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## Socio-environmental valuation and liabilities

What strategies for  
environmental justice organisations?

Coordinated by Julien-François Gerber,

with the collaboration of

Fikret Adaman, Duygu Avcı, Cem İskender Aydın, Godwin Uyi Ojo,  
Begüm Özkaynak, Beatriz Rodríguez-Labajos, Philippe Roman and  
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**With the collaboration of:**

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## Abstract

This EJOLT report focuses on two central issues: the use of evaluation methods and the notion of liabilities, as applied to socio-environmental conflicts and EJO campaigns. The report includes (i) one review chapter of extra-judicial cases having a valuation dimension, (ii) six case studies from four continents involving a close collaboration between activists and academics, and (iii) one practical-theoretical synthesis. Each one of the case studies examines one or more of the following key questions: How are valuation conflicts to be dealt with? How can we evaluate a given 'development project'? Is it possible to compensate for the liabilities involved? If yes, how? More specifically, two chapters are concerned with environmental impact assessments (oil exploitation in Nigeria and water megaproject in Brazil), two chapters tackle cost/benefit approaches and their limits (forest valuation in India and nuclear power plants in Bulgaria and Turkey), one deals with multicriteria evaluations (oil exploitation in Ecuador), and one analyses a conflict of valuation languages (gold mining in Turkey). Among these case studies, two (Nigeria and India) also discuss the compensatory mechanisms involved as well as their suitability.

When dealing with environmental decision-making or conflict resolution, the approach of standard economics (even when labelled 'environmental') is to use a common unit – a monetary numeraire – for all the different values and then to look for a trade-off between all of them within a market context. This approach assumes the existence of value commensurability. Ecological economists and activists, in contrast, acknowledge value incommensurability. They argue that it is misleading to reduce the diversity of languages of valuation (e.g., livelihood, identity, territorial rights, spirituality, aesthetics) to a single monetary measure that denies the legitimacy of other languages. Indeed, in virtually every socio-environmental conflict, a variety of valuation languages is deployed. Their inclusion in evaluation processes is particularly important since governments and companies usually try to portray socio-environmental impacts solely as a technical problem that will be handled with the proper use of technology or monetary accounting. In fact, most of the case studies in this report show that lower-income sectors (especially indigenous people and peasants) do not simply seek a monetary compensation and do worry about local environmental matters. In many cases therefore, monetary compensation is likely not going to be sufficient to resolve disagreements.

More fundamentally, these valuation contests also highlight opposite visions and values about local development, between on one hand (lower-income) locals and on the other, the state and corporate sectors. In view of the differences in material interests, values and perceptions, it appears that the evolution of most socio-environmental conflicts will very much depend on the extent to which different languages of valuation are acknowledged and addressed. Generally speaking, this would require, firstly, carrying out a rigorous socio-environmental impacts assessment of the region at stake, and secondly, undertaking an in-depth deliberative multicriteria evaluation.



## Keywords

Valuation

Liabilities

Cost/Benefit Analysis

Environmental Impact Assessment

Languages of Valuation

Ecological Distribution Conflicts

Compensation

Legal Actions

Brazil

Yasuní

Niger Delta

India

Turkey

Bulgaria



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## Acronyms

CBA	Cost/Benefit Analysis
CSO	Civil Society Organisation
EJO	Environmental Justice Organisation
GDP	Gross Domestic Product
MCE	Multicriteria Evaluation
NPE	Net Present Value
MOSOP	Movement for the Survival of the Ogoni People
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
ELD	Environmental Liability Directive
BNFL	British Nuclear Fuels Limited





# Foreword

Conflicts over resource extraction or waste disposal increase in number as the world economy uses more materials and energy. Civil society organisations (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 organisations 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 organisations (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 and multi-stakeholder problem solving. 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?



Within this background, this report focuses on the valuation of environmental liabilities, based on different strategies that EJOs have employed in well-known cases of environmental injustice. Diverse valuation languages are deployed in every socio-environmental conflict. Such diversity is often neglected in the assessment of environmental liabilities. However, as the authors of the report argue, the evolution these conflicts often depends on the extent to which different languages of valuation are acknowledged and addressed.

The report analyses valuation strategies in different cases, related with the extraction of oil, biomass, minerals and water, and also with the expansion of the nuclear industry. Based on such an assorted source of evidence, the authors draw attention to the need of, carrying out a rigorous socio-environmental impacts assessment of the region at stake, and from there, undertaking in-depth deliberative multicriteria evaluations.



# 1

## Introduction

Today's global economy has a colossal appetite for materials and energy. As depletion occurs, or as expansion is required, mining, dams, plantations and industries are on the march. They are little by little reaching every remaining corner of the planet, undermining the environment in ever more regions as well as the conditions of existence of local populations who complain accordingly.

The growth dynamics of capitalism generates ecologically unequal exchange and gives rise to what Martínez-Alier calls ecological distribution conflicts. The latter are today as significant as the more classic struggles between capital and labour. However, these conflicts do not uniquely result from metabolic patterns *per se*, as if such patterns were disconnected from the rest of society. Firstly, protests are also directed against an institutional configuration that defines the room for manoeuvre of private or state-owned companies and therefore of a particular metabolic system. Secondly, these conflicts are expressed as a struggle over valuation, the issue at stake in the present EJOLT Report. This report includes six case studies from four continents and involves a close collaboration between activists and academics. Each one of the chapters tackles one or more of the following central questions:

- How are valuation contests to be dealt with?
- How can we evaluate a given 'development project'?
- How can we assess social and ecological costs?
- Is it possible to compensate for the liabilities involved? If yes, how?

While keeping in mind that this report is intended for the concrete work of EJOs, we will focus on two core issues: *evaluation methods* and the notion of compensation for *liabilities*. Two chapters are concerned with environmental impact assessments (oil exploitation in Nigeria and water megaproject in Brazil), two chapters tackle cost/benefit approaches and their limits (forest valuation in India and nuclear plants in Bulgaria and Turkey), one deals with multicriteria evaluations (oil exploitation in Ecuador), and one analyses a conflict of valuation languages (gold mining in Turkey). Among these case studies, two (Nigeria and India) also tackle the compensatory mechanisms involved as well as their appropriateness.



## 1.1 Evaluation methods

When dealing with environmental decision-making or conflict resolution, the approach of standard economics (even when labelled 'environmental') is to use a common unit – a monetary numeraire – for all the different values and then to look for a trade-off between all of them within a market context. This approach assumes the existence of value commensurability. Ecological economists, in contrast, acknowledge value incommensurability and this is one of their founding principles (Martínez-Alier et al., 1998). Nobody knows how to convincingly estimate the monetary price of cultural, social, or ecological impacts of economic activities. In EJOLT, we argue that it is misleading to try to reduce the diversity of languages of valuation (e.g., livelihood, identity, territorial rights, sacredness, aesthetic) to a single monetary measure that denies the legitimacy of other languages. If we accept value incommensurability, it appears that a framework that includes all the stakeholders is the only way to satisfactorily evaluate a given project or situation. Together with serious impact assessments, participatory multicriteria evaluation (MCE) methods can help to reach compromise solutions (see Gerber et al., 2013, EJOLT Report No 8.). In the real world, however, it is usually the most powerful actor who imposes his or her own language of valuation. When it is the case, conflicts may obviously be the only way to challenge power relations and to advance towards more equity and sustainability (Martínez-Alier, 2002).

**It is misleading to try to reduce the diversity of languages of valuation to a single monetary measure that denies the legitimacy of other languages.**

## 1.2. Liabilities

When dealing with corporate or historical liabilities, EJOs usually rapidly face a hostile reaction from the private sector and/or governments. At a macro-level, consider for example the exchange that occurred in 2009 between the US and Bolivian negotiators during the UN conference on climate change in Copenhagen. Todd Stern, the US negotiator, said “We absolutely recognize our historic role in putting emissions in the atmosphere, up there that are there now, but the sense of guilt or culpability or reparations – I just categorically reject that” (press conference of December 10, 2009). The response of Pablo Solón, the then Bolivian ambassador to the UN and today the director of the EJO Focus on the Global South, was to suggest that responsibility for past emissions does carry obligations of current reparations: “To us it seems only right that the polluter should pay, and not the poor. We are not assigning guilt, merely responsibility. As they say in the US, if you break it, you buy it”.

As O'Neill puts it, the exchange turns on the scope of legal and moral liability and its relation to responsibility (O'Neill, 2013). Stern's position is that while causal responsibility can be historically assigned to polluters and consumers in the US for past emissions, moral responsibility cannot be assigned and therefore no liability. Solón's position, on the other hand, is that even if there is no moral responsibility and culpability for the emissions, the causal responsibility does establish some form of liability.



The argument typically used by EJOs appeals to fairness in the distribution of benefits and harms. To expect others to clean up the mess one makes is “incompatible with equal respect and equal dignity”, since it treats them as akin to servants (Shue, 1999: 535, quoted in O’Neill, 2013). There is also a strong argument that membership of a collective and benefits from past injustice are jointly sufficient conditions for the inheritance of responsibility to compensation and reparation. In most practical cases, the question of whether this or other lines of argument for liability are successful is one that is settled through legal actions as well as through social mobilizations.

After a review chapter of extra-judicial cases having a valuation dimension, the six case studies are presented, before a practical-theoretical synthesis is suggested, together with some concluding remarks.





# 2

## Valuation of liabilities in extra-judicial contexts

**Beatriz Rodríguez-Labajos**

Has some number become better than no number? This question posed by Kling et al. (2012) goes beyond the traditional tension in economics between those in favour and those against the allocation of a money figure to value environmental change. It is a valid proposition in case of decisions seeking a balance between appropriate reparation of environmental damage, and the technical and ethical complexities of commensuration.

This chapter aims at contributing to the literature on the calculation of liabilities from environmental damages caused by either private or governmental actors. The purpose is to understand, based on a review of secondary sources and legal documents, how liabilities have been estimated based on existing experiences in extra-judicial contexts; that is, in situations where settlements have been agreed outside the courts.

**A significant distinction should be made between the so-called damages and the liabilities stemming from them**

### 2.1 What are the so-called damages? The basic distinction between damage and liability

Both in the literature and in practice, a significant distinction should be made between the so-called damages and the liabilities stemming from them. Such a distinction is relevant to understand the reasons argued in - and outside - the courts and therefore the role of valuation within legal proceedings.

The literature conceptualising ecological debt (Paredis et al., 2008) establishes three categories of **ecological damage**:



- *contamination*, understood as the introduction of substances into the environment in quantities higher than those naturally based there, causing harm to human beings, animals, and ecosystems plants and the cultural and social heritage;
- *over-use* or the extraction and use of natural resources at a rate or level which means that the extraction is time-limited at a certain quality level; and
- *degradation* that implies a structural change in landscape and/or ecosystems, provoking a quality reduction in the diversity or productivity of this landscape or ecosystems.

The legal definitions of damage are more restrictive. The Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage, known as the Environmental Liability Directive (ELD), defines **environmental damage** as the “direct or indirect damage caused to the aquatic environment, flora and fauna and natural habitats protected by the Natura 2000 network, as well as direct or indirect contamination of the soil which could lead to a serious risk to human health”. According to the US Oil Pollution Act of 1990 (33 U.S.C. 2701-2761; 33 U.S.C § 2702(b)(2), **damage** “means injury to natural resources, to real or personal property, loss of subsistence use of natural resources, loss of governmental revenues, loss of profits or earning capacity, and increased cost of additional public services. Damages also include the cost of assessing these injuries”.

On the term liability, the ELD indicates that “[e]nvironmental liability aims at making the causer of environmental damage (the polluter) pay for remedying the damage that he has caused. (...) It applies to environmental damage and the risk of damage *resulting from commercial activities*, once it is possible *to establish a causal link* between the damage and the activity in question” (author’s Italics). In the same vein, the US Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, commonly known as Superfund) restricts liabilities to “responsible parties’ *obligations to pay for cleanup costs* [of] hazardous substance releases and contamination problems that pose a threat to public health and the environment” (author’s Italics).

At the international scale, the concept of liability has been operationalised in diverse circumstances. Therefore, a variety of treaties address civil responsibilities in the operation of activities entailing risk of damage in different sectors (**Table 1**).

It is worth mentioning that in Spanish, the term liability is often translated as ‘*pasivo ambiental*’. However, the term ‘*pasivo ambiental*’ is also used to designate a physical place or material process directly related with the pollution or damage caused (e.g. accumulation of hazardous substances or waste) by a company along its operation phase. This is related with the idea that, while generating a physical transformation through its operation, the company is creating a debt that at some point should be compensated. While highly relevant for the debate on ecological debt, in this chapter, the term liability is not used with this meaning.

“Environmental liability aims at making the causer of environmental damage (the polluter) pay for remedying the damage that he has caused.”





	Date enacted	Title	Region	Topic
1	29/07/1960	Convention on Third Party Liability in the Field of Nuclear Energy	Global	Nuclear
2	21/05/1963	Vienna Convention on Civil Liability for Nuclear Damage	Global	Nuclear
3	21/05/1963	Optional Protocol concerning the Compulsory Settlement of Disputes	Global	-
4	29/11/1969	International Convention on Civil Liability for Oil Pollution Damage (CLC)	Global	Oil
5	17/12/1971	Convention relating to Civil Liability in the Field of Maritime Carriage of Nuclear Materials (NUCLEAR)	Global	Nuclear
6	18/12/1971	International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage	Global	Oil
7	17/02/1973	International Convention for the Prevention of Pollution from Ships (MARPOL)	Global	Maritime claims
8	19/11/1976	Convention on Limitation of Liability for Maritime Claims (LLMC Convention)	Global	Maritime claims
9	10/12/1982	United Nations Convention on the Law of the Sea (UNCLOS)	Global	Maritime claims
10	21/09/1988	Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention	Global	-
11	27/11/1992	International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992 (IOPC Fund)	Global	Oil
12	21/06/1993	Convention on Civil Liability for Damage resulting from Activities Dangerous to the Environment	Europe	-
13	02/05/1996	Protocol of 1996 to amend the Convention on Limitation of Liability for Maritime Claims, 1976 (LLMC Protocol)	Global	Maritime claims
14	03/05/1996	International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea (HNS Convention)	Global	Hazardous / Noxious substances
15	12/09/1997	Convention on Supplementary Compensation for Nuclear Damage	Global	Nuclear
16	12/03/1999	International Convention on the Arrest of Ships	Global	Maritime claims
17	10/12/1999	Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal	Global	Waste
18	23/05/2001	International Convention on Civil Liability for Bunker Oil Pollution Damage	Global	Oil
19	30/11/2001	Draft Articles on Prevention of Transboundary Harm from Hazardous Activities	Global	Oil
20	21/05/2003	Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes and to the 1992 Convention on the Transboundary Effects of Industrial Accidents	Europe	Transboundary hazards
21	08/08/2006	Draft Principles on the Allocation of Loss in the Case of Transboundary Harm Arising out of Hazardous Activities	Global	Transboundary hazards

**Table 1: International treaties on Environmental Responsibility and Liability**

Source: Adapted from University of Oslo, Treaty Database (<http://www.jus.uio.no/english/services/library/treaties/>).  
Date of access: 06/03/2013.

## 2.2 Environmental liabilities in the scientific literature

Despite the high dynamism of the discussion on environmental liabilities between activists and practitioners, the scientific literature does not seem to address this issue at the needed pace. A search in the Thomson Reuter Web of Knowledge<sup>SM</sup> using the search 'liabilit\*' and 'valuation\*' and (method\* or court case\*) only



allowed identifying thirteen relevant references after a selection of suitable materials through reading titles and abstracts (**Table 2**).

**Table 2**  
**Selection of peer-review literature on the valuation of environmental liabilities**

Source: Own elaboration, based on search done 06/03/2013

Contribution		Source
Theoretical framework for valuation of liabilities, sometimes under specific US / EU regulations	Concepts and theory	(Jones and Pease 1997, O'Connor 1997, Rhee 2012)(Geistfeld 2011)
	Net environmental benefit analysis from remediation / restoration	(Efroymsen et al. 2004)
	Indexed discount rate for fair valuation	(McLaughlin 1998)
	Value-based equivalency method (under European ELD)	(Martin-Ortega et al. 2011)
Valuation exercises in the context of specific lawsuits		(Duffield 1997, Jones 2000)
Lessons from paradigmatic oil spill cases	Exxon Valdez	(Duffield 1997, Carson and Walsh 2008, Kling et al. 2012)
	Other / international comparison	(Santopietro 1998, Dicks 2008)

A first type of contributions addresses conceptual proposals and frameworks for the valuation of liabilities, while only a small group of papers assesses valuation exercises in the context of specific lawsuits. In this respect, there is a clear dominance of contributions encompassing lessons for valuation from paradigmatic oil spill cases, being the Exxon Valdez oil spill the most publicised one. This case stands out because it was the first prominent use of the contingent valuation method to estimate damage in the context of big environmental liabilities. The estimates, ranging between USD 3-15 billion, were remarkably higher than the pure clean-up expenses, which at that time was considered as proxy of people's preferences for non-use values of biodiversity. The out-of-court settlement in that case entailed agreement between Exxon and the US government, the State of Alaska and other parties of ca USD 1 billion (See **Table 3**).

**In the scientific literature there is a clear dominance of contributions encompassing lessons for valuation from paradigmatic oil spill cases, being the Exxon Valdez oil spill the most publicised one.**

**Table 3**  
**The Exxon Valdez Oil spill settlement**

Source: Adapted from Exxon Valdez Oil Spill Trustee Council ([www.evostc.state.ak.us](http://www.evostc.state.ak.us))

Part of the settlement		Amount (USD million)
Criminal plea agreement	Remitted by the court in recognition of Exxon's cooperation in cleaning up the spill	(125)
	Victims of Crime Fund	13
	North American Wetlands Conservation Fund	12
Criminal restitution	State Government	50
	Federal Government	50
Civil settlement	Reimbursement to Federal and State governments for damage assessment and spill response	213.1
	Exxon Valdez Oil Spill Trustee Council	686.9

## 2.3. Examples of valuation methodologies, before and aside the courts

### 2.3.1. Guidelines for prevention of pollution in the marine environment

Among the treaties listed in **Table 1**, the topic of maritime claims provides good examples of generally applicable guidelines for the demarcation of liabilities, for a milieu characterized by intense exposure to damage. In the context of global environmental justice, this type of claims is relevant because of the role played by cargo fleet trade the international transport of commodities. In particular, two main conventions (7 and 9 in **Table 1**) seem to be of particular relevant for the purpose of this chapter.

The International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (Marpol 73/78) is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes (International Maritime Organisation (IMO) 2013). The instrument entered into force on October 1983 and it has been updated by amendments through the years. It includes different possible sources of dumping (oil, noxious and harmful substances, sewage, and garbage) and air pollution.



