, the expected impacts include: trampling, soil and surface water contamination, drainage of some areas, rock and soil excavation might cause further contamination. Thermal power plants (TPPs) are the top source of dioxin emissions in Bulgaria: between 1998 and 2006, TPPs emitted between 41-51% of all dioxin emissions (consistently over 100 g/year); even after the sharp decrease in total dioxin emissions since 2007 due to better pollution controls, TPPs have remained the top dioxin emitters (over 2 g/year).



**Fig. 20**

A satellite image of the 'anthropogenic-technogenic' landscapes in the project area

Source: Za Zemiata based on Google Earth

On and around the project site there are a number of archaeological sites of national significance, that would be irreparably affected or directly destroyed by project construction and operation activities.

The municipal regions of Radnevo and Galabovo where the industrial energy complex Maritsa-Iztok (**Figs. 18, 19**) is located were officially listed as one of fourteen environmental pollution hotspots in Bulgaria, determined by a Decree of the Ministerial Council 1994, based on poor air quality in the selected regions<sup>24</sup>. As the three Maritsa coal-fired power plants use local low-quality lignite coal, they are among the chief national sources of sulphur dioxide emissions, a significant source of CO<sub>2</sub> emissions, dust and PM<sub>10</sub>, dioxins and furans, NO<sub>x</sub>, mercury, cadmium. Maritsa East 2 (the largest capacity) emits nearly 450 000 tonnes of SO<sub>2</sub>, which is 50% of all SO<sub>2</sub> emissions in the country for 2002.<sup>25</sup>

<sup>24</sup> Постановление N 50 от 16.03.1994 г. в Държавен вестник бр. 25 от 25.03.1994 г / Decree of the Ministerial Council Nr. 50 from 16.03.1994.

<sup>25</sup> Executive Environmental Agency, National Reports on State of the Environment in Bulgaria, years 1998-2009; ([http://eea.government.bg/bul/Output/SOE\\_Report/index.html](http://eea.government.bg/bul/Output/SOE_Report/index.html)).

Fig. 21

Stara Zagora is the heart of the coal industry in Bulgaria.  
Thermoelectric power plant  
Maritsa East 2

Photo credit: Za Zemiata



Large parts of the land in the area within 10 km from the project site are already disturbed by ongoing or past excavation works and other industrial activities, or are subject to recultivation after industrial activities (see **Figs. 20, 21** and **22**).

Fig. 22

Maritsa-Iztok coal mines

Photo credit: Za Zemiata



The problems expected from the project are related to hazardous waste treatment, incineration and disposal, plus the increased risk from transporting large quantities of hazardous waste from all over the country to the centralised facility.



The issue in this case is not about trade in conventional commodities. It is about toxic remnants of production processes that need to be discarded

## 3.2 Description of the project

The plan for a NHWC included several facilities, to be sited on some 20 hectares of land. The project included a 15 000 tonnes/year incinerator (plus an additional 30 000 tonnes/year incinerator planned for 2015), a solidification facility, a physical-chemical Treatment facility, a mercury recycling facility, a hazardous waste landfill at the NHWC, a 5.000 tonnes/year asbestos landfill, auxiliary buildings and facilities – all to be sited in Gledachevo, and an additional regional hazardous waste landfill to be located in the Sofia region.

The issue in this case is not about trade in conventional commodities. It is about toxic remnants of production processes that need to be discarded. As the hazardous waste involved originate from a number of large industrial enterprises, they comprise a diverse mix of unwanted substances, end products of social metabolism. Thus, this case is directly related to human health and environmental justice. Potentially affected environmental assets are land, air and water.

The proposed capacity for the facilities of the NHWC is estimated based just on the amounts of waste reported by industrial waste generators in Bulgaria. No consideration of household hazardous waste has been given, as those were not subject to separate collection, nor were they banned from landfills at the time (2000). Although the project stated that the polluter pays principle would apply to the waste taken in by the NHWC, this only refers to the fact that industries would need to pay in order to get their stockpiled and freshly generated waste treated at the NHWC. However, the financial plan for the project fixed the costs at levels 'tolerable' for the hazardous waste generators – artificially low costs that were to be in practice subsidised by EU public funding.

Household sources of hazardous waste streams did not enter in the calculation of the capacity of the NHWC facilities. This excludes a wide range of dangerous products and substances, including common household wastes in Bulgaria that are regulated by EU legislation, namely spent batteries and accumulators, waste oils, end-of-life vehicles and waste electric and electronic equipment. In addition, there are the expired pharmaceutical products, old paints, solvents, light bulbs and mercury thermometers, to name just a few of a long list of ubiquitous objects that become hazardous waste for which no special collection or take back schemes existed in Bulgaria in 2000. In 2012 the only disposal option for much of that waste is still the mixed household waste bin, which ends up in the landfill - since nearly 100% of waste in Bulgaria is simply landfilled, with extremely low percentage of recycling or reuse.

On the face of it, the project doesn't involve any trade in imported waste. However, as the proposed fees to be charged for treatment / disposal per tonne of hazardous waste were between two and three times lower than the European Union average (in order to alleviate the financial burden of hazardous waste treatment for large industrial generators), EJOs had serious concerns that once built, the NHWC could start taking in imported hazardous wastes in addition to domestic waste.





The project promoter is the Bulgarian Ministry of Environment and Water (MOEW). MOEW was hoping to fund the project using a 50% grant from the European Union's Instrument for Structural Policies for Pre-Accession (ISPA), combined with an EIB loan as matching funding. The project feasibility studies, the application form and conceptual design were conducted by consultants Fichtner (Germany) and Chemcontrol (Denmark).