**Map 1**  
Parties to the MARPOL 73/78 convention on marine pollution

Source: Wikimedia Commons / jrockley

The text does not mention any particular method for the valuation of liabilities, although the art. 4(4) indicates that the penalties “shall be adequate in severity to discourage violations of the Convention and shall be equally severe irrespective of where the violations occur”. The contribution of this treaty consists in specific procedures for the prevention of pollution, technical description of terms, and categorisation and listing of substances according to the hazard to marine resources or human health. In the context of oil pollution prevention, the Appendix 8 give details on a method for probabilistic oil outflow calculation in case of collision or stranding. Outflow parameters allow the generation of the so-called oil spill number (EOS number). In Marpol 73/78 the term damage is used in three ways: injures from pollution in amenities or other uses of the sea (e.g. art. 2); losses for the activity of the ship due to unduly detentions or delays (e.g. art.7);



failure or breakdown of ship or its equipments (e.g. Appendix of the convention). The latter is the most common usage in the Convention.

The United Nations Convention on the Law of the Sea (UNCLOS), into force since 1994, replaced the old concept of 'freedom of the seas' by defining the rights and responsibilities of nations in their use of the world's oceans, establishing guidelines for businesses, the environment, and the management of marine natural resources. Aside from its provisions defining ocean boundaries, the convention establishes general obligations for safeguarding the marine environment and protecting freedom of scientific research on the high seas. It also creates an innovative legal regime for controlling mineral resource exploitation in deep seabed areas beyond national jurisdiction, through an International Seabed Authority and the Common heritage of mankind principle.

UNCLOS (Art. 235) includes provisions on 'Responsibility and Liability'. This article requires the states, in general terms, to fulfill their obligations to protect and preserve the marine environment and makes them liable in this respect. This involves adequate compensations for damage by pollution by persons under the states' jurisdiction. To this end, the convention urges the states to cooperate in the development of criteria and procedures for payment, such as insurance or compensation funds. This article is then just a framework for further liability and compensation conventions, which were developed particularly in relation to oil pollution damage and the carriage of hazardous and noxious substances by the sea, including carriage of nuclear material.

**Map 2**  
Parties to the UNCLOS  
(as in February 2013)

Dark green – ratified, Clear  
green - signed, but not  
ratified; Grey - did not sign

Source: Wikimedia  
Commons / japinderum



### 2.3.2 UK Compensation Scheme for Radiation-linked Diseases

The second example in this section is related to compensation schemes in the nuclear industry. In October of 1957, a fire in the reactor 1 of the Windscale power plant (in Cumbria, NW England) released radioactive materials to the environment. The accident, ranked at level 5 incident on the 7-point International Nuclear Event Scale, is considered the worst in the nuclear history of the UK. The plant was later renamed Sellafield and transferred to British Nuclear Fuels Limited (BNFL) and it is currently a nuclear reprocessing site.

Sellafield has been involved in a long-term controversy on the effects of nuclear facilities on human health. This also includes concerns on corporate control of research results, as they have been highly reliant on BNFL sponsorship (Waterhouse, 1994). Since the 1970s, trade union sponsored legal actions against BNFL alleging injury claims caused by occupational exposure to radiation. These cases were settled out of court. While the industry argues the difficulty of defending some of the cases in court (Lewis 2011), the agreements themselves demonstrated the real possibility of a successful claim in this case (Wakeford, 2007).



Picture 1

Aerial view of Sellafield in Cumbria, UK

**In this compensation scheme, most payments have been made for causation probability values lower than fifty percent, which according to some views are unlikely to have been successful in the law courts**

On this background a UK Compensation Scheme for Radiation-linked Diseases ([www.csrlid.org.uk](http://www.csrlid.org.uk)) has been operating since 1982, originally for BNFL and its trade's unions and currently for most of UK's nuclear operators. The initiative provides a procedure of dispute resolution without involving litigation. Whenever an employee of the nuclear operator is diagnosed from a disease tagged as eligible (e.g. different forms of cancers or cataracts of the eye) and the radiation dose record is available, a causation probability (CP) is estimated. After a feedback procedure involving the employer and the claimant's trade's union, a level of payment is determined according to the ranges shown in **Table 4**. The base amount to be paid is agreed taking into account loss of earnings, pain and suffering and number of dependent children (Lewis, 2011).

According to information published in the Compensation Scheme's webpage (accessed on March 6, 2014), until 2013 1454 cases have been assessed, 139 of which have qualified for compensation payments, these amounting GBP 7.81 M. Most payments have been made for causation probability values lower than fifty percent, which according to some views are unlikely to have been successful in the law courts (Wakeford, 2007).



**Table 4**  
**System of**  
**proportional**  
**recovery in the UK**  
**Compensation**  
**Scheme for**  
**Radiation-linked**  
**Diseases**

Causation Probability	Payment Band
Less than 20%	Nil
20 – 29.9%	One quarter
30 – 39.9%	One half
40 – 49.9%	Three-quarters
50% and above	Full

Source: Lewis, 2011

### 2.3.3 Losses resulting from Iraq's invasion and occupation of Kuwait

A third example about calculation of liabilities is linked to the calculation of the losses resulting from Iraq's invasion and occupation of Kuwait in 1990. Based on a thorough review of the original files available, this section examines in-depth that process, the reasoning argued by the involved parties and the type of damages eventually considered for compensation.

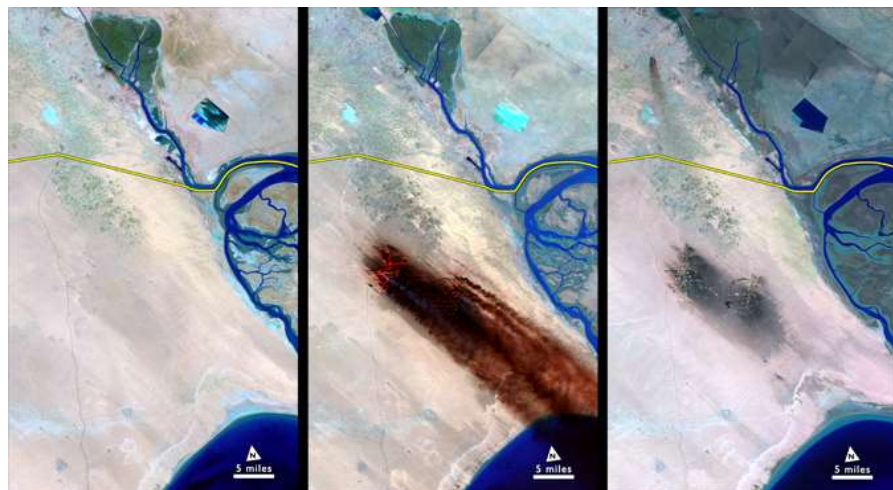
Evidence of severe impacts human health and environmental degradation, besides the virtual destruction of Kuwait's oil industry followed the events of Iraq-Kuwait War. According to some estimates, damaged wellheads released from 3-10 million barrels of crude oil and 70-100 million m<sup>3</sup> of natural gas per day (Al-Damkhi et al., 2009). The environmental damage resulting from oil fires and oil lakes effects impaired the marine environment, groundwater resources and desert ecosystems.

In the aftermath of the conflict, Iraq was declared liable "for any direct loss, damage, including environmental damage and the depletion of natural resources, or injury to foreign Governments, nationals and corporations"<sup>1</sup>. As such, the country was sanctioned to pay for war reparations through a compensation fund feed by the controversial UN's Oil-for-Food Programme. Between 1991 and 2005, the United Nations Compensation Commission ([www.uncc.ch](http://www.uncc.ch)), subsidiary organ

**Picture 2**

**Landsat images showing before, during and after the release of 1.5 billion barrels of oil into the environment, one of the largest oil spill in human history**

Foto credit: NASA's Goddard Space Flight Center,  
[http://www.nasa.gov/mission\\_pages/landsat/news/40th-top10-kuwait.html](http://www.nasa.gov/mission_pages/landsat/news/40th-top10-kuwait.html)



<sup>1</sup> Resolution 687 (1991) of the UN Security Council.



of the UN Security Council, operated with the mandate to process claims and pay compensations. The Secretary-General of the UN stated in 1991 that the commission was not “a court or an arbitral tribunal before which the parties appear; (...) [it was] a political organ that performs an essentially fact-finding function” (United Nations Security Council, 1991:7).

The claims for damage to the environment ('F4' claims) fell into two broad groups. The first group comprised claims for environmental damage and the depletion of natural resources in the Persian Gulf region including those resulting from oil-well fires and the oil spills into the sea. The second group consisted of claims by Governments outside of the region that assisted to countries directly affected by the environmental damage. This assistance involved the mitigation of impacts from the oil-well fires, the prevention and cleaning up of pollution and the provision of materials and personnel.

The definition of “direct environmental damage and depletion of natural resources” (United Nations Security Council, 1992: paragraph 35) included losses or expenses resulting from:

- “(a) Abatement and prevention of environmental damage, including expenses directly relating to fighting oil fires and stemming the flow of oil in coastal and international waters;
- (b) Reasonable measures already taken to clean and restore the environment or future measures which can be documented as reasonably necessary to clean and restore the environment;
- (c) Reasonable monitoring and assessment of the environmental damage for the purposes of evaluating and abating the harm and restoring the environment;
- (d) Reasonable monitoring of public health and performing medical screenings for the purposes of investigation and combating increased health risks as a result of the environmental damage; and
- (e) Depletion of or damage to natural resources.”

Further technical discussions concluded that the term ‘environmental damage’ was not restricted to points listed above and other direct losses or expenses (e.g. measures undertaken to prevent or abate harmful environmental impacts) were also accepted as claims, provided that there were attributable to Iraq’s invasion and occupation. The discussion on the eligibility of costs then carried with it a series of insights about the nature of damages. Two deserve particular attention in the context of this chapter.

1. The lack of baseline information about the environmental conditions prior to the invasion made it difficult to distinguish between damage attributable to Iraq and damage that may be due either to factors unrelated or only partly attributable to the Iraq’s invasion and occupation. The panel concluded that the need of the studies to estimate the extent of damage and quantifying the losses was a result of the invasion. Therefore, their costs were eligible as a direct impact to be compensated, regardless if they eventually unveiled unconnected damages.



2. Many of the costs were related to restoration practices. The parts were aware that the environment was not in pristine condition prior to Iraq's invasion and occupation of Kuwait. That triggered a discussion about a) the suitability of remediation approaches or techniques in relation to the extent of the damage caused by the invasion, and b) the limits of Iraq's liability. According to Iraq, compensation should not be awarded for measures to restore the environment to a 'pristine condition', because that would result in 'unjust enrichment' for the claimants, who may have neglected the environmental quality of the region. In relation to these points, the Panel determined that it was a duty of the claimants to prevent and mitigate environmental damage, accepting that the complete recreation of the pre-existing physical conditions could not be always feasible. However, Iraq was liable to pay the proportion of the costs of remediation that could reasonably be attributed to the invasion and occupation of Kuwait (United Nations Security Council, 2002).

The total compensation sought by claims, including all cost categories, exceeded USD 352.5 billion of which only 14.48 percent was awarded. The Commission received approximately 170 'F4' claims seeking a total of about USD 80 billion in compensation of which only USD 5.26 billion were awarded, approximately 10 percent of the total compensation <sup>2</sup>.

**Tables 5 and 6** compile information based on the recommendations of the panels of commissioners, and show significantly higher aggregated amounts (in the order of 3 times the amount reported above). The difference may respond either to corrections due to procedural rules or to more restrictive decisions from the Governing Council in charge of approving the recommendations of the panels. Despite this discrepancy, and having in mind that this is the only information made public by the Commission at this level of detail, the data is used here to understand the kind of accepted claims in this process. Information from six reports has been organised and summarised according to the method used for the calculation of the costs, inferred from the explanation of each one of the claims.

**Table 5** shows that most of claims were due to restoration costs from combined causes, often including oil spills and oil fires. Restoration costs represented two thirds of the total claims, and involved measures such as cleaning up oil spills, removing oil and military equipment, or remediating areas (terrestrial, marine, built environment) or resources (e.g. aquifers) damaged by the effects of oil fires, accumulation of tarcrete or oil pollution in general. Some costs of medical treatments have been also registered as health restoration costs.

<sup>2</sup> Status of Processing and Payment of Claims, as on 24 January 2013. Available online at webpage of the United Nations Compensation Commission ([www.uncc.ch/status.htm](http://www.uncc.ch/status.htm)).





Type of cost (calculation method)	Cause of the claims							
	Combined	Oil spill	Oil fire	Mines and ordnance	Fortification / road	Refugees	Monitoring needs	Total general
Restoration costs	7 013.4	2 647.0	291.6	683.4	1088.0	3.4	-	11726.8 66.53%
Replacement cost (compensatory projects)	5 618.1	-	-	-	-	0.05	-	5618.1 31.88%
Monitoring cost	-	-	-	-	-	-	247.5	247.5 1.40%
Production function based approach	-	-	24.0	-	-	-	-	24.0 0.14%
Preventive expenditure	-	1.7	-	7.0	-	-	-	8.7 0.05%
Total costs (USD Million) (Percentage)	12 631.5 71.67%	2 648.7 15.03%	315.6 1.79%	690.4 3.92%	1 088.0 6.17%	3.4 0.02%	247.5 1.40%	17 625.1 100%

**Table 5. Awarded claimed amounts according to type of costs and cause of claims (in USD Million)**

Source: Source: Own elaboration based on data from the Reports and Recommendations of the Panels of Commissioners (United Nations Security Council 2001, United Nations Security Council 2002, United Nations Security Council 2003, United Nations Security Council 2004a, United Nations Security Council 2004b, United Nations Security Council 2005), available at: [www.uncc.ch](http://www.uncc.ch)

In some cases, terrestrial or marine ecosystems were considered as irreversibly lost, with no possibility of restoration. In this case, the panel accepted a methodology proposed by the claimants (the habitat equivalency analysis, HEA<sup>3</sup>) to estimate the size of terrestrial nature areas (either in the same area or at other locations) that would provide benefits from ecosystem services equivalent to those that were lost as a result of the environmental damage. Then resources were applied to establish compensatory projects (e.g. protected areas of the same size). This kind of cost is classified as a replacement cost. Together with other compensatory projects in face of resource depletion (such as soil, shoreline resources and wildlife) encompassed around thirty percent of the total

<sup>3</sup> The HEA methodology was introduced in the fifth and final report of the panel (United Nations Security Council 2005), which included most of the claims related to loss of or depletion to natural resources. This methodology was the strategy to allocate a monetary value on (often non-marketed) damaged natural resources without attributing monetary value to the ecosystem services themselves. HEA has proved to be helpful to establish a monetary range for potential settlement negotiation in court cases, but it is highly sensitive to several restrictive assumptions, described in detail by Dunford et al. (2004). In the context of the claims for the invasion and occupation of Kuwait, Iraq contended that the HEA methodology provided abstract and theoretical results, that would not be acceptable by international treaties or other national or international practices and that compensation should only be paid for financially assessable actual damages. The Panel acknowledged the potential difficulties of the methodology, without considered them a sufficient reason for its rejection. The following clarifications were made: 1) HEA results would only be accepted as a base for claims after a thorough examination of its suitability in relation to extent of damage and the quantification of compensation in the circumstances of each claim. 2) When the available evidence pointed out uncompensated losses even after restoration measures have been undertaken, HEA could be used as a helpful tool in determining how much compensation (i.e. compensatory restoration) should be recommended (United Nations Security Council, 2005).



recommended compensation. Monitoring and assessment of damages, including investigation on health risks, was considered a claim that could be accepted as direct environmental damage and represented 1.4 percent of the total costs.

It is worth noticing that all the previous items, together with a relatively small record of preventive expenditure (i.e. incurred from measures to protect environmental-related assets during the invasion and occupation of Kuwait) are all estimated through *cost-based approaches*. Only an item estimated through a *production-based approach* was calculated to assess the damage caused by oil fires in the yield of several varieties of agricultural crops.

Type of cost (calculation method)	Damaged areas							
	General / Unspecified	Coastal / Marine	Terrestr.	Water resources	Oil produc. areas	Agricult.	Health	Built environ.
Restoration costs	6804,0	480,2	4356,9	42,9	31,3	-	11,6	0,04
Replacement cost (compensatory projects)	-	5424,0	194,2	-	-	-	-	-
Monitoring cost	247,1	-	-	-	-	-	0,3	-
Production function based approach	-	-	-	-	-	24,0	-	-
Preventive expenditure	-	0,1	-	1,6	7,0	-	-	-
Total costs (USD Million) (percentage)	7051,1 40%	5904,2 33%	4551,1 26%	44,5 0,3%	38,2 0,2%	24,0 0,1%	12,0 0,1%	0,04 0,0002%

**Table 6 Amount of claims from the Reports and Recommendations of the Panels of Commissioners according to type of costs and area of application of resources**

Source: Source: Own elaboration based on data from the Reports and Recommendations of the Panels of Commissioners (United Nations Security Council, 2001; United Nations Security Council, 2002; United Nations Security Council, 2003; United Nations Security Council, 2004a; United Nations Security Council, 2004b; United Nations Security Council, 2005; available at: [www.uncc.ch](http://www.uncc.ch))

This does not mean that the claimants rejected to use other methods than cost-based approaches. Among the claims not recommended for compensation there are several using a production-based approach to elicit damage or depletion of terrestrial or aquatic resources. Such is the case of alleged losses in fish and shrimp catches, production of rangeland forage, forestry resources, medicinal plants, agricultural crops and livestock or sustainable yield of aquifers. However, these claims were not recommended for compensation due to insufficient evidence, either of damage or of causation.

Interestingly enough, in two cases of proved damage, the compensation did not take place because of issues in the costing procedure. On the one hand, Kuwait sought compensation in the amount of USD 23 million for lost recreational opportunities due to (proved) damage in shoreline recreation. The claimed amount was estimated through a revealed preference approach (contingent valuation). The accuracy of this survey-based valuation technique was considered doubtful and the data was insufficient for a reliable estimation of the damage (United



An interesting debate arose within the context of whether or not temporary loss of natural resources without commercial value, i.e. not traded in the market, should be compensated

Nations Security Council, 2005: 79-80). On the other hand, Saudi Arabia used scientific evidence to argue a severe impact to marine wildlife (birds, marine mammals and turtles) and the Panel considered that the some impact estimates were reasonable approximations to the actual loss. The Panel also agreed with the conceptual approach to compensate for the damage (a restocking programme). However, the costing of such claim (alleged in USD 127 million) was not properly developed and it was not recommended for compensation (United Nations Security Council, 2005:106-108).

In this respect, an interesting debate arose within the context of whether or not temporary loss of natural resources without commercial value, i.e. not traded in the market, should be compensated. Iraq contended the lack of legal justification and precedents for the compensation of this kind of damages. It argued that such damages were not financially assessable and therefore outside the scope of international law. Meanwhile, the claimants pointed out that effects such as oil contamination or the loss of biomass in marine environment were ostensible examples of environmental damage. They also alleged that there international precedents of compensation for temporary losses stemming from pending remediation or restoration (using an example of indemnities in the Factory at Chorzów case, from the 1920s). Eventually, the panel considered that compensation for 'pure environmental damage' was not precluded, using as examples international conventions related with oil pollution damage (4, 6, and 11 in **Table 1**) (United Nations Security Council, 2005: 16-19)..

Local interpretations and formulations of the liability concept are relevant to understand different ways to make it operative

## 2.4 Final remarks

Corporate liability is a relevant element in the discussions about the ecological debt. The concept of liability entails obligations in the context of the prevalent legal frameworks. Local interpretations and formulations of the liability concept are relevant to understand different ways to make it operative. As shown in the **Section 2.1**, the idea of liability is much narrower that the associated damages. Changes in the environment, either incidental or gradual, need to be related to identifiable sources in order to be the foundation for a liability. The response to the question on who is liable is answered at this stage. Then such changes have to be unquestionably associated to specific damages (income loss, cleanaup costs and so on) in order to steer a particular quantification approach.

This *modus operandi* makes it difficult that the relevance of the damage can be expressed in all possible languages of valuation. Value systems that are absent in the current legal frameworks, or alternative rationalities that transcend the constraints of the 'burden of proof' may have little chance to find their way to court decisions or other legal proceedings. In this respect, the calculation of a liability is a value articulating institution (*sensu* Vatn, 2007) were some forms of value are accepted or dominant whereas some others are excluded.

In particular, the determination of liabilities (in extra-judicial context) and their monetary quantification is a process of operationalising of a broader concept of responsibility. The case of losses resulting from Iraq's invasion and occupation of



Kuwait, explained above, offers an empirically rich case study to understand the type of costs (restoration, replacement, monitoring, loss of production) most commonly associated with environmental contingencies at the large scale. It also illustrates the type of valuation assessment typically accepted in cases of international claims.

Making operative the concept of responsibility involves a great deal of monetary reductionism that necessarily excludes relevant aspects of the damage caused. The three examples presented in this chapter are different instances of this reductionism. Thus, the guidelines for prevention of pollution in the marine environment contained in different international conventions make a precision of what can be considered as a damage thus raising common technical boundaries that have not been there before. Moreover, punitive damages may be explicitly set aside in those cases where general guidelines are set up with the purpose of preventing trials. Such is the case of the UK Compensation Scheme for Radiation-linked Diseases.

Still, it is clear that even a settlement gives a signal of a damage actually caused. In this respect, monetary valuation is not a metaphor. For those directly involved, the monetary compensation matters and has a real meaning in terms of their own claims and concerns.

# 3

## Conflicts over liabilities in the Niger Delta

**Julien-François Gerber & Godwin Uyi Ojo**

The Niger Delta region comprises the largest river delta in Africa and the third largest in the world. The Delta contains 2,700 square miles of the continent's remaining 3,500 square miles of mangrove, and it is believed that some 60 percent of West Africa's fish stocks breed in the rivers and swamps along its coast. The region is home to approximately 31 million inhabitants representing 40 ethnic groups who speak some 250 different dialects.

Besides this, sadly, the Niger Delta is also one of the most polluted areas in the world. It has been devastated by the exploitation of oil and gas since the 1950s. While the associated social and environmental consequences began prior to Nigeria's independence, the situation did not improve when the country gained independence in 1960. Oil spills and uncontrolled flares have continued to occur and responses have remained inexistent, slow or inadequate. Since the 1970s, many grassroots movements of resistance have arisen, such as the emblematic struggle of Ken Saro-Wiwa and the Movement for the Survival of the Ogoni People (MOSOP).

In this chapter, after giving some contextual information on the different stakeholders and the conflicts, we will briefly review the question of the corporate liabilities involved. What are the social and ecological costs? Is it possible to 'make up' for them? How costly would it be? To that aim, we will discuss the nature of conflict in relation to the findings of a United Nations Environment Program (UNEP) study, the most systematic impact assessment undertaken to date (UNEP, 2011).



### 3.1 A note on the stakeholders

The colonial government in Nigeria was originally set up by a private corporation, the British Royal Niger Company. The latter basically organized the administrative and military structure of the region in order to facilitate the exploitation of minerals and other raw materials. With petroleum replacing coal as the preeminent fuel of capitalism, new oil and gas exploitation resulted in joint ventures in which the state facilitated corporate control over communal land. Along the same line, the successive post-colonial governments of Nigeria have decreed a number of legislations, especially the Land Use Act and the Petroleum Act, which vest ownership and control of all land and mineral resources on the central government, regardless of local communities. The government can give away customary lands and forests to transnational companies for exploration and exploitation of crude oil and gas. These fossil fuels have been exploited essentially for export markets in Europe and North America, following the old colonial pattern.

Oil exploration in the Delta commenced in the 1950s and extensive production facilities were established during the following decades up until today. These operations were handled by several companies such as Royal Dutch Shell, Total, Eni, ExxonMobil and Chevron. All of these companies have a significant stake in preserving a license to operate in Nigeria, and all have future plans for the region, especially offshore (DeSimone, 2012). They wield enormous political and economic power and often exert influence and control over the state.

In contrast to the influence of oil companies, NGOs have limited political and economic power. That said, they are sometimes able to exert influence on the state and corporations by building social movements from below. For example, Friends of the Earth International and Greenpeace influenced Shell's Brent Spar oil rig decommissioning and forced changes in the firms' plans. In Nigeria, the EJO Environmental Rights Action (ERA), founded in 1993, pioneered environmental activism through advocacy campaigns that have resulted in some policy shifts by the government.

In the Niger Delta's traditional communities, land is the main source of livelihood. Prior to colonial imposition of the state, ownership and control of land was vested in the village community. It was in the interest of the community to protect the natural and social environment. However, the emergence of the state and its administrative structures had a huge impact on communities. The local means of government, communal life, and production were displaced. The state came to be identified as the facilitator of the plunder of natural resources, the destruction of livelihoods, and the violation of the rights of communities.

**The state came to be identified as the facilitator of the plunder of natural resources, the destruction of livelihoods, and the violation of the rights of communities.**

### 3.2 The contested situation

Oil was discovered in the Niger Delta region of Nigeria in 1956. The Delta has since become a network of pipelines and oil infrastructure: 7000 km of pipelines, 275 flow stations, 10 gas plants, 14 export terminals, 4 refineries, over 6000 oil



wells and 606 oil fields (Watts 2008). The region generates about 96% of all foreign earnings and 85% of state revenues. Between 1999 and 2009 only, Nigeria earned USD 200.34 billion and currently makes at least USD 1.5 billion every week from crude oil sales (ibid). However, the Delta region remains one of the poorest in Nigeria. Since the 1990s, it became an 'ungovernable space', particularly after the execution of Ken Saro-Wiwa.

According to a recent study, the situation led to an era of building social mobilisations (1970–1987), and a corresponding awareness that led to disenchantment and peaceful protests (1988–1998), and the subsequent armed rebellion against the state and the oil companies (1999–today) (Ojo, 2012). This categorization may vary from place to place, sometimes running concomitantly. The struggle for economic, social and environmental justice and resistance to oil exploitation has thus employed both non-violent and violent means according to the contexts and the response of the state. The various stages and forms of the struggle also reflect changing demands: from compensation and environmental restitution to self-determination, resource control, and the emerging concept of 'leave oil in the soil'. Yet, although both strategies and tactics of non-violence and violence distance themselves from one another, they have also somehow complemented each other by building a critical mass for socio-environmental justice.

Above all, it is the nature of violence against the communities and the destruction of their livelihood that have fostered resentment and which has in turn shaped forms of mobilisation and resistance. Protest by individual communities against the oil companies, which had been a feature of oil exploitation in the Niger Delta, experienced a turning point in 1990. What was a peaceful protest by community members against Shell, and demand for basic amenities, turned deadly as Shell and the government invited the paramilitary police and army to shoot and kill dozens of community members at the same time that the whole community was razed down by agents of the state.

Soon after, the 'Movement for the Survival of the Ogoni People' (MOSOP), under the leadership of Ken Saro Wiwa, was established. In a short period, the movement gained community-wide acceptance to confront the state and issue notice to Shell to quit Nigeria. While Shell obtained from Ogoniland about USD 5.2 billion between 1958 and 1993, the Ogonis themselves still lacked basic social amenities such as piped water, electricity, and adequate medical care. Moreover, fishing and subsistence farming decreased due to soil and water contamination.

In 1992, the MOSOP issued a memorandum addressed to the Nigerian state and Shell with a 30-day ultimatum to Shell and the Nigerian National Petroleum Corporation to pay back rents and royalties, environmental remediation and compensation or quit forthwith. They called for the control of the oil revenue and the mitigation of impacts as priorities. The memorandum, as part of the Ogoni Bill of Rights (MOSOP, 1992), demanded the following: (1) payment of USD 6 billion unpaid royalties; (2) payment of USD 4 billion as reparation for damages and compensation for the environmental pollution suffered by the people and their environment; (3) immediate stoppage of environmental devastation; (4) burying of





all high pressure pipelines currently exposed; and (5) dialogue between representatives of the community, Shell and the Federal Government.

The Ogonis then followed the proclamation with daily peaceful mass protests against Shell and the government. But the oil companies refused to move. The MOSOP continued the mobilization and internationalised the campaign. On 4 January 1993, as the United Nations marked World Indigenous Populations day, an estimated 300,000 Ogoni, including women and children, staged a historic non-violent protest and marched against Shell's 'ecological wars'. As a response, frequent government reprisal attacks and human rights violations resulted in the death of hundreds of Ogonis, including the execution of Ken Saro-Wiwa, following which Shell had no option but to end its oil extraction in Ogoni. On a global scale, these mobilisations represent perhaps the most formidable grassroots resistance to corporate oil operations.

Community awareness was enhanced throughout the Niger Delta and many similar protest activities occurred in the region. They were peaceful in nature although pockets of oil facility sabotage were becoming increasingly evident. The EJO ERA was founded in 1993 with Nnimmo Bassey as the group's Executive Director and Chair of Friends of the Earth International. ERA has been at the forefront of the fight for the peaceful resolution of the Niger Delta crisis, deploying the twofold objective of combining environmental with development issues, especially through the promotion of community self-reliance. Together with Acción Ecológica and the Oilwatch network, ERA led the demand for a 10-year oil moratorium on new oil discoveries and licensing. In brief, the key objectives of the 'leave oil in the soil' proposal was to halt activities related to oil discoveries and mining in order to pave the way to a transition from a fossil fuel-based economy to a post-petroleum Nigeria (ERA/FoEN 2009; see also Ojo, 2010). Other objectives included: (1) refocus Nigeria on productive engagement rather than depending and being trapped by one product; (2) wealth redistribution; (3) creation of more jobs through economic diversification; and (4) restoration of the despoiled Niger Delta environment and execution of needed development.

In parallel, violence also increased. From 1999 onwards, the region was marked with the daily news of kidnapping of oil workers for ransom, and the sabotage of crude oil pipelines and facilities that eventually reduced oil production in Nigeria to two-thirds (Watts, 2007). The struggle was exemplified by the Movement for the Emancipation of the Niger Delta (MEND), a secretive and multifaceted guerrilla-type movement, well-organized and well-armed, that declared a hidden war against the government and oil companies. The explicit aim of MEND is to destroy the capacity of the rentier state to produce crude, its lifeblood. By early 2006, kidnapping of oil workers assumed a frightening dimension. The MEND derives its huge membership mainly from unemployed young men and women in the Ijaw-speaking areas of the Delta. These incidents contribute to increasing the price of oil in the world market.





### 3.3 Impact assessment and valuation<sup>4</sup>

In order to estimate the social and environmental liabilities of oil companies in the Niger Delta, data on oil spills must be found. Unsurprisingly, these data vary widely depending on the sources and have been hotly contested by the different stakeholders. Existing sources include (DeSimone, 2012):

- The Nigerian government, which has released its own figures periodically, mostly focusing on coastal and adjacent wetland areas.
- Shell's subsidiary in Nigeria, SPDC, has been releasing data for the last 15 years. It is the only company to do so but it still leaves unknown the amounts it spilled before this period and during its peak years of production in Ogoniland, as well as estimates for remaining cleanup, remediation, compensation and other potential liabilities.
- Local community members, through testimony, press interviews and public statements, have shed light on the nature and scope of the damage. For example, fisherman, farmers and local businesses have had to shut down or move as a result of spills, and many communities have suffered devastating consequences from losing access to potable drinking water, crops and livelihoods.
- Multilateral institutions and civil society organizations, with the help of local community groups, have generated estimates of their own. In 2009, the United Nations Environment Program (UNEP) undertook a two-year assessment of the environmental impacts of oil spills in Ogoniland, the results of which were released in August 2011 after months of delays (UNEP, 2011). It is the best accounting to date of the spills' scope and damage, although it only covers Ogoniland and does not review spills elsewhere in the Niger Delta. In the rest of the section, we shall summarize their findings.

**The much anticipated UNEP environmental assessment of Ogoniland was carried out under tremendous pressure from various stakeholders with divergent interests.**

The much anticipated UNEP environmental assessment of Ogoniland was carried out under tremendous pressure from various stakeholders with divergent interests. Although the study was funded by oil companies, UNEP was somehow able to maintain a level of independence. To preserve impartiality, it conducted the study within a "negotiated" framework for cooperation, "in which all parties were involved and a recognized team of national and international experts then recruited". The team of experts spent 14 months examining more than 200 locations and 122 km of pipeline, in addition to reviewing more than 5,000 medical records and engaging more than 23,000 people at local community meetings. The UNEP team also took and analyzed more than 4,000 oil samples from 142 groundwater monitoring wells. It is the nature and scope of this original, independent research that makes UNEP's report the most comprehensive to date and will prove a useful baseline from which to measure progress going forward.

<sup>4</sup> This section draws extensively on UNEP (2011) and DeSimone (2012).



UNEP found “that there are, in a significant number of locations, serious threats to human health from contaminated drinking water to concerns over the viability and productivity of ecosystems”. This is despite the fact that the oil industry is largely no longer actively drilling in Ogoniland. However, what did shock UNEP researchers was “that pollution has perhaps gone further and penetrated deeper than many may have previously supposed”. As UNEP explains, this is attributable to several factors: high rainfall rates in the region, slow clean-up response times, fragile ecosystems, and the lack of a clay layer beneath topsoil throughout the region. UNEP explains that Ogoniland’s high rainfall rates thwarts clean-up efforts, especially if they are delayed, because it very quickly disperses oil slicks and regularly embeds oil deep into the ecosystem, even quickly seeping into the root zones of many plant species causing plant stress and destruction. “Oil pollution in many intertidal creeks has left mangroves denuded of leaves and stems”, UNEP observed, “leaving roots coated in a bitumen-like substance sometimes one centimeter or more thick”. UNEP also notes that fires resulting from oil spilled on land kill vegetation and leave a crust over the land, making remediation difficult. Overall, UNEP found Ogoniland’s wetlands “highly degraded” and in need of rehabilitation. For example, UNEP reported that in Bodo West, artisanal refining activities and related spills between 2007 and 2011 have been accompanied by a 10 per cent loss of healthy mangrove cover and raise the threat of “irreversible loss of mangrove habitat in this area”.

Top concerns UNEP highlighted in its 2011 report are problems with groundwater contamination, air pollution, fisheries and crops.

- *Groundwater contamination:* Further worsening the situation is the lack of a continuous clay layer across Ogoniland and surrounding areas, which means groundwater in Ogoniland and beyond is quickly exposed to hydrocarbons spilled on the surface. “In 49 cases, UNEP observed hydrocarbons in soil at depths of at least 5 meters”, it says, which “has major implications for the type of remediation required”. UNEP found, at two-thirds of the contaminated land sites (41 locations) from which it took samples, the soil contamination exceeds the requirements outlined in the government’s Standards for the Petroleum Industries in Nigeria (EGASPIN). The spill situation and years of neglect, UNEP finds, has left the Ogoni community exposed to hydrocarbons in outdoor air and drinking water, sometimes at elevated concentrations, as well as through dermal contact with contaminated soil, sediments and surface water. UNEP notes that many Ogonis have been exposed to hydrocarbons for more than 50 years. UNEP researchers found hydrocarbon contamination at 28 wells at 10 communities adjacent to contaminated sites. At seven wells, it says, samples were at least 1,000 times higher than the Nigerian drinking water standard of 3 micrograms per litre. In interviews with members of these local communities, UNEP observers found that the locals were aware of the dangers of the oil pollution but said that “they continue to use the water for drinking, bathing, washing and cooking as they have no alternative”. The most serious case of groundwater contamination is at Nisisioken Ogale, in Eleme local government area, UNEP says, close to a Nigerian National

**UNEP found “that there are, in a significant number of locations, serious threats to human health from contaminated drinking water to concerns over the viability and productivity of ecosystems” in Ogoniland**



Petroleum Company product pipeline where an eight-centimetre layer of refined oil was observed floating on the groundwater serving community wells. Local residents there are drinking water from wells that is contaminated with benzene, a known carcinogen, at levels more than 900 times above the World Health Organization (WHO) guideline. The report states that this contamination warrants emergency action ahead of all other remediation efforts.

- *Air pollution:* UNEP also detected benzene in air samples at concentrations ranging from 0.155 to 48.2 micrograms per cubic meter. While finding benzene in air samples is common in any community using fossil fuels, about 10 percent of the benzene concentrations in Ogoniland were higher than the concentrations WHO and the U.S. Environmental Protection Agency (EPA) say correspond to a one in 10,000 incidence of cancer.
- *Fish:* As mentioned earlier, mangroves in wetlands have been suffering from hydrocarbon pollution, and these areas also serve as spawning grounds for fish and nurseries for young fish. The pollution, UNEP says, has had a severe, detrimental effect on local fish populations' life cycles and on the communities relying on these fish stocks for sustenance and livelihoods. In addition to hydrocarbon pollution, dredging that has occurred in the area has left spaces where invasive species, such as nipa palm, that also tend to be more resistant to oil pollution, are thriving in place of mangroves. This has prompted calls for rehabilitation of these waterways and wetlands. Another side effect of the pollution is that fish populations have left polluted areas, leading fisherman to migrate further upstream or downstream away from their communities to survive. While UNEP found no immediate concerns for human health resulting from consuming fish exposed to hydrocarbons, it did find the local fisheries decimated by hydrocarbon pollution. Fish farming enterprises set up to augment populations, which themselves have become infiltrated by oil spills, also have been lost to pollution.
- *Crops:* Like the mangroves and local fish stocks, crops too have suffered from spill damage. Root crops such as cassava, widely planted in Ogoniland, become quickly damaged and rendered unusable after exposure to oil spills. Even in areas where some remediation has taken place, UNEP says, plants generally showed signs of stress and yields were reportedly lower than in non-impacted areas.