### 3.3 Impacts of the project

The project was supposed to produce positive environmental impacts by bringing a change in the way hazardous waste is managed in Bulgaria – the most common practice being its storage and disposal in landfills. Negative impacts include aggravation of human and environmental health problems in one of the most heavily polluted regions in the country. In addition, there is the further injustice of dumping (mostly industrial) toxic waste to an area dominated by the coal industry – where most people live and work in worsened environmental conditions, in order to maintain a 'strategic' industry (from the perspective of 'energy independence') generating some of the dirtiest power in Europe, in terms of pollution per unit of energy produced. Bulgaria, against trends in other European countries, seems determined to maintain a dirty coal industry for power generation. Thus, the Stara Zagora region has become a “pollution hotspot”, perversely attracting other polluting industries.

Toxic waste dumped to an area dominated by the coal industry, where most people live and work in worsened environmental conditions, in order to maintain a 'strategic' industry

The geographic distribution of industrial hazardous waste sources is such that between 90% and 97% of the waste generated comes from outside the Stara Zagora Region, and most of them are situated at significant distances to the proposed location of the NHWC.<sup>26</sup> Apart from greatly increasing the risk of accidents during transportation of the waste, this fact also indicates a skewed distribution of the unwanted products of the social metabolism that tends to happen away from more affluent regions such as Sofia (accounting for 30-50% of hazardous wastes generated) and into an area that, although relatively well-off economically, has been formally categorised by the authorities as an 'environmental pollution hotspot' where there is 'increased health risk due to air pollution'.

Industrial hazardous waste in Bulgaria between 2000-2009 averages some 706000 tonnes annually and is mostly landfilled.<sup>27</sup> Thirty enterprises account for over 90% of the total industrial hazardous waste generated, with metallurgical industry as the leading generator, followed by the cement, pharmaceutical and petrol industries, and including also some waste water treatment plants and a factory producing military equipment and arms<sup>28</sup>. Incidentally, metallurgical

<sup>26</sup> Chemcontrol, Fichtner and Polyconsult EKO, 2001. Waste Survey – Final. Included in the preparation of the ISPA Application Form for the project “Establishment of National Hazardous Waste Centre”.

<sup>27</sup> Executive Environmental Agency, National Reports on State of the Environment in Bulgaria, years 1998-2009 ([http://eea.government.bg/bul/Output/SOE\\_Report/index.html](http://eea.government.bg/bul/Output/SOE_Report/index.html)).

<sup>28</sup> Ibid.



The project proposed to use a large amount of public money. Ten enterprises generate around 60% of hazardous waste and own the same share of all stockpiled hazardous wastes

industry is among the top export industries in Bulgaria, accounting for some 6 billion BGN (roughly 3 billion Euro) in 2010.<sup>29</sup> A brief look at the waste survey conducted by the project consultants reveals that ten enterprises generate around 60% of hazardous waste, and the same ten enterprises own the same share of all stockpiled hazardous wastes<sup>30</sup>.

The project proposed to use a large amount (55.5 million Euro) of public money, in the form of an ISPA grant, supplemented by a loan from the European Investment Bank, in order to finance the costly construction and operation of the NHWC, which, if the projections on which the project is based are correct, would serve the needs of a dozen industrial enterprises, and would not accommodate household hazardous waste at all. Nevertheless, the EIA report claims beneficial social effects of the project, such as directly and indirectly generating economic growth and employment in the region, improving regional infrastructure, reducing health and environmental risks from current practices of hazardous waste disposal, educational and awareness raising effects regarding hazardous substances. It is unclear how the last point would be realised, considering that the project targets just industrial enterprises.

### 3.4 The conflict

#### 3.4.1 Stakeholders

The main stakeholders historically involved in the conflict are described in details below.

**The Ministry of Environment and Water (MOEW):** the main initiator of the project, clearly in a position of conflict of interest, being at the same time the proponent, the investor, and the authority responsible for assessing the quality of the EIA of the project and for implementing effective monitoring of the project's environmental performance. The MOEW attempted to solve the growing problem of accumulated hazardous wastes in the country by betting on a single technological fix – a centralised complex of hazardous waste treatment and disposal facilities. In contradiction with the general state-prescribed actions to alleviate problems in the fourteen environmental hotspots (see p.4), the MOEW chose to consider the abandoned village Gledachevo, located in one of the most polluted areas in the country, as the single candidate for project site.

**Chemcontrol a/s:** A Danish company that participated in the consultancy consortium which developed the entire project documentation (preliminary studies, EIA, ISPA application form, etc.).

**Fichtner:** A German company that participated in the consultancy consortium which developed the entire project documentation (preliminary studies, EIA, ISPA application form, etc.). Incidentally, the very same company is involved in

<sup>29</sup> Capital Weekly. *Myths about Bulgarian exports*. 29 April 2011

([www.capital.bg/politika\\_i\\_ikonomika/bulgaria/2011/04/29/1082287\\_mitovete\\_zabulgarskija\\_iznos/](http://www.capital.bg/politika_i_ikonomika/bulgaria/2011/04/29/1082287_mitovete_zabulgarskija_iznos/)).

<sup>30</sup> Ibid.



developing the future Sofia waste management concept, which entails a significant level of RDF (higher than the rate of recycling) to be incinerated in the coal-fired power plants of the central heating company located in the densely populated urban area of Sofia city.

**Phare Programme** was the main channel for the European Union's financial and technical cooperation with the countries of Central and Eastern Europe, widely used in the form of grants for technical assistance and feasibility studies for large infrastructure projects.