**The report confirms Shell's decades of socio-environmental atrocities that will take about 25 to 30 years to recover if urgent steps are taken**

In short, the report confirms Shell's decades of socio-environmental atrocities that will take about 25 to 30 years to recover if urgent steps are taken including the establishment of an initial USD 1 billion Clean Up Fund. Despite the challenges, UNEP envisages the possibility of meaningful environmental restoration of Ogoniland. According to the report, the companies have an obligation to rectify the damage along the "polluter pays" principle. It sets eight priorities as emergency measures dealing with drinking water.



UNEP urges the Nigerian government to create an Ogoniland Environmental Restoration Authority to oversee implementation of UNEP's recommendations and a 'centre for excellence' to promote sharing good practices. It too suggests a fixed initial lifespan of a decade for the authority and a dedicated budget drawn from a new Restoration Fund capitalized through an initial cash injection of USD 1 billion from the oil industry and Nigerian government (see **Table 7**). UNEP underscores that its USD 1 billion budget for the fund is an initial estimate and only covers the first five years of remediation efforts. This does not include funds to compensate local inhabitants for lost livelihoods, ill health effects or other negative consequences from the years of oil spills and resulting environmental degradation.

**Table 7:**  
**UNEP's initial cost estimate for the first five years of restoration in Ogoniland (UNEP, 2011).**

Item	Cost (USD)
Emergency measures (80% for providing alternative drinking water to communities with contaminated water supply)	63,750,000
Clean-up of land contamination	611,466,100
Clean-up of benzene and MTBE contamination in Nsisioken Ogale	50,000,000
Clean-up of sediments	20,000,000
Restoration of artisanal refining sites	99,452,700
Mangrove restoration and rehabilitation	25,500,000
Surveillance and monitoring	21,468,000
Ogoniland restoration authority operating expenses	44,000,000
Center for excellence in restoration	18,600,000
Alternative employment initiative for those engaged in artisanal refining	10,000,000
Third-party verification and international expert support	48,211,840
<b>Total</b>	<b>1,012,448,640</b>

The report's own estimates of USD 1 billion in clean-up and remediation costs for five years of a 25 to 30 year effort in Ogoniland alone, which represents only 14 percent of the total surface area of the Niger Delta, points to liabilities for the entire delta up to more than USD 42 billion, if the initial USD 1 billion is extrapolated for the total land area and multiplied by six to cover equal investments over a 30-year time period.

DeSimone (2012: 32) wrote that "much of the information needed to offer a clear and precise assessment of the implications for companies and their shareholders of the long-term costs of operating in the Niger Delta is unavailable or undisclosed. Nevertheless a picture is emerging of clear potential liabilities of companies with former and present operations there". These include:

- Continuing needs to assess spill damage, including funding for environmental surveys and development of remediation plans.
- Funds to conduct clean-up operations.



- Following up with efforts to remediate environmental damage resulting from the spills, including much-needed work to restore mangroves and wetlands.
- Costs to monitor and attend to health issues related to local community members' long-term exposure to hydrocarbons, especially in groundwater.
- Paying awards to community members to compensate for lost livelihoods related to depleted fish populations and destruction of arable land, as well as for adverse health effects associated with the spills.
- Fines from regulatory authorities.
- Legal, public relations and management costs associated with settling cases associated with the spills.

**Table 8** summarizes each company's global revenue, net income, global oil and gas production, Nigeria spill volume, and potential liabilities in Nigeria based on DeSimone (2012). Liability estimates are presented in ranges and only assess potential cleanup, remediation and compensation costs, not additional legal liabilities tied to punitive damages. The estimates take into account that these top companies also are not culpable or responsible for all of the spills, albeit the vast majority of them. The estimates take into account each company's production volume, location of operations, history of doing business in Nigeria, spill reports and pending lawsuits. DeSimone's numbers are likely to be well below the reality.

	Shell	ExxonMobil	Total	Chevron	Eni
Drilling in Nigeria since (year)	1936	1955	1962	1963	1962
Revenues in 2011 (USD)	470.2 billion	467.0 billion	166.6 billion	244.4 billion	110.5 billion
Net income in 2011 (USD)	31.2 billion	42.2 billion	12.3 billion	26.9 billion	7.8 billion
Global production (barrels of oil equivalent/day)	1.173 million	4.506 million	2.346 million	2.673 million	1.523 million
Oil and gas production in Nigeria (barrels of oil equivalent/day)	384,000	350,000	287,000	260,000	154,000
'Official' oil spill volume in Nigeria (barrels)	21,000	ND	ND	ND	ND
<b>Potential liabilities in Nigeria (USD)</b>	<b>4-13 billion</b>	<b>3-7 billion</b>	<b>2-5 billion</b>	<b>2-6 billion</b>	<b>1-3 billion</b>
<b>% of net income</b>	<b>13-42%</b>	<b>7-17%</b>	<b>16-41%</b>	<b>7-22%</b>	<b>13-38%</b>

**Table 8**  
Company data and liability estimates

Source: DeSimone (2012).

### 3.4 Final remarks on this case

In this chapter, we have described the huge social and environmental impacts of oil production in the Niger Delta as well as the resistance movements it generated. In order to have a better idea of the liabilities involved, we also reviewed the results of the most systematic impact assessment carried out to date (UNEP, 2011). These results confirm Shell's decades of environmental atrocities that will take about 25-30 years to recover if urgent steps are taken, including the



establishment of an initial USD 1 billion Clean Up Fund. Unfortunately this UNEP study only covers 14 percent of the total delta area. A lot of uncertainties remain. But what is certain is that the cleanup, remediation and compensation costs will be considerable. Only a strong social movement, along with national and international legal actions, will force oil companies to take their responsibilities.

Most calculations available have estimated the cost of remediation and few so far have attempted to address compensation costs involved. In fact, it is virtually impossible to 'calculate' a convincing monetary compensation. And if carried out and enforced, such colossal compensatory amounts of money could be used to address the stark poverty and underdevelopment but could most certainly create additional problems and conflicts if effective distributive system is not put in place. In the future, instead of being monetarily individualized, compensation should mainly take the form of meaningful plans aimed at community self-reliance in the provision of some needed infrastructure such as health facilities, schools, agro-ecological developments, alternative energy sources, socio-cultural reinforcement, and job opportunities.

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# 4

# The Yasuní-ITT initiative as a conflict over valuation

**Julien-François Gerber & Ivone Yáñez**

## 4.1 Introduction

The region of the Yasuní National Park, in eastern Ecuador, is the theatre of an historical socio-environmental conflict. While this park protects the most biodiverse rainforest on earth as well as indigenous populations, beneath its surface lies about 850 million barrels of oil located in three oilfields – Ishpingo, Tambococha and Tiputini, or ITT for short. This represents 20% of Ecuador’s total oil reserves. Oil has been the backbone of Ecuador’s national development since 1972 and it accounts for 60 percent of export earnings. But rather than exploiting the oil, the Rafael Correa government launched in 2007 a potentially path-breaking alternative: to leave the oil indefinitely underground and to seek instead monetary compensation from the international community (and especially from the countries historically most responsible for global warming) to the tune of USD 3.6 billion over 10 years, roughly half the market value of the non-extracted oil. The money raised would be invested in renewable energy projects, helping Ecuador reduce its dependency on oil, as well as in environmental and community projects nationwide (McAvoy, 2011; Martínez, 2012).

The Yasuní-ITT proposal offered a new model that shifts the debate away from ‘carbon offsetting’ and ‘mitigation’ towards something far more tangible: to stop emissions in the first place. Interestingly, the problem of valuation holds a key position in the debates (García Dos Santos, 2007). Rafael Correa himself said in front of the UN assembly in New York that





“...the Ecuadorian proposal seeks to transform the old conceptions of the economy and the concept of value. In the market system, the only possible value is the exchange value, the price. The Yasuní-ITT project is above all based on the recognition of the values of use and service, of the non-chrematistic values of environmental safety and maintenance of global diversity” (September 24th, 2007)

In his view, however, a ‘fair’ monetary compensation was the central element ensuring the viability of the entire initiative. The fact that the amount collected was much below the expectations was used as the excuse to set aside the whole proposal. For the EJO Acción Ecológica, on the other hand, the oil should be kept in the ground even without an international contribution, because human rights and Nature’s conservation cannot be monetarily compensated. The Yasuní initiative can thus be regarded as a battle ground over the importance of monetary valuation between, on one hand, the government and the oil companies (for different reasons), and on the other hand, EJOs and indigenous populations defending human rights and the rights of Nature. In this chapter, after a brief exposition of the conflict at stake, we will summarize the limits of some valuation methods that have been applied to the Yasuní-ITT proposal.

**The Yasuní initiative can thus be regarded as a battle ground over the importance of monetary valuation between, on one hand, the government and the oil companies (for different reasons), and on the other hand, EJOs and indigenous populations defending human rights and the rights of Nature.**

## 4.2 The contested situation: some history<sup>5</sup>

Before Shell’s exploration in the early part of the 20th century and the 1941 war with Peru, there was no strong nationalist attachment to the Yasuní. The Yasuní was no more than one of these ‘empty lands’ belonging to the state, awaiting some kind of ‘*mise en valeur*’. In 1979, the government created the Yasuní National Park with a surface of 1,476,000 hectares. Ten years later, the UNESCO granted the park the title of ‘biosphere reserve for humanity’.

The battle for the preservation of the Yasuní started in 1986 when three exploration blocks were carved within the park (Blocks 14, 16, and 17), a decision that indicated the government’s intention to give priority to oil extraction over environmental conservation. Ecuadorian environmental NGOs responded by forming a common front, the CORDAVI (*Corporación de Defensa de la Vida*), which brought to the constitutional court a case against different bodies of the state. The tribunal decided to reject the petition and the park’s surface was reduced to 982,000 hectares. This did not put an end to the dispute.

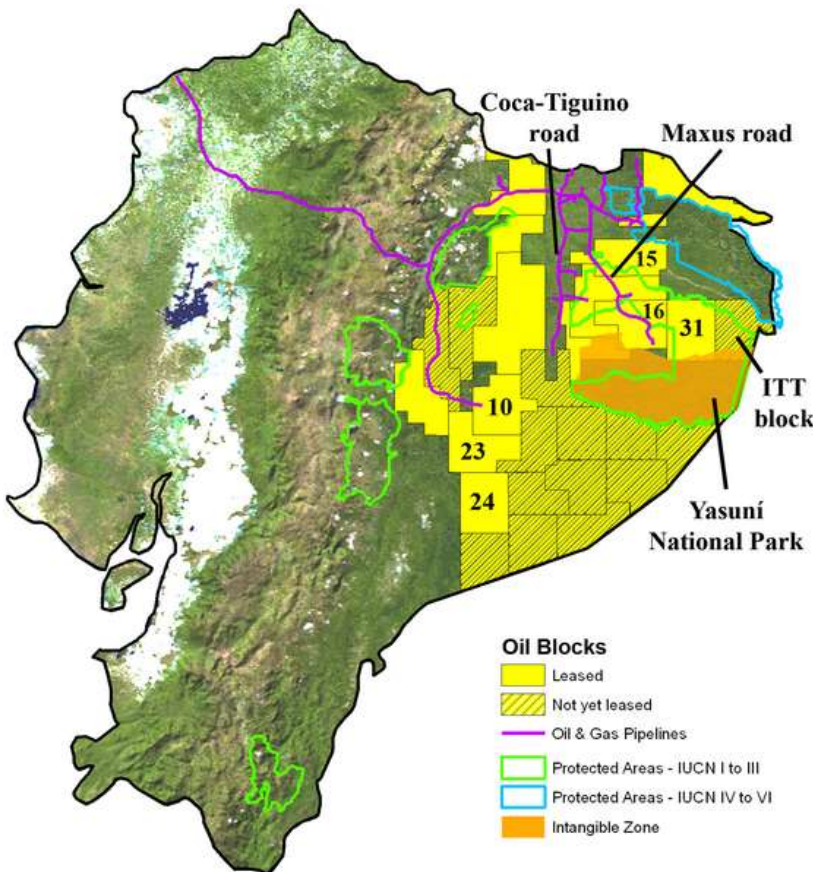
Ecuadorian environmental NGOs became divided in two wings, those who, like Acción Ecológica, maintained a strong and uncompromising position against oil drilling, and those for whom accommodation between corporate oil, state and civil society had to be found. The latter flourished during the late 1990s and throughout the 2000s when international funding flowed generously to collaborative projects aimed at integrating oil development, indigenous rights and biodiversity conservation, as well as to organizations supporting conflict resolution and social

<sup>5</sup> This section largely draws on Rival (2011).



corporate responsibility (Rival, 2011). However, again, conflicts were still present, as some indigenous communities continued to oppose any oil extraction. Conflicts and mobilisations surged once more in 1994, when Ecuadorian, European and North American environmental NGOs came together with indigenous organizations under the banner ‘Amazon for life’ to fight against the government’s seventh invitation to tender for new oil concessions in the Amazon.

Also, in 1993, over 30,000 Ecuadorians filed a lawsuit against the oil giant Texaco, now owned by Chevron, claiming that outdated techniques led to the dumping of 18 billion gallons of toxic waste directly into streams, rivers and the jungle floor, poisoning their land and water. The case – the biggest environmental lawsuit in the world – raged for over 17 years until in February 2011 Chevron/Texaco was found guilty and was ordered to pay damages of USD 18 billion for pollution (confirmed a year later, on appeal).



Map 3  
Ecuador’s oil blocks  
Source: Finer et al., 2008).

In the Yasuni region, a conflictive relationship between indigenous communities and oil companies has been predominant. Waorani people, for example, claim use rights to the whole of the Yasuni, while trying to articulate their own view of territoriality and good life in a changing world where cash income has become a necessity (Rival, 2002; 2011). When Petrobras won the right to operate Block 31, the Waorani organized various local and regional protests culminating with a march to Quito in 2005. They demanded the company’s expulsion from their



territory as well as a full ban on oil development in the Yasuní. Despite mounting protests, Petrobras' environmental licence was not fully revoked but simply suspended on the grounds of irregularities, before being finally granted in 2007.

The convergence of indigenous rights and environmental protection is also well illustrated by the fate of Block 17 and the creation of an 'intangible' territory within the Yasuní National Park for indigenous communities living in voluntary isolation such as the Tagaeri and Taromenane. Whereas environmental and human rights activists campaigned for natural boundaries such as rivers, the oil companies whose blocks partly overlapped with the *zona intangible* did everything in their power to ensure minimal encroachment to their concessions. The boundaries of the *zona* were finally agreed upon in 2007. Unfortunately, the *zona* offers, in practice, only minimal protection. It cannot prevent incursions by loggers and other illegal economic actors.

This entire context, plus the debates on climate change, led Acción Ecológica to propose a new initiative in 1997, namely to "leave oil in the ground" in areas of high biological value and threatened indigenous populations. The initiative continued as a collaboration between radical ecologists imagining a 'post-oil society' (for instance, Esperanza Martínez of Acción Ecológica) and government officials convinced that ecosystems goods and services need to be considered in economic decisions (such as Alberto Acosta and Fander Falconí). This new form of collaboration is far from being free from tension. But with the election of Rafael Correa in 2007, several of these academics and environmentalists became part of the government and it was Acosta who presented the ITT proposal the same year.

In 2009, Germany was set to contribute USD 70 million a year and there was interest from several other European countries. The UNDP had accepted to become independent administrators of the trust fund and the agreement was finally signed in 2011. However, until today (April 2013), the total collected so far is not as high as expected. The contradictory signals and discourses of the government, the financial crisis, and budgetary austerity have not been helpful. The rich countries probably also fear that other countries may ask for similar deals or that they will not benefit from any return for instance in the form of carbon credits. Ecuador has thus turned to the businesses like Coca Cola for funding, which is far from unproblematic.

But Correa's government could take an even more counterproductive path if it chooses carbon market mechanisms. Carbon credits issued in exchange for financial donations would be used to offset the greenhouse gas emissions of rich countries and big companies. "The original initiative was a critique of carbon markets," says Esperanza Martínez (quoted in McAvoy, 2011). "It was saying that Kyoto wasn't working, that Kyoto was created precisely not to affect the oil markets, so that industrialized countries could continue polluting". Unlike Kyoto's CDMs, the Yasuní initiative directly threatens the world's oil supply. If the model is rolled out to other countries, it would push us faster along the road to oil shortages and price hikes – but also to genuinely reducing CO<sub>2</sub> emissions.

**The debates on climate change, led Acción Ecológica to propose a new initiative in 1997, namely to "leave oil in the ground" in areas of high biological value and threatened indigenous populations**

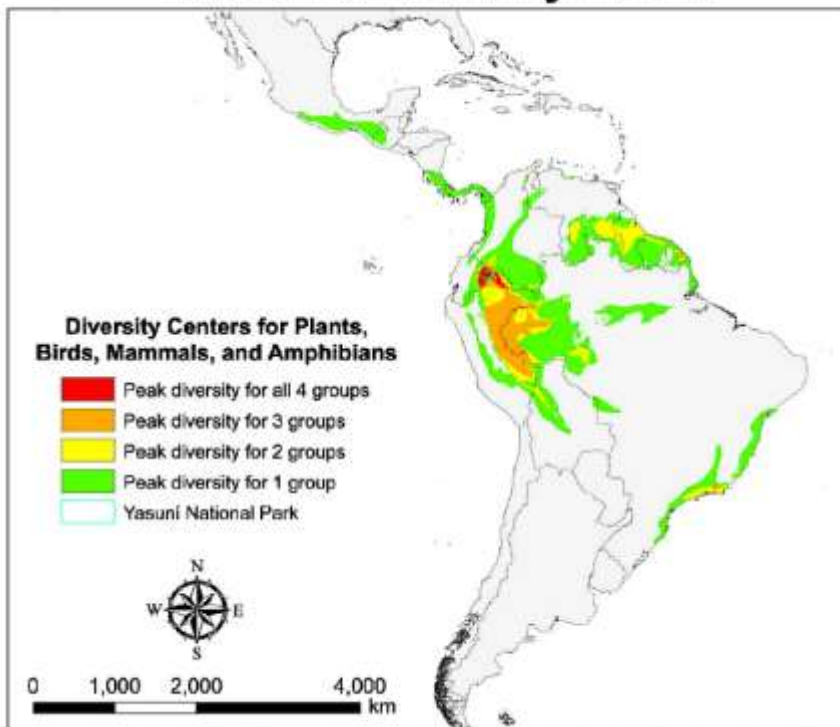
In April 2013, President Correa, on the eve of his second term, came back with the setting of a time period for the initiative to be “evaluated”. In October 2013 he finally announced the abandonment of the plan, which sparked generalised national and international criticisms and social protest in Ecuador.