**Instrument for Structural Policies for Pre-Accession (ISPA)**: is one of the three financial instruments of the European Union (along with Phare and SAPARD) to assist the ten candidate countries from Central and Eastern Europe in their preparation for accession by providing financial assistance of up to 85% of the costs for infrastructure projects in the EU priority fields of environment and transport. In order to receive a grant, projects need to undergo a thorough appraisal and get a final approval by the ISPA management committee. Criteria include economic feasibility, cost-benefit analysis, compatibility with national and Community policies and objectives in the fields of environment and transport, proper environmental integration of the project, including consultation with the public affected by the proposed development.

The MOEW was hoping to receive an ISPA grant for 50% of the estimated 56 million Euro project costs. Throughout the project development period, the prospect of receiving an ISPA grant has been used by the MOEW to persuade opponents of the project to become in favour of it.

**European Commission (EC) and its agencies** (specifically Regional Policy Directorate-Generale, Environment Directorate-Generale, the EC Delegation in Bulgaria): decides how and if ISPA funding is granted to project proposals. Decisions are made based on comprehensive appraisal of the submitted project proposal and all accompanying documents.

The EC rejected the project twice – first in 2001 and next in 2005, because of serious concerns regarding violations of the public consultation process and deficient public health impact assessment in the project area.

**European Investment Bank**: expected to loan most of the remaining 50% to cover the project investment costs.

**EJOs**: national (Za Zemiata, CEIE) and international (CEE Bankwatch) EJOs followed closely the project developments, requesting access to information, analysing the available information, pointing out the weaknesses in the project design and public consultation process, maintaining correspondence with the relevant institutions involved and warning the public, media and institutions about the dangers of the project.

**Environmental Association Za Zemiata** is an independent, non-profit, grass-roots based organisation, established in 1995 which aims to promote sustainable living and combat exploitation of people and nature. Za Zemiata had an assigned coordinator for the campaign, which significantly facilitated the forging of alliances





and building up of joint campaign with both local and international communities. Za Zemiata is a member of the CEE Bankwatch network, and worked closely with IPEN at the time of the campaign, which significantly improved the capacity to influence national and international stakeholders.

***The Centre for Environmental Information and Education (CEIE)*** was established in 1994 with the mission to increase the information provision, to raise awareness and provide education and training to the citizens, volunteers and members of NGOs and institutions representatives in Bulgaria on the environmental subjects and problems, to encourage the efficient use of the natural resources and the sustainable development on local, national and regional level. CEIE's participation with experienced activists, such as Petko Kovachev, was of central importance for the success of the campaign. CEIE is also a member of CEE Bankwatch.

Several other Bulgarian NGOs also supported the campaign by signing on to open letters and statements developed by Za Zemiata and CEIE: Borrowed Nature, TIME Foundation, Balkani Wildlife Society, etc.

***CEE Bankwatch Network*** is an international non-governmental organisation (NGO) with member organisations from countries across central and eastern Europe (CEE), monitoring the activities of international financial institutions (IFIs) which operate in the region and promote environmentally, socially and economically sustainable alternatives to their policies and projects. CEE Bankwatch contributed its expertise in lobbying with institutions which finance projects using public money, such as the EC and EIB. It was also very useful in reaching out to international activists and NGOs through its 'Active Bankwatchers' action alerts information system, which distributed the call to write to Stara Zagora's Regional Governor, and also for gathering the support of some 70 NGOs who signed onto the open letter addressed to the ISPA programme.

***The International POPs Elimination Network (IPEN)*** is a global network of more than 700 public interest non-governmental organizations working together for the elimination of persistent organic pollutants, on an expedited yet socially equitable basis. IPEN gave indispensable support to the campaign by providing targeted training of NGO campaigners and including Kovachevo village in the international report on dioxin and PCB levels in egg samples from 18 countries.

***Local initiative committees:*** the five villages situated next to the project site (Kovachevo, Novoselets, Pet mogili, Radetski, Mlekarevo, Polski Gradets) organised their own committees of resistance, which combined forces in a United initiative committee, headed by a local medical doctor, highlighting the enormous significance of the public health concerns expressed by local communities. The united initiative committee was backed by the regional structures of the two largest trade unions in Bulgaria, Confederation of independent trade unions in Bulgaria (CITUB) and the Confederation of labour "Podkrepa", working to protect the right to safer working conditions for more than 15 000 workers in the Maritsa East energy complex. The local committees were very effective in obtaining information from local authorities, organising protests and demonstrations and expressing



their opposition to the project. In their numerous letters and appeals to all levels of state authorities in Bulgaria, the United committee referred to the fact that no additional sources of pollution are needed or wanted by the local population of one of the most heavily polluted regions in the country, threatening civil disobedience in case their opinion remained unheard.

**Local and regional authorities:** The municipal councils and mayors of settlements in the vicinity within 10 km from the project site, the Governor of the Stara Zagora region.

### 3.4.2 History of the conflict

#### The first round

The project for a National Hazardous Waste Centre was first initiated in 2000, using a grant from the PHARE programme to contract the consultants Fichtner and Chemcontrol to conduct the necessary feasibility studies, conceptual design and Environmental Impact Assessment (EIA).

The project was first revealed to the public in January 2001, when the Ministry of Environment and Water (MOEW) launched a local awareness campaign targeting the population in the vicinity of the planned site for the hazardous waste centre. Later all options were dropped but one – the site of an abandoned village, Gledachevo.

In April 2001, at the time of the first formal meeting intended to present the project to the public, local people reacted negatively to the possibility of a new factory to be built in the region, and walked out of the presentation. Local authorities and project leaders accused the local people of being “ill-mannered” and project development proceeded without any public involvement.