### 4.3 The stakeholders and their ‘value systems’

#### 4.3.1 Nature

The environmental case for leaving the ITT oil fields untapped is beyond question. A single hectare of rainforest within Yasuní has been found to contain over 650 different species of tree – more than the whole of the US and Canada combined – and the Park boasts over 600 types of birds. Research stations have documented world records for ‘species richness’ of amphibians, reptiles and bats (see **Map 4**). In light of this incredible ‘megadiversity’, oil exploitation would be disastrous. Numerous studies have shown that these operations have not brought any development. They have caused instead considerable social and environmental damages in the areas of exploitation such as soil and water contamination. In addition, the roads built into the Amazon bring uncontrolled immigration, loss of biodiversity and deforestation.

#### Yasuní Biodiversity Center



**Map 4**  
The Yasuní National Park is at the intersection of amphibians, mammals, birds and plant peak diversity areas.



### 4.3.2 Indigenous populations and smallholder *campesinos*

The entire National Park region is also the ancestral land of the indigenous Waorani people who are now largely settled in 38 communities. There are also at least two tribes related to the Waorani, the Tagaeri and Taromenane, who remain in voluntary isolation. Some of the most dramatic impacts of oil exploitation have been seen amongst the indigenous Waorani people. Evangelical missionaries made the first contact with them in the 1950s. Oil companies followed in their wake, negotiating with individual leaders to drill in return for cash, roads, free food and alcohol that, combined, rapidly undermined their culture. The other local communities are mainly either indigenous Kichwa or subsistence-oriented smallholders. Both groups migrated to the area with the opening of the roads and both are dependent on a flourishing rainforest with clean rivers, animals to hunt and land to grow crops. Leaving the ITT oil untapped is critical for their survival.

In March 2013, two elderly Waorani died following an attack by voluntarily isolated Taromenane. This situation of siege on behalf of oil companies leads the people in voluntary isolation to the edge of extinction. Because of this, the proposal to leave oil in the ground is imperative.

### 4.3.3 Oil companies

Oil companies are very influential in Ecuador. They can often win out, regardless of National Park protection, indigenous reserves or UNESCO titles. Oil is key to Ecuador's economy and for the Correa government an indispensable source of funding for social programmes and public investments (in 2008, oil revenues accounted for half of the general budget). For some Ecuadorians, it is sometimes the only source of employment. Oil makes Ecuador heavily dependent on foreign companies (which control more than 40 percent of its oil extraction) and on the US market (see Rival, 2011, for a brief history of the oil sector in the Ecuador).

### 4.3.4 The government

The government was always been ambiguous or with a double discourse. While some of the biggest advances in environmental legislation have taken place under Rafael Correa, it was never clear how supportive of the proposal he truly was. Ecuador's new Constitution, signed in 2008, is the world's only constitution that recognizes the Rights of Nature. However, according to Esperanza Martínez, the 'deep green' Constitution that emerged was largely a result of key figures such as Alberto Acosta within the government, rather than Correa himself (McAvoy, 2011). Notably, many have since then quit the government, Acosta included. "It's clear that the President doesn't like the Constitution he's agreed to", says Martínez (ibid.), "and issues of environmentalism even less, but he's trapped because it has given him praise and worldwide attention".

**Some of the most dramatic impacts of oil exploitation have been seen amongst the indigenous Waorani people.**



Some of the main actors	Associated values/features
Nature	<ul style="list-style-type: none"> <li>entitled with rights in Ecuador</li> <li>home to exceptionally rich biodiversity</li> <li>reservoir of fresh water</li> <li>climate regulation</li> <li>universal dimension</li> </ul>
Indigenous populations	<ul style="list-style-type: none"> <li>sociocultural maintenance</li> <li>territorial and other collective rights</li> <li>healthy territories necessary for their livelihood</li> <li>right to life</li> </ul>
EJOs (such as Acción Ecológica)	<ul style="list-style-type: none"> <li>contribution to stop climate change</li> <li>biodiversity and fresh water protection</li> <li>indigenous people rights</li> <li>move to a post-oil economy</li> </ul>
Oil companies (management)	<ul style="list-style-type: none"> <li>entrepreneurial freedom</li> <li>profitability</li> </ul>
Current government	<ul style="list-style-type: none"> <li>ambiguous mix of all the previous values but emphasis oneconomic growth</li> </ul>

**Table 9**  
Some major values/features associated with stakeholders involved in the Yasuní-ITT initiative

Source: Own elaboration

#### 4.4 Valuation methods

The conflictive situation in the Yasuní has all the attributes of a multicriteria problem. This is so because such extractive activities are at the same time a huge source of revenue, usually for a tiny minority of powerful people, as well as a considerable source of environmental contamination and health damages, especially on the populations living nearby exploitation sites. In this situation, is oil exploitation worth its costs at the local, national and international levels?

Larrea (2007: 29) summarized as follow the main results of the standard cost-benefit analyses that have been carried out for the Yasuní-ITT initiative:

“The externalities studied, which represent only part of the total, reach USD 1.247 billion and the costs of the CO<sub>2</sub> emissions from ITT oil would equate to 375 million tons – equivalent to at least USD 1.684 billion. [...] We may conclude, therefore, that the option of keeping ITT oil underground would benefit the international community by reducing climate change, preserving biodiversity and supporting the subsistence of indigenous cultures – all at a lower cost than the damage the oil extraction would produce on a planetary scale. Ecuador would also benefit by obtaining compensation capital, whose interest would permit a sustainable future to be built.”

Such results – although in favour of the initiative – leave us with dissatisfied. Can all the damages be monetarily evaluated? What about the incommensurability of values? (Martínez-Alier et al., 1998).As an alternative, a multicriteria evaluation (MCE) seems better equipped to grasp the multidimensional nature of the problem at stake. Indeed, MCEs allow comparing scenarios along several dimensions and criteria (not only monetary). With the largest participation possible, they can become a social learning process for the stakeholders involved (see Gerber et al., 2013).





Very briefly, in order to structure the multicriteria problem, three fundamental categories of information must be defined: (1) the scenarios considered, (2) the stakeholders involved, and (3) the dimensions, criteria and indicators used for the evaluation. These three categories are not only ‘technical’ questions. They are also deeply political, but this doesn’t mean they cannot be defined on a reasonable and common basis. This phase is obviously delicate and key to everything else (Gerber et al. 2013). A recent study has applied a multicriteria software to the Yasuní situation (Vallejo *et al.*, 2011). We will briefly review it here, as well as some critical points made by Oilwatch.

Vallejo *et al.* (2011) carried out a Social Multicriteria Evaluation using the software NAIADE (Munda, 2008). They defined two basic scenarios. The first one – ‘Plan A’ – follows the Yasuní-ITT proposal ‘leaves oil in the ground’ based on the initial 2007 project. This scenario entails, among other, the respect of indigenous territories, the protection of biodiversity, the development of the eco-touristic sector, and less CO<sub>2</sub> emissions globally. The authors also analyse variants of this scenario, with less optimistic indicators. The second scenario – ‘Plan B’ – is centred on the extraction of oil in the Yasuní (except the Ishpingo sector). Also, the authors added a variant with a larger area of exploitation. The Plan B scenario is based on three assumptions: that the corresponding revenue made by the state will be redistributed (e.g. in the form of social programs), that there will be social and environmental costs even with the most modern extractive technologies, and that this scenario will foster the economic growth of the related oil-dependent industrial sector. These assumptions are quite favourable to the extraction scenario because the authors’ intention was to compare the Yasuní-ITT proposal with the “best possible” conditions for oil extraction.

These scenarios were evaluated by using a number of indicators that could be gathered into seven evaluation dimensions that formed the multicriteria matrix: (1) local economy (direct income of each alternative, tax revenues from oil revenues by the state, indirect revenues associated with each alternative); (2) “health” of the national economy (economic growth, diversification of production, vulnerability of the economy on the long term); (3) environmental dimension (biodiversity, pollution due to oil, deforestation, induced or avoided CO<sub>2</sub> emissions); (4) social dimension (the opportunity of direct and indirect jobs generation, investment in social development); (5) cultural dimension (effects on culture, effects on the population’s living conditions, potential environmental conflicts, capacity for social participation, opportunities for self-determination); (6) governance and social cohesion (breaches in physical conditions between groups in the population, institutional mechanisms for inclusion or exclusion, sense of belonging to society and to the groups that integrate it); and (7) international relations (the country’s international position in the negotiations on climate change and biodiversity conservation, the country’s influence in the regional integration process). In brief, the authors then elaborated an impact matrix and ran the NAIADE software along the three standard steps, namely comparison of pairs of alternatives, aggregation of all criteria, and then ordering of the alternatives. In short, their MCE gave a clear result in favour of plan A as long as at least 50 percent of the requested compensation is obtained.



Acción Ecológica and Oilwatch criticized this study, based on a number of points:

- Oilwatch contests the “Plan A” scenario which is built on a strong pro-market basis. Indeed, this scenario promotes financial mechanisms that Oilwatch rejects, namely carbon trading, REDD-type projects, the promotion of “eco-industries”, the sale of environmental services and Clean Development Mechanism (CDM). These instruments, to remain brief, are seen as harmful ways of green-washing global capitalism: “These carbon market-related projects are used in many parts of the world – including Ecuador – to justify and expand extractive activities, energy mega projects and other plans that entail deforestation and loss of biodiversity, as well as being used to neutralize resistance” (Oilwatch, 2012).
- Oilwatch contests the criteria and indicators used, seen as too narrow and unable to shed proper light on the problem. Within the “sustainable economy” dimension, for example, Oilwatch (2012) argues that “The indicators are similar to those used in any cost/benefit analysis, such as economic growth [...]; productive diversification [...]; and the vulnerability of the economy [...]. A sustainable economy should be based on sovereignty: economic sovereignty, food sovereignty, energy sovereignty, etc.”
- Oilwatch rejects the strategic usefulness of a MCE at this particular moment of the struggle. The Yasuni-ITT initiative is indeed still very fragile and Oilwatch favours the strategy of “scandalisation” and increased pressure, instead of acknowledging a MCE that doesn’t take other views into account but promotes “green” financial approaches. “Th[is] MCA presents a mutilated vision of what has been an agenda constructed over the course of many years” wrote Oilwatch (2012).

**The Yasuni-ITT initiative is indeed still very fragile and Oilwatch favours the strategy of “scandalisation”**

**“Acción Ecológica believes that tools such as multi-criteria analyses and assessments can be useful, but when there is a disconnection with local processes, they can be confusing and even dangerous”**

Indeed, what is the legitimacy of a MCE if important stakeholders (such as EJOs) do not acknowledge any of the scenarios evaluated? Also, what is the legitimacy of a MCE if EJOs feel betrayed by the indicators used? The keyword answer to avoid this is: participation/deliberation. From the beginning, a realistic MCE on an issue such as ‘leaving oil in the ground’ *must* include the participation of stakeholders in order to have as much reality-checks as possible. It is in the essence of a MCE to be able to acknowledge *all* positions, including the most radically opposed ones. “Acción Ecológica believes that tools such as multi-criteria analyses and assessments can be useful, but when there is a disconnection with local processes, they can be confusing and even dangerous” (Oilwatch, 2012). Activists (even of the most radical kind) who find it potentially useful to participate in a MCE that will rank alternative positions (including their own) must help building scenarios, criteria and indicators that will eventually make it clear that their positions is the most reasonable. They should also be able to oppose the use of some misleading indicators (such as GDP) provided that they can convince a majority of stakeholders that these indicators will only add more confusion to the MCE. But for such a process to be possible at all, a convincing MCE must involve substantial participation and deliberation.





MCEs are tools not aimed at fostering conflict – which can sometimes be the only constructive thing to do – but they are instruments that provide opportunities for discussing, learning, understanding, convincing, and that may strengthen the activist side, including, simply, by fully legitimizing their values and viewpoints.

#### **4.5 Final remarks about the Yasuní-ITT initiative**

The history of conflicts in the Yasuní highlights the inherent contradictions between global oil-based metabolic needs on the one hand, and biodiversity conservation and indigenous rights on the other. It illustrates the necessity to go beyond monetary valuation and puts on the table the need to move towards a 'post-oil society'. This move can only be based (among other things) on the selective 'degrowth' of the North's industrialized metabolism, a metabolism way too hungry for resources and energy, and on making concrete steps towards a post-oil economy leaving the oil in the soil. This is the only sensible response to climate change and unsustainability.

The Yasuní-ITT initiative sparked the imagination of many and facilitated an important public debate among the population. According to a survey run in 2011, public support in Ecuador for the initiative had raised from 58% to 75% (Rival, 2011). Many Ecuadorian citizens were thus challenging the idea that their country is 'too poor to be green' and too poor to afford leaving oil in the soil. Whether the use of a deliberative and fine-tuned MCE would support these claims is likely but it remains to be done.

# 5

## Diverting the waters of the São Francisco River (Northeastern Brazil)

### Neo-developmentalism against environmental justice?

Philippe Roman

#### 5.1 Introduction

The project to divert part of the waters of the São Francisco River to the semi-arid region of Northeast Brazil (*Transposição do rio São Francisco*, hereafter TSF<sup>6</sup>) is a long-lasting environmental conflict, maybe the greatest one in Brazil's environmental history. Since the 19<sup>th</sup> century and the endorsement of the idea by the last Brazilian emperor, Dom Pedro II<sup>7</sup>, the project is part of the debates on water scarcity and recurrent droughts in the semi-arid area of Brazil. First proposed after the great drought of 1875, it was recurrently modified and debated during more than a century, though never implemented because of technical hardships (not least the lack of energy to pump water and drive it beyond the hills on the Northern axis).

<sup>6</sup> Commonly known as "*Transposição do São Francisco*", the project is officially called "*Projeto de Integração do Rio São Francisco com Bacias Hidrográficas do Nordeste Setentrional*" (PISF). See (in Portuguese): <http://www.mi.gov.br/projeto-sao-francisco1>.

<sup>7</sup> The project was first proposed after the great drought of 1875.



Awaited by some as a cornucopia, and harshly criticized by many for being a technical extravagance useful only to the wealthiest, the TSF has become a highly contentious subject. However, the idea was never abandoned, and the technocratic elite has kept on envisioning it as a challenge to be faced up to. Once technically insurmountable, the construction of hundreds of kilometres of canals through dry regions has become possible, and the TSF was taken up by the end of the 1990s. It was the president Lula, born in a dry region of Pernambuco state, who launched the project<sup>8</sup>.

The works started in 2007 and are still under way. Supposed to bring water to 12 million people through the continuous diversion of 26,4m<sup>3</sup>/s<sup>9</sup> along more than 600km of canals and tunnels, the project is still fraught with uncertainties, especially as to who will really benefit from it. The processes of evaluation and design of the project have actually failed to make true democratic expression and participation a reality, while distributional issues raised by most experts and civil society organizations (CSOs) have not properly been addressed. The risk is to spend huge amounts of money for an unsustainable infrastructure, while not reducing environmental injustices in the Northeast.

**The risk is to spend huge amounts of money for an unsustainable infrastructure, while not reducing environmental injustices in the Northeast**

**Picture 3**  
**Ex-President Lula in a TSF canal, in Cabrobó, Pernambuco State**

Source: Wikimedia commons,  
<http://upload.wikimedia.org/wikipedia/commons/0/02/LulaemCabrobo.jpg>



<sup>8</sup> He considers the project as a gift to his fatherland, the deprived Northeast.

<sup>9</sup> The official description of the project is available on the website of the *Ministério da Integração*: <http://www.integracao.gov.br/pt/web/guest/o-que-e-o-projeto>.



## 5.2 Stakeholders and their ‘value systems’

The TSF involves many stakeholders, from different natures and regions. The geographic extension of the project outlines an environmental conflict involving persons and institutions as far as several hundreds kilometres, and from lay citizens to the Federal State.

The main stakeholders are the Federal Government (mainly through its Integration Ministry<sup>10</sup>), the states affected (as givers or receptors of the water) by the project, agribusiness and industries of the targeted regions, scattered rural households, water-related institutional entities (such as ANA, CNRH or CBHSF<sup>11</sup>) and civil society organizations (NGOs, syndicates, associations etc.). We may also consider as significant stakeholders: the companies involved in the construction of the canals, urban residents in big cities of the Northern coast, as well as riverside fishers of the São Francisco River or people displaced by the construction of the waterways.

The Federal Government is eager to implement the long awaited TSF: it is a proof of consideration to the less developed Northeast Brazil and a way to promote economic growth. The region, considered as underdeveloped and abandoned by the State, has now come to focus national attention. As one of the costliest lots of its “Growth Acceleration Programme” (*Programa de Aceleração do Crescimento*, PAC), the National Government wants to make the TSF a symbol of its developmental achievements. Indeed, the growth potential is high in the Northeast, some regions are economically booming (port and industrial districts close to Recife or Fortaleza), and several big infrastructure projects are under way (railway connexions, big ports on the Atlantic coast, other waterways as the *Canal da integração* etc.). Hence, the TSF is part of an economic surge, mainly oriented towards the export of raw materials and agricultural products. By promoting a project as the TSF, the Federal State is also supposed to bridge an ecological gap between water-rich and water-poor regions and hence to promote some kind of geographical-environmental justice, in terms of water availability. The principal beneficiaries of the TSF are supposed to be poor households and farmers of the semi-arid Northeast, but the real rationale behind the project seems to be a ‘neo-developmentist’ one: huge investments in big infrastructure projects designed to foster the circulation of resources and to extend the extraction/production frontiers.

Initially very prudent on the matter, the National Water Agency (*Agência Nacional da Água*, ANA) came lately to support the project. Its vision is one of technical solutions to the problem of water availability/scarcity, but from a more water-oriented perspective and more aware of the realities of water issues. The ANA

<sup>10</sup> The “Integration Ministry” – *Ministério da Integração*, MI – is in charge of great infrastructure projects, including the TSF.

<sup>11</sup> ANA: *Agência Nacional de Águas* (National Water Agency); CNRH: *Conselho Nacional de Recursos Hídricos* (National Water Resources Council); CBHSF: *Comitê da Bacia Hidrográfica do Rio São Francisco* (São Francisco River Basin Committee).



published in 2006 an 'Atlas of the Northeast' (*Atlas do Nordeste*), a collection of practical solutions to water availability problems in the Northeast.

The state of Ceará is a key stakeholder since it is the most interested in the project, as prime receptor of the diverted water (through the Northern axis)<sup>12</sup>. The economic interest of Ceará state in the TSF is unambiguous: beyond better water resources availability during drought periods, it will help release water restrictions on its agricultural and industrial development.

The Basin Committee of the São Francisco River (*Comitê de Bacia Hidrográfica do Rio São Francisco*) was created in 2001. It is the most democratic and hopefully representative body of the River area. As an institution representing the interests of groups of people living within the São Francisco basin, it issued technical and political stances leaving the door open to the TSF, but with clear restrictions: in solidarity with other states' people, the diversion of a limited quantity of water was allowed, only for human and animal consumption purposes. Conscious of the gigantic dimensions of the project and of the potential negative effects on a river whose riparians are often unable to use the water, the Basin Council is probably the institutional body which best deals with the contradictory visions and interests of various stakeholders. Nonetheless, its decisions were overcome by the National Water Council (*Conselho Nacional de Recursos Hídricos*, CNRH<sup>13</sup>).

As far as donor states are concerned, most of political representatives, technical bodies, NGOs and citizens long voiced their discontent with the project. They will get scarcely any benefit from it, while potentially high costs through a reduction in the available water upstream of the diversion canals and thus less development opportunities. Their opposition to the project is all the clearer that their interests have not been taken into account in the impact assessments of the project (RIMA, *Relatório de Impacto Ambiental*). In particular, the state of Minas Gerais repeatedly voiced its concern about the TSF, and the feeling is widespread among *mineiros* that they have been disregarded.

While big landowners of the targeted region view positively the arrival of new freshwater (allowing a better 'synergy' in the use of water reservoirs<sup>14</sup>) as a means of improving reliability of water quantities, the viewpoint of little farmers and poor households of the *semi-árido* is not that easy to grasp, and it is more likely being manipulated by local and national political elites. The Federal State is prone to assert that the poorest strongly back the project, but to our knowledge, nothing confirms such an assertion.

<sup>12</sup> Cícero Gomes, ex-governor of the state of Ceará, was a strong supporter of the project as he was *Ministro da Integração* between 2003 and 2006.

<sup>13</sup> Contrary to the politically balanced representation of stakeholders in the Basin Committee, the Federal Government holds a strong position in the National Water Council: it had half plus one seats when the Council voted in favour of the TSF in 2005.

<sup>14</sup> Called *açudes*.



Undoubtedly, the great majority of civil society organizations have been struggling against the project since decades. Among the most directly involved, the “Manuelzão project” (*Projeto Manuelzão*), the *Pastoral da Terra*, and the *Articulação do Semi-Árido*. As grassroots organizations, they tend to advocate small-scale alternative hydraulic projects such as wells, underground dams, cisterns to store rainwater, better interconnection of scattered households with public reservoirs, land reform etc. They share the idea of ‘living with the semi-arid’ (*convivência com o semi-árido*), i.e. making use of the various opportunities offered by local conditions rather than depend on water coming from distant sources and megaprojects prone to be controlled by powerful regional elites. They had to repeatedly deal with the accusation of, being against the project, being against those who suffer most from water stress, i.e. the poorest.

To sum up, while economic and political elites (especially in receptor states) have been preaching the social and developmental benefits of the TSF, civil society organizations and most experts<sup>15</sup> have pointed to the unsustainability of the project, disregard for local socio-ecological realities and environmental justice issues.



**Picture 4: The São Francisco River**

Source: Wikimedia commons / <http://en.wikipedia.org/wiki/File:RioSaoFrancisco.jpg>

<sup>15</sup> Among the most renowned experts on water issues in the Northeast who took an active part in the TSF are João Suassuna (Fundação Joaquim Nabuco), João Abner Guimarães Jr. (Universidade Federal do Rio Grande do Norte), Aziz Ab'Saber (Universidade de São Paulo, †2012), Apolo Heringer Lisboa (Manuelzão Project) and Manoel Bonfim Ribeiro (ex-director of the DNOCS – *Departamento Nacional de Obras Contra a Seca*, National Department of Works Against Drought, †2012).



### 5.3 The contested situation: What is at stake with the TSF? What are the most pressing issues?

The contested situation is rooted in the difficulty to unveil the true objectives of the project, say: is it a developmentalist project destined to bring water to powerful landowners and to foster export-oriented growth, or is it a project designed to relieve poor households from painful water collection tasks and recurrent water stress<sup>16</sup>?

Unlike other environmental conflicts, the TSF case involves the State as a chief (and ambiguous) protagonist. It has used strong pro-poor rhetoric and communication from the outset, showing images of starving animals and thirsty children to underline the humanitarian urgency of the project. But at the same time, there remain huge gaps in the implementation of the ANA recommendations, a collection of concrete actions deemed to be twice cheaper than the TSF and reaching almost three times more persons.

The proponents of the project argue that it will have only negligible negative impacts, since it will divert less than 1.5% of the São Francisco River's flow. But the quantity diverted exceeds the quantity available (once computed all the other uses in the basin), as pointed out by many hydraulic experts and by the very Basin Committee of the São Francisco River (*Comitê de Bacia Hidrográfica do Rio São Francisco*). As decided/stated by the Basin Committee, the only permitted use of the São Francisco River's water out of its basin is human and animal consumption. But as time passes, it becomes increasingly clear that irrigated agriculture and industry will benefit (disproportionately) from the water diverted, which reinforces the idea that the original official discourse was somewhat misleading.

Many denounce a "draught industry" (*indústria da seca*) interested not in the socio-technical battle against draught but in pharaonic works and emergency assistance. As to 2013, while the worst drought in decades is hitting Brazil's Northeast, the TSF is not working yet (its cost already doubled and delays will probably exceed 4 years, with an expected completion by the end of 2015) and *carros-pipa* ('water trucks') are once again mobilized to attend the poorest' needs<sup>17</sup>.

Beside the manipulation of drought by political and economic elites, the central issue in the TSF conflict is the destination of diverted water. Most critics foresee a situation in which water would first benefit agribusiness<sup>18</sup> (tropical fruits and shrimp farming mainly) and industries (especially the port and industrial complex of Pecém, Ceará state).

<sup>16</sup> Additional information on the issues at stake and a timeline of the conflict can be found (in English and Italian) on the CDCA (*Centro di Documentazione sui Conflitti Ambientali*) website: <http://www.cdca.it/spip.php?article1616&lang=en>.

<sup>17</sup> One of the main arguments in favor of the TSF is that it will end with *carros-pipa* as an emergency fix to bring water to drought-stricken areas, thus helping to make substantial economies.

<sup>18</sup> Some even speak of 'hydrobusiness' (*'hidronegocio'*).





Top managers of the project say that the Federal State is doing its part, and local political leaders have to jump on the train of the TSF in order to benefit from its full potentialities. But local political elites too often have neither will nor means to build the required facilities. So, only well organized and financially robust actors will take advantage of an increased water supply. Unfortunately, such political gaps are hardly addressed in preliminary studies or impact assessments.

To sum up, if it reveals what its critics fear, the project will reinforce a development pattern of subsidized water-intensive activities, while not addressing the needs of poor rural households.

## 5.4 Valuation methods

The valuation methods used to appraise the relevance of the project are as follows: the Ministry of Integration basically based its reflections on a detailed evaluation of benefits in the receptor areas. The assessment of costs was done in the Environmental Impact Assessment Report – EIA-RIMA (*Estudo de Impacto Ambiental – Relatório de Impacto Ambiental*<sup>19</sup>), which did not monetized the impacts. Numerous stakeholders underlined the limited scope of impacts assessed, which is partly due to a lack of participation through evaluation phase. Though in the RIMA the number of negative impacts exceeded the number of positive impacts, the conclusion of the document was clearly in favour of the project. Quite interestingly and as pointed out above, the specific difficulties linked to the lack of political will to build complementary facilities to the TSF necessary to transport water to poor households were not really addressed. So, reasoning as if the TSF were about to work in a world without frictions biases the evaluation in favour of the most powerful.

Among the shortcomings of the evaluation process are the time lags between the design of the project by state bureaucrats and the presentation of the project in the affected areas. Most of the important decisions about the project have been made by the time when the impact assessment process was undertaken. The socio-environmental impact assessment process comes after the technical-financial viability studies are completed and impact assessments have the limited function to localize where compensation procedures should be followed. Therefore, the TSF was not designed in a fully collaborative way with concerned stakeholders. However, the government eventually came to (partially) take account of civil society's demands (e.g. the 'revitalization' of the São Francisco river), which demonstrates that the mobilization was not in vain.

To our knowledge, there does not exist any alternative (multicriterial) evaluation of the project. It is probably due to the high complexity and extension of the project. Nevertheless, the project was scrutinized in many ways by many different observers, institutions, experts or researchers since decades. While some of them lamented the lack of information and data on key issues, many expressed very

<sup>19</sup> The document can be downloaded here: <http://www.mi.gov.br/projeto-sao-francisco1>.



critical opinions on the idea to divert the São Francisco River's waters. Even the World Bank showed the limits of the project and the necessity to implement other actions before such a megaproject is contemplated. Not least, the SBPC (*Sociedade Brasileira para o Progresso da Ciência*<sup>20</sup>) adopted a critical stance as well.

An extensive review of the literature on the subject suggests that positive appraisals of the project on the part of academics are quite scarce. The most notable works released to date are very critical of the project<sup>21</sup>. Once again, the innumerate and long-standing problems linked to the TSF are rooted in a lack of transparency about who will benefit from the project and who will pay for it. The question “who will benefit from the water transfer?” (“*a quem vai servir a transposição das águas?*”) has become recurrent in the writings and public stances of the (late) renowned geographer Aziz Ab'Sáber<sup>22</sup>. It is the same line of argument that the engineer João Suassuna, researcher at the Joaquim Nabuco Foundation (*Fundação Joaquim Nabuco*), has been following since more than a decade<sup>23</sup>. Actually, the Environmental Impact Report (EIA-RIMA) says that 70% of the diverted water will go to irrigation and industrial uses, 26% to urban consumption, and only 4% to scattered households.

Hence the necessity to introduce a true balance in the cost-benefit analysis. That is what is proposed by the organization FASE<sup>24</sup> in collaboration with the Urban and Regional Research and Planning Center of the Rio de Janeiro Federal University<sup>25</sup>. They propose a new instrument of evaluation, complementary to the classical EIA-RIMAs, called “Environmental Equity Evaluation” (*Avaliação de Equidade Ambiental, AEA*)<sup>26</sup>. The objective is to democratize the impact assessment of development projects and to better handle social and distributive issues. The proposal to add an ‘environmental equity evaluation’ to the traditional impact assessments is especially important in a place where development projects are most frequently following external interests and scarcely benefit local populations, especially the poorest. Export-oriented megaprojects should thus be more precisely scrutinized before they are implemented, in order not to turn social inequalities more acute.

Another way forward to fill in the gap of the evaluation of inter-basin water transfers would be to follow guidelines similar to those advocated for dam projects

<sup>20</sup> Brazilian Society for the Advancement of Science.

<sup>21</sup> See for example Suassuna (2011).

<sup>22</sup> In Portuguese, see: <http://tinyurl.com/cvy75kr>.

<sup>23</sup> See: [http://www.fundaj.gov.br/index.php?option=com\\_content&view=article&id=630&Itemid=376](http://www.fundaj.gov.br/index.php?option=com_content&view=article&id=630&Itemid=376).

<sup>24</sup> *Fundação de Atendimento Sócio-Educativo* (Foundation for Socio-Educational Service).

<sup>25</sup> *Instituto de Pesquisa e Planejamento Urbano e Regional da Universidade Federal do Rio de Janeiro* (IPPUR/UFRJ)

<sup>26</sup> FASE/ETERN (2011) *Relatório Síntese: Projeto Avaliação de Equidade Ambiental como instrumento de democratização dos procedimentos de avaliação de impacto de projetos de desenvolvimento*, Rio de Janeiro.



by the World Commission on Dams (WCD)<sup>27</sup>. The idea was proposed by the WWF in a 2007 report on inter-basin water transfers<sup>28</sup>. The WCD, set up in 1997, consisted of members of civil society, the private sector, academia, professional associations and one government representative. In 2000, it issued a report reviewing a wide array of case studies and issues on dam construction in developing countries, and including key recommendations for the appraisal of dam projects. Since then, the report gained a widespread uptake, and recommendations have partly been followed (the most popular items are 'Gaining public acceptance' and 'Recognising entitlements and sharing benefits').

## 5.5 What lessons from this case?

Many say that the TSF will never occur, or else will never deliver freshwater to those for whom it was deemed to be originally designed. As pointed out by the Federal Court of Auditors (*Tribunal de Contas da União*), every day appears a new problem requiring a new technical fix and new spendings. Building companies make money and political elites keep on trying to gain votes promising the project will redeem their region.

What lessons can be learned from the TSF conflict?

First, it is useful to share a same vocabulary / rationale to advance a common counter-vision and counter-projects. The articulation of watchwords such as '*convivência com o semi-árido*' ('living with the semi-arid') and '*revitalização sim, transposição não*' ('revitalization yes, transposition no') with calls for 'socio-environmental justice' helped to frame the rationale of CSOs as legitimate and coherent<sup>29</sup>. This may have helped to force the State to set up a more ambitious 'revitalization' agenda<sup>30</sup>. Definitely, civil society organizations have convincingly combined three streams of rationale: development should respect local environmental conditions and consider them as opportunities rather than fatal constraints to be overcome (adaptation); water scarcity is as much a socio-political problem as a natural one (denunciation of the socio-political *status quo*); projects should enhance socio-environmental justice (environmentalism of the poor / environmental justice discourse).

As far as evaluation issues are concerned, the question remains: how to make a good evaluation of a project entailing so many and so diverse consequences, affecting such a wide array of stakeholders? While a mere cost-benefit analysis

<sup>27</sup> The WCD's final report can be downloaded here:  
<http://www.internationalrivers.org/resources/dams-and-development-a-new-framework-for-decision-making-3939>.

<sup>28</sup> WWF (2007) *Pipedreams? Interbasin water transfers and water shortages*, June 2007, Global Freshwater Programme.

<sup>29</sup> Not to mention the support by renowned experts.

<sup>30</sup> Seeing the glass half empty, the 'revitalization' package was granted as a counterpart to the adoption of the TSF.



(all the more if strictly monetary) is not sufficient at all, multicriteria frameworks are hard to apply too. Hence the importance to follow some guidelines and to keep in mind some principles, as those listed in the WCD report. Although it was not applied in this case, the idea to impose an Environmental Equity Evaluation prior to any big development project should be of interest for the future. If it were applied in the case of the TSF, the project would have probably been radically modified if not rejected.

To conclude, let us emphasize that project evaluations cannot be mere marginal modulations of otherwise technocratic decisions. The obligation to clearly identify and make public (at the earliest stages) who will benefit from the project, and at what cost (including the likeliness of key complementary works being completed by local powers), should be part of the evaluation of the opportunity of any big development project.



# 6

## Valuation contests over India's forests

**Julien-François Gerber**

What is the value of the forests in India? Right now, as per net present value, one hectare of forest in India costs anything between USD 8000 and 19,000. In the present chapter, we will see how economists and authorities came up with this result and the problems it poses.

These amounts of money have to be paid to authorities each time a given forest is destroyed and converted to another use. The 'net present value' (see Box 1 below) has been adopted as an economic tool to calculate the compensatory value of the destroyed forests. The revenues are collected in a fund managed by a central governmental body; they are then used for 'compensating' the forest losses in the form of afforestation and reforestation projects elsewhere.<sup>31</sup> Up until today, the process has generated a few hundreds of millions of US dollars – and a lot of uncertainties as to what will be done with this (Awasthi, 2008).

**The development projects in India reflect the growing metabolism of the country's economy, a metabolism hungry for land, raw materials and energy.**

As we will see, the idea of estimating the value of forests and asking a price from any party demanding their use was partly a response to increasing deforestation rates but also to the related numerous conflicts. In India, indeed, many small and large forests have been destroyed by hydroelectric dams, mining projects or infrastructure developments. These development projects reflect the growing metabolism of the Indian economy, a metabolism hungry for land, raw materials and energy. While the idea was in a way path-breaking – for the first time forests were officially considered as more than just timber –, the issues of 'valuation' and 'compensation' remain highly questionable. How to decide whether a forest should be flooded by a dam or destroyed by an open cast coal mine? Can we really calculate the 'value' of keeping the forest compared to the 'value' of the new industrial project, reaching a conclusion accepted by society? Which are the relevant values and for whom?

<sup>31</sup> Afforestation is the plantation of trees on land that were not covered by forests and reforestation is the plantation of trees on land previously forested.



## 6.1 The stakeholders and their values: some historical background

The first hundred years of British rule witnessed a colossal plunder of half of India's forests. The timber went to feed the railways and the shipyards in both India and England. The cleared land were settled to white planters (for tea, coffee, indigo and sugarcane) and to the native 'zamindars', the new class of landlords created by the British. In 1864, the first forest administration for the Empire was created. In 1868 and 1878, India was 'endowed' with its first forest policy and forest act, which prescribed, among other things, banishing indigenous communities from the forest and restricting forest usage by them. The British proclaimed all 'unsettled' and 'ownerless' resources like pastures and forests 'eminent domain', which meant that forests became state property (S. Ghosh, 2006).

The main technical advisers were German experts trained in tree plantation economics. Their policy was to grow uniform stands of trees as long as it was economic to do so, comparing the rate of growth of the trees (multiplied by expected price, net of cutting costs) to the rate of interest in the bank. Scientific forest management became the key that would make forests more homogenous and productive. 'Homogenisation' was the magic word with which every working plan of India's forests started. It was obvious, however, that forests in India were used by the local populations for 'non-timber' products; they held much biodiversity and provided many environmental services (Gadgil and Guha 1992; 1995).

Between 1864 and 1947, Indian forests were 'ordered', with neat rows of pines (*Pinus sp.*), sal (*Shorea robusta*) and teak (*Tectona grandis*) monocultures. In fact, forests were increasingly being managed as plantation estates and 'forest villages' (new colonies of plantation workers) were being set up inside natural forests (S. Ghosh, 2006). Soon after Dietrich Brandis, the 'father of Indian forestry', had developed the 'taungya' forestry system, the latter became the major plantation method not only in India, but also in several Asian and African countries. Politically, the system offered a temporary solution to the problem of increasing tribal unrest in forest areas. Taungya villages were allocated zones where inhabitants could clear natural forests and burn the area to raise food crops. But after some time, the cultivators had to raise commercial plantations on that land. From peasants, they became plantation workers.