On May 20, 2001, at the local public hearing organised as part of the EIA procedure, there were no local people from the affected villages of Kovachevo, Pet Mogili, Radecki, and Novoselec present, except representatives of the municipal authorities. People from Kovachevo stated that they were not informed of the meeting; neither were they aware of its purpose and importance for the future realisation of the project. Just two days later, on May 22, in glaring violation of the EIA procedures specified in Bulgarian legislation, the Supreme Environmental Expert Council (SEEC) of the Ministry of Environment voted a preliminary approval of the EIA report, so that the application for funding of the project could be submitted to the ISPA programme at the end of May 2001.

In August 2001 people from Kovachevo formed a Civil committee and collected 408 signatures (where there are about 580 residents with the right to vote) against the construction of the NHWC. With the help of the Stara Zagora regional governor, Maria Neikova, the petition was submitted in the Bulgarian Parliament. Two meetings with the local authorities and MPs followed. People from Kovachevo were informed that the project was already well under way, and it was impossible to stop or to even debate it. Also, they were told that it was better to agree, as they would benefit from the project. Later on, two more local citizens'



petitions against the project were initiated in Pet Mogili (signed by 726 people) and Novoselec (signed by 493 people).

In an attempt to influence the decision-making process on the financing end, Bulgarian NGOs sought the support of their international counterparts, which resulted in an open letter of September 10, 2001 to the involved directorates and officials of the European Commission. The letter called for a change in the objectives and policy of financing projects in the area of waste management in Bulgaria towards emphasis on projects that prevent waste generation and are environmentally safe. The letter was signed by 75 NGOs from around 30 countries. The answer of Mr. Jean-Marie Seyler, Acting Director of the ISPA program to the NGOs Open Letter stated that "the Bulgarian authorities have given certain assurances" for "full public consultation in line with the EU Directive on EIA".

Before reviewing the final EIA report, the SEEC of the Ministry of Environment was informed of the local people's petition. Without taking the local people's arguments into account, the SEEC approved the EIA report, opening the final stage of the decision-making process needed to allow project realisation. One month after the SEEC decision for approval, local people were formally asked to present their arguments. During the special meeting on October 22, 2001, Deputy Minister of Environment Dukov, stated several times that NGOs had been manipulating the local communities, in particular accusing Za Zemiata. It was made clear to the local people that the project was in such an advanced stage that public input was no longer welcome.

Meanwhile, EJOs' concerns stated during the project development stage were neglected: it took the MOEW more than 5 months to respond to Za Zemiata's first position statement. The key objections to the project stated by NGOs were the following:

- 1) No study of the existing dioxins and furan pollution levels had been conducted in Bulgaria and particularly in the Stara Zagora Region, nor the Gledachvo site. According to the Annual Bulletin on the state of the environment in Bulgaria, published by the Ministry of Environment, Thermal Power Plants emit around 50 % of total dioxins emissions in Bulgaria. There are three thermal power plants in the area.
- 2) No assessment of the cumulative and synergistic effects of dioxin emissions in combination with existing pollutants has been made.
- 3) No proper investigation of the quantity and sort of hazardous waste is conducted.
- 4) No alternative treatment technology is considered different than incineration.

These arguments were presented in a face-to-face meeting between NGOs, local committees and the MOEW on the 19<sup>th</sup> of December 2001, when NGOs proposed that the MOEW should order a fresh environmental impact assessment of the project, which should include a new study of the health risks that the project entails for the local population and involve international experts; and that new



public consultations should be conducted, this time involving all of the affected villages and the workers at the Maritsa-Iztok industrial energy complex.

The attitudes communicated by the Bulgarian government boil down to accusing local people of being ill-mannered, because they did not want to accept new construction in their region until the existing environmental problems are solved; unintelligent, because they listen to the arguments of NGOs, or, as the government put it “allow to be manipulated”; incompetent, because they did not accept the EIA experts’ statements as convincing enough to ensure that the project is harmless.

In conclusion, the European Commission's decision was that the project was not ready and it would not be financed in 2001. The Commission also proposed further investigation to be made for the dioxin contamination risk. The Ministry of Environment did not receive the ISPA grant, nor the EIB loan necessary for the project in 2001.

### **The second round**

In 2003 the MOEW re-initiated preparation of the project for National Hazardous Waste Centre, aiming to submit an application for its funding to ISPA in September 2004. A consultation on the EIA scope was conducted on March 15, 2004 by the MOEW with representatives of NGOs, who provided feedback, demanding that additional data and analyses be included in the EIA report.

Za Zemiata initiated a court case at the Supreme Administrative Court, in an attempt to negate the minister's approval of the project in 2001. The claim was rejected on grounds of lack of legal interest, as the positive decision to go ahead with the project, based on the EIA report is only valid for one year, which had already passed at the time of the court case.

Of all settlements situated nearest to the project site, the most noticeable resistance to the project came from Radnevo, where the newly elected municipal council on January 15, 2004 voted unanimously against having the planned facility on their territory.

On the 7<sup>th</sup> of April a joint declaration by the local affected people and the workers at the 3 TPP supported by the trade-unions was submitted to the President of Bulgaria, the Bulgarian Parliament, local authorities and media. The people stated that no official representative took their opinion into account, threatening civil disobedience as an extreme method of fighting against the construction of the NHC. This time the United committee presented a petition against the realisation of the NHC project signed by 2750 people.

On the 28<sup>th</sup> of June 2004 a MOEW presentation about the new proposal for the National Hazardous Waste Centre provoked a demonstration at the project site by people from affected villages. Following the presentation, local protesters arrived at the planned project site with banners declaring, "No to the hazardous waste centre", "We yearn for a sip of clean air - understand us" and "We'd never join Europe using lies".

In the summer of 2004, an appeal for action was circulated throughout the CEE Bankwatch member and supporter networks, asking activists to send a letter to the Stara Zagora regional Governor, Maria Neikova, calling upon her to defend the people she represents and to demand a cleaner alternative for dealing with hazardous waste. Meanwhile, NGO activists worked on developing the collective capacity for campaigning by developing a campaign plan and detailed guidance for local activists. Za Zemiata's campaigner, Ivaylo Hlebarov, went through a special training on combating incinerators, organised by IPEN, where targeted strategies were explained.

Numerous requests for information (well over 20) were prepared and sent to various institutions in an attempt to obtain official information about the environmental and financial aspects of the project, and about the health and pollution status in the Stara Zagora region. Background information, fact sheets and leaflets on the project and on the harmful impacts and risks of waste transportation incineration were developed for the campaign, which were used with media and in lobbying meetings and correspondence with the involved institutions. Information about non-incineration technologies for hazardous waste treatment was compiled and provided to the MOEW, comprehensive information about the project was published online on Za Zemiata's website, in Bulgarian and English.

Two public hearings related to the new EIA report were scheduled for 9<sup>th</sup> and 10<sup>th</sup> of September 2004 in the municipal centres of Radnevo and Nova Zagora, as announced in local media.



**Fig. 23** Local communities protest the plan to build a hazardous waste treatment and disposal facility in their region, on the planned site of the project

Photo credit: Za Zemiata





This meant that interested local people from the most affected villages neighbouring the project site would be forced to go to Radnevo and Nova Zagora during working hours, in total disregard of the deliberate request sent to the MOEW by the local initiative committee of Kovachevo village three months earlier, asking that public hearings take place in the affected villages, which received no response from the Ministry. To make matters worse, just two copies of the EIA report were made publicly available in the region: one in Radnevo, and the other in Nova Zagora. This made it practically impossible for villagers to review the Report and prepare statements: in order to do so, they would have to travel to Radnevo or Nova Zagora, in order to read the document which is more than 300 pages long. Moreover, local citizens who requested a copy of the EIA report using the Aarhus Convention and the Bulgarian Ordinance for Access to Public Information – had not yet received anything by the time of the public hearings. Only one month was allowed for reviewing the EIA report and submitting statements and comments.

The approach taken by the MOEW provoked NGO activists to state that “the development of this project up to now has demonstrated the remoteness of those in power from the real problems of ordinary people, just like before 1989. The only difference now is that democratic procedures are being simulated which is supposed to 'persuade' the financial donors that the people have given their consent.”<sup>31</sup>



**Fig. 24 Public hearing in Radnevo, September 9, 2004. The presence of security guards anticipates an outburst of public protest**

Photo credit: Za Zemiata

<sup>31</sup> Petko Kovachev from the Center for Environmental Information and Education quoted in a press-release by Za Zemiata of 11.08.2004.



**Fig. 25 Public hearing in Nova Zagora, September 10, 2004. The presence of security guards anticipates an outburst of public protests**

Photo credit: Za Zemiata

The public hearings concerning the Environmental Impact Assessment (EIA) report on September 9-10 were extremely well attended by local residents who openly expressed their opposition to the project, stating that they will fight it using all legal means. The presence of guards in the hall in both meetings betrayed the organizers' expectation of public opposition and possibly unrest (see Fig.7 and Fig.8). The mayor of Kovachevo Village stood steadfast behind his constituency and he refused to support the project. The positive statement presented by Radnevo Deputy Mayor, which was immediately countered by a representative of the Radnevo Municipal Council who reminded the audience about the unanimous vote of the Radnevo Municipal Council from January 2004, rejecting the project. The local leader of the Confederation of Independent Trade Unions in Bulgaria at the Maritsa-Iztok Mines, also supported the local people: "We will back the protests. If necessary we will be among the first ranks."

Pressure on local campaigners was applied after the public hearings with some local newspapers asserting that, "If Bulgaria does not start the construction of the National Hazardous Waste Treatment Centre, the country will not be accepted in the EU." According to Zheljazko Zheljazkov from the village of Pet Mogili: "Such propaganda suggests that we are protesting against the accession of Bulgaria rather than because we are afraid for the health of our families. The newspapers are scaremongering. What's wrong with wanting to live in a non-toxic environment and to breathe clean air?"<sup>32</sup>

<sup>32</sup> NGO press release of October 7, 2004, "Don't waste our health" demo held in Sofia".





**Fig. 26 Representatives of the local initiative committees protesting in front of the MOEW building, October 7, 2004**

Photo credit: Za Zemiata

In the 7<sup>th</sup> of October 2004 some 50 people from the affected villages organised a protest in front of the Ministry of Environment and Water (MOEW) during the session of the Supreme Ecological Expert Council which reviewed the Environmental Impact Assessment report for the National Hazardous Waste Centre. The event received good media coverage.

In early 2005, Za Zemiata took samples of free-range hen eggs from Kovachevo village to be tested as part of an international study conducted in 18 countries, initiated by the IPEN.<sup>33</sup> The study came just ahead the first Conference of the Parties to the Stockholm Convention on Persistent Organic Pollutants. The Bulgarian Parliament ratified the Convention in September 2004.

Chicken eggs were chosen for the study because they are a common food item, their fat content makes them appropriate for monitoring chemicals such as POPs that dissolve in fat, and eggs are a powerful symbol of new life. The study focused on free-range hens because they can easily access and eat soil animals and therefore their eggs are good tools for biomonitoring of environmental contamination.