In independent India, the forest department continued with the task of homogenizing forests, and the 1952 forest policy fostered aggressive commercial forestry (Guha, 1989). More than 17 million hectares of plantations came up in next 38 years, until the new Forest Policy of 1988 prescribed a moratorium on clearing natural forests. Though the 1988 policy talked about integrating livelihood and biomass needs of forest communities, plantations programmes in India continued to be governed by industrial and urban consumers' needs. According to the FAO Forest Resources Assessment (2010), India has more than 10 million hectares of plantations and the area continues to increase rapidly.



While plantations continue growing, forest-dependant indigenous people, peasants and former plantation workers are mostly deprived of all rights. In many areas, the Forest Department threatens them with eviction. As S. Ghosh (2006) puts it, “There can hardly be better instances of a sovereign state declaring a whole body of its citizens persona non grata, and waging a war against them. The stage [is] set for a full-scale market invasion in terms of carbon trade and ecosystem services trading, [a context in which] forest communities struggle against the twin menace of production and protection forestry”.

Total value					
Stakeholders	Extractive direct use values	Extractive direct exchange values	Non-extractive direct values	Indirect values	Preservation values
Local forest users	Forest and agricultural products (subsistence)	Forest and agricultural products (sale)	Cultural and spiritual values	Microclimate, hydrological, soil conservation and nutrient cycling	Preserving values for descendants
Commercial interests		Timber, commercial NTFPs, pharmaceutical material, or any non-forest-based project	Tourism	Downstream irrigation/water benefits to commercial farmers, water and electricity companies, and other businesses	Undiscovered commercial potentials
National interests (e.g. Forestry Department)		Forest revenue and foreign exchange	Recreation, tourism, education, science	National environmental services (e.g. watershed protection)	Sustained wood supply and environmental services
Global interests		Globally traded products (e.g. timber)	Tourism, science	Global environmental services (e.g. carbon sinks)	Climate change mitigation

**Table 10: Summary of the values of the different stakeholders over India's forests**

(adapted from Richards et al., 2003).

## 6.2 Valuation methods

Partly because of rapid deforestation and partly because of the related conflicts, the Supreme Court of India started since 1995 to play a central role in matters of forest governance. A year later, any area which complied with the definition of a forest would need to be compensated for if it were to be converted in non-forest use. With this objective in mind, the Supreme Court set up of a ‘Compensatory Afforestation Planning and Management Authority’ (CAMPA) and launched a system of payment of Net Present Value (NPV) for the forest to be destroyed for other land use. In 2005, the Court also ordered the setting up of an expert committee directed by environmental economist Kanchan Chopra (Director of the Institute of Economic Growth, New Delhi) to examine a range of issues with respect to NPV and submit a report.





### Box 1: net present value and discount rates

What is the net present value (NPV)? The NPV is a calculation technique used to estimate the net benefit of a particular project (or ecosystem) over a given period of time. When applied to a forest land diversion, the NPV is understood as the total value that compensates, in money terms, for the loss of all the present and future benefits – commercial (e.g. timber value) and natural (e.g. water and biodiversity value) – flowing from the forest land due to its diversion to non-forest use. In the present case, the new user of the forest is expected to bear the cost of these losses by the payment of the NPV.

More concretely, the Chopra committee fixed the NPV on the basis of the net flow accruing over 20 years at a 5% discount rate. But what is a discount rate? The discount rate is a rate used to convert future value into current or present value. For instance, if somebody offers to pay to you 105 € one year from now, the present value is 100 € at a discount rate of 5% (this is because you would earn interest of 5 € on a deposit of 100 €). Conventionally, values in the distant future tend to have present values close to nothing. Thus, discounting reflects the balance between present and future well-being. Low discount rates imply that future values are seen as important while high discount rates imply giving low values to future damages.

It is interesting to note that in this Indian case, the definition of a 'just' discount rate was the object of a 'bargaining' reflecting a conflict of values and interests. The Chopra committee recommended a standard discount rate of 5%. In response, business lobbies argued that this rate was too low. This was actually their main point of contention on the report. They used a paper published by the Asian Development Bank saying that India should use a social discount rate of 12%. However, the Supreme Court's Central Empowered Committee (CEC, see below) reduced even further the proposed discount rate and suggested 4%. The CEC had made consultation with other economists who were of the opinion that the social discount rate should be around 2% in India. Following this, the Supreme Court judges wrote: "We do not find much force in the contention advanced by the [business sector representatives]. The 10% suggested by them cannot be applied to the present case because 10% is the rate linked to assumptions about the opportunity cost of capital. One cannot apply that rate for social time preference in evaluating the benefits from an environmental resource such as forests. In project evaluation, the horizon is compatible with the life of the project whereas in forest matters, the horizon spans over several generations. Therefore, the rate of 10%, as suggested by the user agency cannot be accepted" (SC, 2008).

When the conservation of the natural environment is at stake, some economists (as John Krutilla) indeed argue for very low discount rates. The reason is that for projects with long time horizons, any discounting reduces future costs and benefits almost to zero after a finite number of years. This implies a bias in favour of projects with either short-term benefits (e.g. commercial projects) or long-term costs (e.g. a nuclear power plant). In both cases, the well-being of future generations is in danger. Given this, some economists argue that intergenerational equity justifies no discounting at all. Others have even gone further and argued for negative discounting to reflect a need for greater protection of the interests of future generations, as for example in the case of irreversible outcomes such as global warming (Hali et al., 2012).

The valuation process had to start with a forest definition. The Chopra committee followed the FAO definition of a forest as an area having a tree canopy cover of more than 10% over an area of more than 0.5 hectares, with forestry as the principal land use. According to this definition, forests are nothing more than a collection of trees and therefore include the most intensive tree monocultures. Obviously, trees are indeed crucial elements of a forest, but what this definition leaves out is that forests are also composed of a huge diversity of plants, insects, birds and animals, as well as forest-dependent peoples. Legitimizing industrial



tree plantations as 'forests' helps companies convince authorities that the deforestation they cause can be compensated by tree plantations. For more than 10 years, various EJOs such as the World Rainforest Movement have been campaigning to make the FAO change its forest definition.<sup>32</sup>

Some of the key points of the committee's report are the following. The NPV is payable only for forest areas under the ownership of the forest department and should be entirely site specific.<sup>33</sup> The committee recommended 12 steps that should be followed in order to determine the NPV as well as the claims by the relevant stakeholders. These include the legal status of the land involved, its classification, the kinds of products and services to be valued (such as timber, carbon storage, ecotourism and NTFP). The last step deals with the determination of compensation to the major stakeholders, namely locals, state forest departments and the central government. The different amounts collected as NPV are deposited in funds administered by the CAMPA. They are then used for compensating the forest losses in the form of afforestation and reforestation projects.<sup>34</sup>

Since 2008, the calculation of the NPV is at the rate of USD 8000 to 19,000 per hectare based on a detailed chart prepared by the Supreme Court's Central Empowered Committee (CEC), a monitoring body on forest-related matters. This chart describes how the NPV should vary according to the class of forest a particular area belongs to. Within each class of forests (e.g. evergreen, moist, swamp or subalpine), the forests are further classified into very dense, dense, and open. The maximum NPV is prescribed for Class I and II (i.e. very dense forest); the minimum rate fixed for Class IV (open dense forests). Regarding conservation areas, the CEC prescribes that permission can be considered on payment of an amount equal to 10 times in the case of National Parks and 5 times in the case of Sanctuaries respectively of the NPV payable for such areas.

For calculating the average NPV per hectare, the CEC accords a monetary value to seven aspects that it considers to be either a 'good' or a 'service'. The value of the goods and services is seen as proportional to the forest's density. Foremost in this classification of forest goods and services are the value of timber and fuel wood followed by the value of NTFP, of fodder, eco-tourism and bio-prospecting. Ecological services of forests and value of flagship forest species are next. The CEC also lists carbon sequestration as one of the services while calculating NPV.

<sup>32</sup> The most recent action took place in January 2012 when the German environmental organization Rainforest Rescue presented the director-general of the FAO with more than 27,000 signatures in support of an initiative by 613 scientists and professionals in the natural sciences calling on FAO to amend its definition of 'forest'.

<sup>33</sup> Activities which should be given full exemptions include public works like schools, hospitals, children's playgrounds, municipal water supply, relocation of villages from conservation areas and so on.

<sup>34</sup> It was recommended that all projects will also be liable to pay ground rent – which goes to the state coffers – irrespective of exemption levels with respect to NPV and subject to a minimum of USD 180 per ha.



The more dense the forest, the better its ability to store carbon. These recommendations were accepted by the Supreme Court and also by the Ministry of Environment and Forests.

### 6.3 The contested situation

Since 2009, the compensation fund is being used for almost exactly the same purposes by the State Forest Departments as what has been done through other afforestation schemes and programmes till date (Kohli et al., 2011). For instance, the state of Uttarakhand has allocated about USD 115,000 for tree monocultures through local Joint Forest Management (JFM) committees. In Karnataka, the money has also been used for plantations including commercial plants like agrofuels. These plantations are to be taken up in places near the existing JFM committees with a total budget of 25 million of dollars as 'assisted natural regeneration'. Similarly, Madhya Pradesh has proposed that 38.8% of their total NPV budget for 2010-2011 will be used for tree plantations, and Himachal Pradesh 28.4% (Kohli et al., 2011). These developments are likely not to solve valuation conflicts – quite the opposite actually. Struggle over tree monocultures expressed as conflicts of valuation languages were – and still are – numerous. Let us turn to some illustrations, historical as well as contemporary.

The Chipko movement (1973–1980) is perhaps the most famous case of Southern environmentalism (Guha, 1989; Shiva, 1989). It involved local resistance to state-controlled pine plantations in Uttarakhand (Himalayan region). Through an innovative technique protest, peasants threatened to hug forest trees rather than allow them to be logged for export and replaced by plantations. Forests were used by the local populations for NTFPs. The Chipko movement influenced many socio-environmental movements in India. In 1983 for example, a similar conflict took place in Karnataka (Shiva, 1989; Gadgil and Guha, 1992). The destruction of mixed semi-evergreen forests, and replacement by teak and eucalypt plantations, denied people access to biomass for fodder, food, fertiliser, etc. The deforestation had led to severe soil erosion and drying up of perennial water resources. Moved by these impacts, the youth of local villages launched a movement locally known as 'Appiko Chaluvali' (Appiko means 'to hug' in Kannada), inspired by the Chipko movement. They embraced the trees to be felled by contractors of the forest department. They also extracted an oath from the loggers (on the local forest deity) to the effect that they would not destroy trees in that forest. The protest continued for 38 days and finally the felling orders were withdrawn. The success of this agitation spread to many other places in the entire forest division. The rapid increase of the movement was based on evidence that the forest department was overexploiting the forests.

From the mid-19th century onwards, the indigenous peoples of Chhattisgarh have lost their rights to the forests as a result of outside interference, as in the Bastar Forestry Project which was jointly funded by the World Bank and the Indian Government in 1975 (Anderson and Huber, 1988; Gadgil and Guha, 1992). The objective was to develop and industrialise this 'backward' region through 40,000



hectares of industrial plantation of the Caribbean pine (*Pinus caribaea*) for which the natural forests had to be cleared. What were the conflicting values at stake? For the Forestry Development Corporation, trees are resources to be grown and cut for profit; the Forest Department views the forests as a capital that needs to be protected from intruders, especially the 'tribals'; the planners and experts are interested in the technical issues of supplying raw material for the mill; and for the indigenous peoples, the forest is an important source of income and sustenance, and a means of survival during times of hardship. As they had no interest in cooperation or job opportunities, local indigenous peoples resisted the commercial penetration into their environment. Their struggle finally prompted the government – with the support of influent politicians – to terminate the pine plantation project in 1983.

In 1984, when the Karnataka Pulpwood Ltd. (KPL) planted the first plot of eucalyptus, a conflict started with a large amount of protest letters to the authorities and through protest meetings at several villages in the region (Guha and Martínez-Alier, 1997). The EJO Samaj Parivartan Samudaya (SPS), together with a village organization, was at the forefront of the movement. It filed two lawsuits against KPL in the Supreme Court of India. SPS organized training camps in non-violence in a neighbouring village. Between 1987 and 1990, several hundreds of persons participated to three satyagraha actions where saplings of eucalypts were uprooted and replaced with tree species locally useful (on the third occasion, SPS invited the Chipko leader C.P. Bhatt). In the meantime, journalists sympathetic to the movement were intensifying the press campaign against KPL. The state government suggested to set up a commission but never did it. SPS lobbied the government of India to clarify its own position on KPL-style schemes. Under increasing pressure, the government of Karnataka finally decided in 1990 to wind up KPL.

In 2007 in West Bengal, indigenous villagers chopped down around 6600 young eucalypts on a 6-hectare state forest department plantation (Mitra, 2008; DtE, 2009). The residents claimed that the land is theirs and that they want it back. They used to grow multiple crops on this land, which, they say, provided them with enough food for at least 6 months a year. One activist said: "In 2001, officials asked for land along the fringes of our fields. Then they took our thumb impressions on some papers and by 2004 they took over all our land". The eucalypt plantation started in 2004 as a joint forest management scheme funded by the Ministry of Environment and Forests. Under the scheme, every family in the village would receive 25% of the cash earned from selling the trees after harvests 10 years later. But the villagers said that they cannot afford to wait that long. "Eucalypt doesn't give us food". The indigenous peoples are thus reclaiming the land under the provisions of the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. That the act, which recognizes the land rights of forest communities who do not have documentary proof of ownership, has not been implemented yet, does not seem to faze them. The land in question was originally a mahal forest owned by rich landowners or local royalty. The West Bengal Private Forests Act, 1948, which was the state's first attempt to assert control over south Bengal forests, states that the rights of forest



dwellers should be recorded and settled by forest settlement officers appointed for the purpose. However, after 1953 no survey was ever conducted and the struggle is still on.

Today, from mining to hydroelectric projects, examples of private companies getting vast tracts of forests by paying a fraction of their project cost are abundant. For example, permission was granted to Vedanta Resources for mining Niyamgiri hills in Orissa that are the source of spiritual, cultural and economic sustenance for the Dongaria Kondh tribe. Vedanta had to pay a NPV of 10 million dollars and another 10 million for wildlifeconservation and management(Awasthi, 2008). In 2008, the Polavaram multi-purpose hydel project in Andhra Pradesh got the permission to submerge mixed deciduous forest of the Eastern Ghat, including a large part of the Papikonda Wildlife Sanctuary. Even the CEC observed that the forest coming under submergence was a mature ecosystem and could not be compensated by any plantation (Awasthi, 2008).

#### 6.4 Final remarks on the reductionism of the Net Present Value

The Supreme Court's idea was to estimate the value of forests in order to compensate for their loss. To that aim, it uses an economic tool, the NPV, which reduces all languages of valuation to monetary costs and benefits. Even Prof. Kanchan Chopra seems to be aware of some of the limits involved: "a price cannot be put on the inviolable nature of protected areas and the biodiversity-rich areas like sacred groves and mangroves", she said (quoted by P. Ghosh, 2006); "protected areas should not be diverted for any non-forestry use at any cost" (*ibid.*). However, for areas other than protected areas, Chopra thinks that monetary valuation is perfectly legitimate – an idea that will not convince many forest-dependant populations and other stakeholders like ecologists. In reality, the entire forest valuation process has to be rethought. "NPV was mandated as a tool for forest protection. It has rather become a way of getting more and more forest land for non-forest use," Chopra said (*ibid.*).

The idea that the NPV of a given forest is likely to generate an equivalent value in an afforestation or reforestation project is at best quite naïve. If we enter into the NPV calculation, we realize that determining a 'proper' discount rate is an eminently political question and that there is simply no getting around. In fact, the entire valuation process is a political question. What is valuable? For what social groups? For how long? At what degree? The use of NPV will always remain controversial because ecosystem valuation is a complex socio-political process that cannot result in a single neat monetary total. Anyone forgetting the incommensurability of values will get confused when it comes to 'compensation'. The best example of this is to believe that tree monocultures can compensate for the deforestation of natural forests. Indeed, both ecosystems may have the same total monetary value. But this argument is unlikely to impress local forest users...

**The idea that the NPV of a given forest is likely to generate an equivalent value in an afforestation or reforestation project is at best quite naïve. In fact, the entire valuation process is a political question.**

# 7

# Valuation languages used in the gold mining conflict at Mount Ida, Turkey

Duygu Avcı, Fikret Adaman, and Begüm Özkaynak

## 7.1 Introduction<sup>35</sup>

This section describes an on-going environmental conflict over the prospect of gold mining at Mount Ida, Turkey and focuses on the valuation languages social actors use to either support or oppose it. Prospecting for gold has been expanding in the region since 2007, leading to the development of an opposition that aims to halt several cyanide-leaching open pit gold mining projects in an area valued for its environment, agricultural production and cultural heritage. While the government and companies try to portray the matter of environmental impacts solely as a technical problem that will be handled with the proper use of technology, we believe that the conflict should rather be assessed in terms of valuation languages so as to make it possible to better grasp the various dimensions of the conflict and differentiate between disagreements that can be controlled via bargaining over the amount of monetary compensation and those that cannot.

<sup>35</sup> This chapter is mainly based on Avcı et al. (2010) and Avcı (2012). A combination of qualitative and quantitative techniques was employed to identify the valuation languages used in the area. The field study comprised of 37 in-depth interviews, three focus groups, and a survey administered to a total of 738 citizens, representative of the region's urban and rural population.





The conflict takes place in a country where non-industrial mineral reserves are rather extensive, and the government is keen to foster foreign direct investment to capitalise on mining opportunities as underlined in Global Business Reports (2008:64 in Hurley and Arı, 2011, p. 1400): “Turkey is rapidly transforming itself into a viable and powerful mining nation where investors can find a multitude of companies, both local and foreign, operating to international standards ...the mining sector is proving that it could one day be the economy’s backbone.”

Indeed, there has been a dramatic increase in mineral extraction in Turkey following the adoption of neoliberal economic reforms after the 1990s, with the promise of more economic growth. The substantial rise in mining activities in the country is well-linked to changes made in the Mining Law in 1985, which liberalised extractive sectors and encouraged the involvement of foreign corporations in the sector as part of the export-oriented growth strategy encouraged by neoliberal policies. (Arsel, 2005). Since then, on-going revisions have taken place in mining and environmental laws, making it quicker and easier for foreign companies to get exploration permits. Measures included reducing the time it takes to receive an exploration licence, lowering corporate taxes and licensing fees for landholdings, and finally easing laws related to protecting forest reserves and rare ecosystems (Avcı et al., 2010; Hurley and Aru, 2011; Avcı, 2012). The corresponding reaction in civil society has mainly manifested itself as environmental justice movements at the local and national levels. This has also been the case at Mount Ida.