The results of the laboratory analyses revealed evidence of alarming levels of dioxins and PCB contamination in Kovachevo village, scoring one of the highest levels of dioxins ever measured in chicken eggs. Dioxins in eggs from Kovachevo exceeded the European Union limit more than twenty times. The level of PCBs

<sup>33</sup> IPEN, Arnika and Za Zemiata, 2005. *Contamination of chicken eggs from Kovachevo, Bulgaria by dioxins, PCBs and hexachlorobenzene*. ([http://english.arnika.org/files/documents/Bulgaria\\_eggsreport.pdf](http://english.arnika.org/files/documents/Bulgaria_eggsreport.pdf)).



found in the eggs was more than double the proposed EU limit. On the eve of the Easter on the 1<sup>st</sup> of May 2005, Za Zemiata sent an invitation to the Minister of Environment and Water, Dolores Arsenova, the Minister of Health, Slavcho Bogoev, and to national and regional media, inviting them for an official tasting of dioxin-loaded Easter eggs from Kovachevo.

In June 2005 NGOs heard from the European Commission that the project had been rejected and would not receive ISPA funding. Nevertheless, the MOEW still attempted to keep this information under cover in its official correspondence with NGOs. In January 2006, in response to Za Zemiata's query, the Bulgarian Ministry of Environment claimed that "...the application for funding through the ISPA programme is being processed in accordance with the received comments." This statement came in direct contradiction with the official written confirmation sent by the European Commission almost six months earlier that the project had been dropped due to serious deficiencies in the assessment of public health impacts.

### Aftermath

CEE Bankwatch had a meeting with officials from European Commission's DG Environment in Brussels in October 2005 which did not yield much additional information on the status or problems with the project.

As a result of the campaign conducted by EJOs, and the insistence of the Stara Zagora Regional Governor, a 'screening' of some 3000 children from Radnevo and Galabovo was conducted, revealing increased levels of pulmonary diseases and allergies, and two to three times higher incidence of bronchial asthma than observed in areas where no TPPs operate. The screening was repeated in 2007, with the same results. In consequence, a health programme was developed for the Stara Zagora region, including measures for decreasing pollution levels, and improving health monitoring and awareness of the local population. The implementation of the programme was to be paid for mainly by Stara Zagora municipality and the chief polluting industries (the TPPs and the coal mines). The poor health status in the area was also formally recognised in 2008 by Ministerial Decree, which declared Radnevo "a region with increased health risk in relation to air pollution"<sup>34</sup>.

Currently the project has been put on stand by. The MOEW has ostensibly not undertaken any new initiative towards realising the NHWC. However, this is a project that might be re-initiated at any time. Indeed, it is included as a priority investment project in the current National Programme on Waste Management Activities for the period 2007-2013, with an allocated budget of 75 million BGN (around 38 million Euro), which would come from private investors or a public-private partnership. There doesn't seem to be a fully developed new proposal for the NHWC, however, the National Programme mentions no incineration facility, but only landfills, solidification, physical-chemical treatment plant and other

<sup>34</sup> Постановление N 822 от 19.12.2008 г. / Decree of the Ministerial Council Nr. 822 from 19.12.2008.



auxiliary facilities. Still, the plan to seek private rather than public funding is probably a lesson learned from the government's previous attempts to finance a highly dubious and badly calculated project with EU public funding.

### 3.5 Policy recommendations

Throughout the conflict, EJOs provided the MOEW with detailed comments on the project, asking repeatedly that the hazardous waste problem should be addressed not in a centralised and hurried manner, but only after a comprehensive study of alternative technologies and sites. In 2001 and again in 2004, Za Zemiata compiled a comprehensive list of referenced non-incineration technologies for treatment of hazardous wastes and provided it to the MOEW. CEE Bankwatch, in collaboration with Bulgarian EJOs produced an issue paper addressed to EC decision-making agencies, which proposed that an alternative approach to hazardous waste treatment should be taken in Bulgaria – one based on prevention, reuse and recycling, and non-incineration methods of treatment and final disposal. These recommendations are still applicable to Bulgaria's industrial hazardous waste. In addition, it should be emphasized that domestic hazardous waste, although more difficult to capture, is growing in quantity with the rise in consumer electronics consumption, and should be properly addressed as well, focusing on the top levels (prevention, reuse, recycling) of the waste hierarchy stipulated in EU's Waste Framework Directive (2008/98/EC).



# 4

# Conclusions

## 4.1 Analysis of the cases

This report investigated shipbreaking in the world greatest yard and a proposed hazardous waste incinerator in Bulgaria, analysing the social, economic and institutional logics at play.

Economic development, through economic growth and globalization, has considerably increased the magnitude of the global social metabolism.

In the first case, the shipping industry represents the key infrastructure through which material flows travel around the world. The increase in physical trade flows (Fig. 4) leads to a proportional increase in the shipping capacity (the number and size of ships; Fig. 5), which leads—sooner or later— to an increase in the supply of ships for scrap (for ASSBY see Fig. 9).

In the second case, contrary to public perception, industrial waste -in quantity terms- is around five times urban waste. A fraction of industrial waste is hazardous, in the sense that poses substantial or potential threats to public health and the environment.

In both cases competing value frameworks, languages of valuation and truth claims came at clash. Environmental and civil activists as well as business interests and public authorities framed the issue as one of economic, environmental and equity values. In the Bulgarian case European institutions, under civil society pressure, finally decided to withdraw funding and the project did not take place. Instead, at the Supreme Court of India the local communities and the activists emphasized the injustice of an unequal distribution of costs and benefits and the disproportionate environmental and social damages at the local scale, considering local livelihood and ecosystem losses as incommensurable with benefits at other scales. The business interests and public authorities instead valued monetary and environmental benefits at the national scale, assuming them commensurable with local losses, and finding a positive balance. Facts apart, different languages of valuation clashed and the Supreme Court decided in the favour of the language of the powerful, interpreting sustainable development as a positive economic benefit at the national scale. 'Development' turned out to be the dominant ideology with a substantive power to signify. The Supreme Court's decision is based on a (controversial) utilitarian reasoning rather than on (Kantian) rights and, instead of recognizing value pluralism, the so called 'principle of balance' is based on a trade off between development and environment that does not recognize the incommensurability among the expressed values. It rests upon the idea that economic benefits can compensate for environmental degradation. It



would be interesting to know how would the Court undertake a cost–benefit analysis (CBA) and how much would it count a worker's life, how much the loss of livelihood and how much the irreversible damage done to local ecosystems.

The above are not just rhetorical questions. They show the irreducible difficulty in the call made by economists to internalize externalities. Furthermore, our analysis shows that there are important reasons why externalities are not internalized. The dumping (or dangerous incineration) of toxic waste, rather than a market failure, can be seen as a cost shifting success (Kapp, 1950) this being made possible by social asymmetries in the distribution of political and economic power, property rights and income (Martinez-Alier and O'Connor, 1999). Racism should also be accounted as a driving social force for environmental inequality (Pellow, 2007), both at international and national levels, where in the Indian context, caste plays an important role (losers tend to be of lower caste than winners). Shipbreaking can also be seen as an ecologically unequal exchange because of the 'externalization' of environmentally damaging disposal activities to the periphery of the world-system as a consequence of exchange relations with more industrialized countries (Hornborg, 1998). As stated by Rice (2009), there is an usurpation of waste assimilation properties of ecological systems in a manner that enlarges the domestic carrying capacity of the industrialized countries to the detriment of peripheral societies (Rice, 2009).

## 4.2 So, what has to be done and how?

Using the terminology proposed by Martinez-Alier, ASSBY is therefore an example of the 'waste disposal frontier' of the world's social metabolism, where those who maintain the power (ship owners, ship breakers and authorities) manage to perpetuate a system of 'accumulation by contamination,' exercising de facto property rights. However this is not always the case as the story from Bulgaria shows. Just as in the case with climate change, the crucial question is not only who is to pay and who is to be paid, but who is the owner of the sinks?

Whether improvements in ASSBY or other wasteyards of the global economy will ever become true, are then a question of social and political struggle and the ability of those who currently loose to affirm their own rights. This is the lesson from Bulgaria where an effective alliance between NGOs and local communities managed to reverse power relations and stop the incineration project avoiding potential negative impacts over public health and the environment. From this perspective, greater and effective opposition encountered by ship owners and ship breakers regarding their shifting of environmental costs would result in improved sustainability, potentially both locally and globally. Locally for the pollutants that would not be discharged into the environment; globally because an increment in the operations' costs for the shipping industry, might slow down the social metabolism (by increasing the costs of trade) and its multiple impacts. People who struggle for environmental justice potentially contribute to the environmental sustainability of the economy (Martínez-Alier, 2002).



## 4.3 Mutual learning

### 4.3.1 Role of the Courts

India has a 'common law' legal system and in environmental conflicts judicial activism, in both national High Courts and Supreme Courts, is rather common (i.e. Public Interest Litigations). In general the Courts have been quite progressive, meaning supportive of social and environmental causes. However, as the case described here, the judges are more and more assimilating developmentality and neo-liberal ideological position.

Instead, in Bulgaria, with a civil law legal system, the situation is quite different. The annual monitoring reports produced by the European Commission under the Co-operation and Verification Mechanism (CVM) consistently criticise Bulgaria for the state of its justice system, especially with respect to the slow pace of reforms and ineffective high-level anti-corruption measures. When seized by EJOs on environmental issues – access to information, punitive action against offenders, etc. - Bulgarian courts have systematically shown a rather conservative attitude, often discarding EJO complaints on grounds of 'absence of legal interest', that is, EJOs are frequently dismissed from seeking environmental justice, because by Bulgarian administrative code in many occasions they are not considered a legally interested party. This was the situation in the Radnevo case as well.

### 4.3.2 Different social alliances of stakeholders

Building alliances is essential for winning an environmental conflict. In the Indian case, fishers, villagers, workers and activists have not managed to come together. Fishers live scattered along the coast and communication among and with them is not easy. Villagers are not organized. Workers are immigrants from other states, speak different languages and have a different culture. Activists live far away in the urban centres and visit ASSBY only from time to time. On top, among all these actors, there are important caste differences which constitute a barrier for fruitful collaboration. Efforts are being made to organize and ally, but there is still a long way to go, also because of the pressure (sometimes also physically violent) by some shipbreakers.

Instead, in Bulgaria, the historic dependence of the Stara Zagora region on employment in the coal industry has led to the formation of rather strong trade unions. Considering the relative economic wellbeing of people employed at Maritsa-Iztok, the prospect of opening up a new industrial facility, the NHWC, did not appeal to local communities, as it meant more pollution without offering significant economic benefits for the local population. Thus, the Stara Zagora trade unions expressed their support for the fight of the local committees, providing a strong ally with considerable capacity to put pressure on the state. Even now, in 2012, the trade unions at the Maritsa-Iztok coal mines are set to strike, demanding that employees receive increases in payment that correspond to the annual increase in the company's profits.



### **4.3.3 Popular epidemiology, parallels in issues of health, uncertainties about toxics and manufacturing of uncertainty by authorities**

In environmental conflicts, the same situation is often reproduced. Authorities and enterprises assure that contamination levels are under controlled and properly monitored. On the contrary communities, trade unions and EJOs question official arguments and data, sometimes generating their own (i.e. eggs with dioxin). The Bulgarian case is emblematic as the president of the United initiative committees of the villages around the project site was a medical doctor working at the coal mines who had long-term personal observations of the epidemiology of coal mine workers. The campaign through 'Active Bankwatchers' succeeded in prompting the Regional Governor of Stara Zagora to demand that surveys of the health status of children and also adults be conducted in the region. As a result, the state initiated health screenings for children from Radnevo and Galabovo in 2005 and 2007. Instead in India authorities claim to be monitoring regularly, but data are not made publicly available.

### **4.3.4 Links to international aspects, both in the promotion of projects and in the resistance**

Environmental conflicts often have to do with different geographic scales. In the case of shipbreaking, the main responsible of the local impacts are the original ship owners and the international institution (like IMO and EU) which allow a continued situation of impunity. For these same reasons, also resistance organize at the international levels, with NGOs like Greenpeace or BAN very active on convention negotiation (i.e. at IMO) and the Shipbreaking Platform, which keeps in contacts activists and researchers from different countries.

In the case from Bulgaria, EJOs were more successful than the Bulgarian state in making a convincing case before the EU institutions involved, and this led to the effective abandoning of the project for lack of funding. This strategy would not have been so useful if local sources of funding for the NHWC were available. Local EJO Za Zemiata was in contact with and received support from international organizations such as CEE Bankwatch and the International POPs Elimination Network.

### **4.3.5 Toxic waste goes to relatively poor areas, a general phenomenon?**

This happens in the case of India, but for Bulgaria the area considered is one the economic well off area of the country because of the mining activity. So it might be better to talk of marginal areas, rather than only of poor areas.



Key lessons from the cases	
1 <i>Organizing</i>	Local social groups (in these cases villagers, fishers and workers) need to self organize and might need the help of experienced activists in political mobilization like environmentalists or trade union leaders. Key skills have to do with involving people, facilitating, skill-sharing and coordination.
2 <i>Research</i>	Research means understanding as much as one can of the questioned project, how public authorities and companies operate, who makes decisions, and where the best pressure points are for public action.
3 <i>Strategy</i>	Strategy is an overall map that guides the use of tactics and specific actions (i.e. circulating petitions, writing letters, staging a protest,...) toward clear goals. Planning and strategic thinking about what is most likely to be effective can make a huge difference, and help to avoid groups wasting precious time, energy and money. The steps to keep in mind include defining: objectives, message, messengers, audience, resources, gaps and evaluation criteria.
4 <i>Communication</i>	Communication strategies goes beyond writing a press releases and refer to how the campaign 'frames' its public messages, and how it uses independent media, social media, websites, self-produced television and radio. Environmental conflicts are fought largely in the court of public opinion, so that it is hard to overestimate the importance of how to communicate.
5 <i>Alliances</i>	Once social groups are organized, they should build long term alliances based on affinities (again villagers, fishers and workers), but also on short term ones for specific objectives. The least formal coalitions are networks - groups that don't meet together but do share information. More formal are coalitions in which one organization may take the lead, but with no formal membership or structure - as coalitions get more formal they may create membership criteria, begin holding regular meetings, develop a shared budget, etc.
6 <i>Direct action</i>	We refer to non-violent direct action, like mass civil disobedience, that can be a powerful and effective strategy where other tactics came up short.
7 <i>Legal strategies</i>	Relying on legal strategies (going to Court) can occupy a lot of a campaign's time, energy and money, and shift the main site of action to an arena well out of most campaigners' expertise and influence, disempowering the base of a campaign. Nonetheless, it can be a really useful thing for a campaign to do. Even if one is likely to lose a case, pursuing it can help to get press coverage and build allies. It's not easy to enter into legal territory without legal training so it makes sense to enlist groups that are familiar with this kind of work. This could mean a law firm, an environmental law NGO, or legal support collectives.
8 <i>Multiple issues and scale</i>	Powerful actors in the conflict, like shipbreakers and Indian authorities, attempt to manipulate the terms of the conflict in their favour by concentrating on a single issue (i.e. labour safety, but not environmental impacts), divide the opposition (workers versus environmentalists) and frame the issue only at one scale like the national. More in general they attempt to simplify the complexity to come out with proposals which favour them and make invisible the opposition claims. Therefore the opposition should give visibility to the complexity and articulate coherently claims which are multidimensional (social, environmental and economics) and multi-scale (local, national and global).
9 <i>Shareholder and financier strategies</i>	Targeting the financing that supports controversial projects can in certain situations be extremely effective for achieving significant improvements in the project design and implementation, or in preventing its realisation altogether. In the Radnevo case, the most effective campaign move taken by NGOs was keeping the constant fire by maintaining active correspondence with the institutions who had the authority to finance the project – the European Commission and the EIB. Numerous letters were sent to the EC and EIB, pointing out the serious issues related to the project's design, environmental and health impacts, financial viability and compromised public consultation process, and calling for higher environmental requirements to be applied in solving the hazardous waste problem of Bulgaria. As a result, the project was stopped twice precisely because it was refused funding by the ISPA programme of the EU, based on the appraisal of EC experts.

**Table 6 Key lessons from the cases**

Source: Adapted from the report 'Beating Goliath' (2011) by the Democracy Center (pp. 28-43). More resources for each strategy can be found in the original document. Available at <http://democracyctr.org/corporate/resources-for-action-2/3876-2/>





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