**There has been a dramatic increase in mineral extraction in Turkey following the adoption of neoliberal economic reforms after the 1990s, with the promise of more economic growth**

## 7.2 Gold mining projects at Mount Ida

Mount Ida, with a population of 150,000, is situated in the Biga Peninsula in north-western Anatolia. In recognition of its biological diversity, endemic species, rich water resources, and cultural and archaeological significance, part of the mountain was declared a national park in 1993. Since the early 1990s, there have been intermittent exploration activities for gold and other minerals at several locations in the region. Companies began to increase their exploration efforts in 2004, following the changes in the Mining Law and the rise in international gold prices.

Since then, two projects – Ağı Dağı and Kirazlı – previously jointly owned by Canadian junior companies Teck Cominco and Fronteer, which were then acquired by Canadian Alamos Gold in 2010, have advanced to the mine development stage. The initial and sustaining capital costs of the two projects are estimated at USD 234.6 million. The area is well-served with roads, electricity and transmission lines, which reduce the need for significant investments in infrastructure. According to its newsletter dated 28 June 2012, Alamos Gold expects to produce 1,001,800 ounces of gold and 1,896,700 ounces of silver over seven years with the Ağı Dağı Project; and 495,300 ounces of gold and 3,006,100 ounces of silver over five years at Kirazlı.





The company is also exploring other areas close to Ağı Dağı and Kirazlı. There are a few other mining projects in the region, including TV Tower and Halılağa owned by Teck Cominco and Pilot Gold (formerly Fronteer), and the Kestanelik Project owned by Australian Chesser Resources. All three projects are currently in the exploration stage and the companies are reporting “exciting” initial drilling results.

These projects are to the north of Mount Ida, and despite a few sporadic confrontations between villagers and company workers, exploration activities had not created much discontent until 2007. It was when another company, Global Mining from Turkey, arrived at a village to the south called Bahçedere in the summer 2007 that a region-wide conflict was triggered, which quickly became a prominent topic on the national public agenda. By October 2007, the issue was making headlines in the national media, drawing public attention to what was happening in the region. The particular social make-up of the region to the south, along the coast of Edremit Bay was the underlying reason for the strong and immediate response.

### 7.3 The conflict and stakeholders involved

In Biga, almost half of the population lives in rural areas, and the local economy relies primarily on agriculture and animal husbandry, related food production industries and forestry. In the favourable conditions of the Mediterranean climate with mild, wet winters and hot, dry summers, the production of high value-added fruits and vegetables on the irrigated plains has provided many of the villages with a relatively good and stable income. However, the southern part of the region that overlooks Edremit Bay (in the Aegean Sea) has a different social structure. The

coast has been witness to rapid urbanisation associated with permanent and seasonal migration of middle and upper-middle class residents, especially retirees from large urban centres nearby (Istanbul, Izmir, Bursa, Balıkesir), who wish to enjoy the environmental amenities the region provides (Hurley and Arı, 2011). Moreover, olive oil production occupies a significant place in the economy in this area, and makes an important and growing contribution to Turkey's exports. There are also a number of ecotourism facilities that were established to offer opportunities to enjoy the region's environment (Hurley and Arı, 2011).

**Picture 5: Protest in the town of Etili, June 3, 2012**

Source: Municipality of Canakkale, <http://www.canakkale.bel.tr/bpi.asp?caid=226&cid=14893>.



It was these homeowners, olive and olive oil producers, and business owners in the tourism industry – many of them members and founders of local environmental organisations – who led the development of a broad-based opposition to gold mining in the region. They quickly earned the support of local governments, villagers, and national environmental organisations (e.g. Turkish Foundation for Combating Soil Erosion, Reforestation and the Protection of Natural Habitats, BirdLife International's partner in Turkey, Doğa Derneği, and Buğday Association for Supporting Ecological Living). Their connections to influential networks in urban centres – in the media and universities with intellectuals – enabled them to place the issue on the public agenda and put pressure on the government and mining companies.

The discontents over the development of gold mining around Mount Ida were based on the potential impacts of open pit, cyanide-leaching gold production in an environment valued for its agricultural production, landscape, and historical and cultural importance. Such concerns gave rise to slogans such as "Mount Ida is a world heritage", and "What is on top of Mount Ida is worth more than what is beneath it". The cyanide-leaching method in particular is considered a major threat

in this geographical setting of rich agricultural lands, fruit and olive orchards, pastures and forests. Opposition actors claim that one way or another, cyanide will seep into the environment, contaminate the water and soil, and endanger both public health and agricultural production.



**Picture 6:**  
**Protest in the city center of**  
**Çanakkale, April 5, 2008**

Source: authors

After the initial spark set in the summer of 2007, opposition groups intensified their struggle through various means. They organised panels and seminars in several towns to talk about the ecological, economic and cultural values of the region, and the threats posed by gold mining to those values. These meetings brought together academics from regional universities, local and regional EJOs such as the Çanakkale Environmental Platform, Mount Ida Conservation Initiative and GÜMÇED (The Keepers of the Beautiful Edremit Bay), professional organisations (e.g. Union of Chamber of Turkish Engineers, local Chambers of Agriculture) and representatives from local tourism businesses. To support the opposition groups, 34 municipalities in the region formed the Union of Municipalities of Mount Ida and Madra Mountain. A petition was addressed to the then Ministry of Energy and Natural Resources to annul the exploration permits. Numerous demonstrations were held in several towns, the largest at downtown Çanakkale in April 2008, attended by close to ten thousand people. Some members of parliament from the opposition also took the issue to the parliament, voicing their concerns and demanding explanations from the government as to why gold mining was being promoted in such an ecologically, historically and culturally valuable region. **Table 11** presents the timeline for some major events.





**Table 11:**  
**Timeline of Major**  
**Events (own**  
**elaboration).**

Year	Event
1985	New mining law in Turkey liberalises extractive sectors.
1990-2004	Sporadic exploration activities take place at several locations in the region.
2004-2007	Companies begin to increase exploration efforts in 2004, following changes to the Mining Law and the rise in international gold prices.
2007-2008	Exploration expands to the south of the region, initiating conflict. Protests ensue.
2009-2011	Faced with opposition, companies back off from the southern part of the region, and reduce the intensity of their activities in the north for a while. The opposition partly loses vigour.
2010	Alamos Gold acquires the two most developed projects in January 2010, the pace of exploration and development work once more gain momentum.
2012	The ministry approves the EIAs for the mine pits for the Ağı Dağı and Kırızlı projects, allowing the companies to proceed with mine development.. The meetings to publicise the EIAs meet with protest; villagers do not allow the meeting to proceed despite the security forces deployed to prevent them.
2013	EJOs are currently preparing to initiate a legal process to annul the EIA report, and plan other activities to reboot the opposition.

Today, local communities seem divided as some people work for the companies, while others consider job offers and other benefits as “bribes” to win hearts. Those in the first group accuse others of not thinking about the future development of their communities, and playing into the hands of civil society groups allegedly motivated by their own political ideologies rather than the protection of the environment or the people. The second group, on the other hand, claims that those who work for the companies are sacrificing the common good of the community to pursue their own personal interests.

In July 2008, we administered a questionnaire in the form of face-to-face interviews to a random sample of 738 citizens representative of people living in the region aged 18 and above, to identify the positions of the general public vis-à-vis gold mining at Mount Ida, the factors that affect their choices and the respective valuation languages they employed. The results indicate that 83% of the local population is against gold mining in the region, and that material stakes, values and perceptions play a significant role in differentiating between people who support gold mining and those who do not.

Findings suggest that a particular group in the rural population – high income earning males not engaged in irrigated farming – support the project, presumably with the expectation of benefiting from business and employment opportunities gold mining may create. Although relatively small, this group seems to be powerful in virtue of their higher incomes. It appears that the mining companies, as they themselves also claim, have secured the support of this influential group at the local level. Value differences between supporters and opponents of gold mining are also significant. Supporters seem to be less concerned about environmental problems, have a lower sense of belonging to the local community, and are less politically engaged at the local level. These differences indicate that the conflict



does not simply rest on material interests and that disagreements over values should also be acknowledged.

<b>Stakes</b>	Live in rural areas
	Males
	Have higher per capita income
	Do not do irrigated farming
<b>Values</b>	Have lower level of belongingness
	Less politically active at the local level
	Less concerned about environmental problems at the national scale
<b>Perceptions</b>	Have higher level of trust in state institutions
	Less concerned for environmental risks
	Have higher level of trust in mining technology
	Feel more knowledgeable about gold mining

**Table 12:**  
**Characteristics of those who support gold mining (as compared to opponents).**

Findings suggest that a particular group in the rural population – high income earning males not engaged in irrigated farming – support the project, presumably with the expectation of benefiting from business and employment opportunities gold mining may create. Although relatively small, this group seems to be powerful in virtue of their higher incomes. It appears that the mining companies, as they themselves also claim, have secured the support of this influential group at the local level. Value differences between supporters and opponents of gold mining are also significant. Supporters seem to be less concerned about environmental problems, have a lower sense of belonging to the local community, and are less politically engaged at the local level. These differences indicate that the conflict does not simply rest on material interests and that disagreements over values should also be acknowledged.

With regard to perceptions, project supporters seem to be less concerned about environmental risks, have confidence in technology in managing environmental impacts, and trust state institutions more. This suggests that risk politics is an important dimension of environmental conflicts and the level of trust in technology and institutions plays an important role in the way environmental impacts and risks are perceived (Barry, 2007; Gandy, 1999; Garvin, 2001; Smith and Marquez, 2000). No doubt, the issues of risk, trust and knowledge are important elements in the valuation languages on both sides of the conflict as discussed below.



## 7.4 Valuation languages employed at Mount Ida

Key arguments used by project supporters are the contributions of gold mining to local and national economic development – considered a must for a developing country like Turkey. Valuation languages employed by the opposition include sustaining peasant livelihood and ways of life, protecting ecological integrity and public health, and defending national interests versus those of foreign companies.

### Why for?

- *National development:* The argument is that economic prosperity should not be sacrificed to oversensitive environmentalism. Governmental agencies refer to the necessity of utilising underground resources in the course of development, calling attention to the country's current account deficit and foreign direct investment requirement. This is not surprising, as Turkey's liberalisation move in the mining industry aimed to attract private and foreign investments, and was indeed in line with the whole process of modernisation evidenced throughout the history of the Republic, where the identification of progress with economic development led policy makers to prioritise economic growth over political and social transformation (Arsel, 2005; Keyman, 2005; Adaman and Arsel, 2012). Adding to this concern, mining companies point to Turkey's dependence on imports to meet input requirements of the domestic industry, and in particular, the traditionally significant jewellery sector. Both governmental agencies and mining companies add that necessary measures will be taken to minimise environmental impacts (AMD, 2008).
- *Local development:* Support for gold mining at the local level, especially in rural areas, seems to be related to employment and business opportunities that are expected to accompany mining activities. Some villagers claim they need the mining jobs for a decent life, whereas others, particularly those not engaged in agriculture, argue that mining can promote the development of new businesses (especially transportation) and give them a chance to improve their standard of living.

### Why against?

- *Threat to environmental quality:* The discourse employed by the opposition was based first and foremost on the distinctive properties of Mount Ida. Framed in terms of "environmental protection" and/or "environmental quality", this particular discourse was first articulated by environmental NGOs and the elite, and later adopted by the local public. The use of cyanide, in particular, was claimed to pose unacceptable threats to the ecological integrity of the region – one of the mayors claiming: "Ecological balance has to be protected; once disturbed, you cannot bring back what is lost...Mount Ida is an historical and ecological whole."



- *Threat to livelihood/way of life:* Equally important to the locals in rural areas was the language of community life and livelihood. Many farmers – particularly those engaged in irrigated farming who were proud of the productivity of their land and the quality of their products – argued that their output would be reduced and “poisoned”. Some others emphasised expected disturbances to their daily lives from blasting, dust, and noise. An aged farmer expressed his concern, with some exaggeration, saying, “There will be quakes because of blasting, our homes will collapse.”
- *Health risks:* Cyanide use in gold mining has also been brought in the language of public health as the discourse on the risks that cyanide-leaching in gold mining pose to human health has been forcefully employed. Furthermore, some directly referred to Article 56 of the Constitution, which states everyone has the “right to live in a healthy and balanced environment” – as one of the NGO activists said, “Gold mining is a threat to the lives of human beings and other living things. Maintenance of living spaces is at risk... The right to live in a healthy environment is universal and should be defended for all people at all places.”
- *Nationalistic feelings:* Another language is found is the nationalistic rhetoric, which has always had some degree of influence on political circles and societal life in Turkey (see, e.g., Kancı, 2009). Here, the gold mining project is read as foreign companies’ exploitation of Turkey’s natural resources, with an analogy drawn between the Gallipoli War (when the Allied Forces charged Gallipoli during WWI in a futile attempt to reach Constantinople) and the resistance against gold mining as defence of the motherland – some slogans read: “They shall not pass”, “Mount Ida is our homeland, and it is not for sale”, “Cyanide-using companies leave our homeland”. This argument expresses dissatisfaction with the distribution of expected benefits rather than concerns about the environmental impact of gold mining, as made apparent in the emphasis on foreign ownership and the demand for higher royalty payments to the state.



**Picture 7:**  
Exploration site (location not mentioned by the newspaper)

Source: Radikal, November 7, 2010



Central to the whole debate is the question about the potential environmental impact of gold mining and the extent to which this can be regulated. Information provided by opposing NGOs and by mining companies and government agencies is rather dissimilar. Opponents claim that existing technology cannot cope with all environmental impacts of gold mining, while proponents hold the opposite view. A statement made by a Gold Miners Association representative is quite telling in this regard: “Science tells us the risks and we develop technologies to manage them. Once we’ve identified the risks, then, the rest is straightforward: we can easily control them.” Equally important has been differences in the level of trust in institutions between the opposition and support groups. Opposition groups fear that mining companies will fail to take all the necessary precautions in order to cut costs and the government will not enforce strict regulations. The issues of risk, trust and knowledge have been, in that sense, important elements in the valuation languages on both sides of the conflict, and seem to underlie the different positions *vis-à-vis* gold mining.

Indeed, within the opposition groups, those who are primarily concerned with the impact of gold mining on their source of income and their way of life, environmental quality, and public health seem to meet on common ground. These groups can mutually support each other in their struggle against gold mining as their interests lie in protecting the environment. Moreover, the majority of the people in these groups did not change their positions when they were offered compensatory schemes, suggesting that their opposition cannot be allayed by simple measures.

**Picture 8:**  
A view from one of the  
mining sites on Mount Ida

Source:  
<http://www.change.org/tr/kampanyalar/kazda%C4%9Flar%C4%B1ndamaden-ocaklar%C4%B1-istemiyoruz-kazdaglarikazilmasin>





## 7.5 Final remarks: one case out of hundreds

The valuation languages used at Mount Ida primarily demonstrate the multi-dimensionality of such conflicts. The articulation of multiple discourses in such conflicts is particularly important since governments and companies usually try to portray the matter of environmental impacts solely as a technical problem that will be handled with the proper use of technology. In a way, issues usually regarded merely as “technical matters” by company and government experts (such as how to manage cyanide use, and the extent to which the mine site can be rehabilitated) seem to be far from being settled for many others.

At Mount Ida, the majority of the local population, in particular lower income groups, believed that the burden of this environmentally-degrading development project would fall on them. The relatively well-off, however, were likely to support the project in expectation of new business and employment opportunities. This result discredits the post-materialist thesis in so far as it shows that lower income groups actually do worry about local environmental matters, even more so than higher income groups and support the thesis of the environmentalism of the poor (Guha and Martinez-Alier 1997).

From the perspective of corporations and the state, the local environment with its gold reserves is an object of capital accumulation and economic growth (Çoban, 2004). The mining claim surely entails a value calculation that goes beyond the physical amount of gold available but is also linked to the speculative price formation in stock exchange markets when mining companies acquire and control new micro-territorial mining spaces (Bridge, 2004). Depending on feasibility and rentability assessments, companies may choose not to move ahead with some projects. What is certain is that they will continue their exploration and development work in the upcoming years. However, given the perceptions and concerns of the majority of the local population, the projects cannot be legitimised easily, since the local population’s vision of local development greatly diverges from that of the state.

**Mount Ida case requires a decision-making framework which moves beyond the obsession of “taking nature into account” in money terms, and which is able therefore to cope with value pluralism**

Some villagers at Mount Ida value their way of life and the environment more than gold, and point to the critical importance of symbiotic community–environment relationships (Çoban, 2004). Their high sense of belonging and concern for the local environment indicates they have more to lose than merely their incomes. Although it may seem that this position can be modified via compensation, this turned out not to be the case at Mount Ida. Offers of monetary and/or technical compensatory schemes – such as improved technology, restoration of the mining site, and monetary payments – did not suffice in satisfactorily resolving disagreements in the region.

This case is, of course, exemplary– one case out of hundreds. Yet, the snapshot is persuasive in demonstrating the clash of incommensurable values. Given the differences in material interests, values and perceptions, it may be inferred that the evolution of the Mount Ida conflict will very much depend on the extent to which different valuation languages are acknowledged and addressed. This requires a decision-making framework which moves beyond the obsession of



“taking nature into account” in money terms, and which is able therefore to cope with value pluralism (Martínez-Alier, 2003). Undoubtedly, in a society where power relations were more equally-distributed among actors, it would be easier to explicitly recognise all these different languages. Still, it is clear that the state may arrive at a legitimate decision only through participatory and deliberative mechanisms that acknowledge and address these issues.

# 8

# The economics of nuclear power plants

## The twin tales of Belene and Akkuyu

**Cem İskender Aydın**

### 8.1 Introduction

Deciding on energy production alternatives (such as nuclear power, renewables, fossil fuels and so on) is a difficult task due to the multi-faceted characteristics of the problem. To assess the alternatives, their costs and benefits in social, environmental and economic terms need to be analysed in detail and compared. In current policy practices, however, the problem is often reduced to the economic sphere, where a cost-benefit analysis (CBA) is used to assess and compare the alternatives by calculating net benefits<sup>36</sup> in monetary terms (Hanley and Barbier, 2009).<sup>37</sup> This is not easy, because not all environmental and social costs and benefits are reflected in monetary units; yet CBAs require everything to be converted into monetary terms. Given that values are not always commensurable, this is quite problematic (O'Neill, 1993; Munda, 2004; Aldred, 2006).<sup>38</sup> This

<sup>36</sup> i.e., the difference between total benefits and total costs.

<sup>37</sup> A cost-benefit analysis with multiple alternatives is run by calculating the costs and benefits of each alternative, and choosing the one with the highest net benefit. In selecting an energy production method, however, the problem is often reduced to choosing the alternative with the lowest cost (cost effectiveness analysis), because high energy demands causes the benefits of electricity production to be very high.

<sup>38</sup> Values are incommensurable when they cannot be precisely measured along some common cardinal scale of units of value, for instance, money in this case (Munda, 2004; Aldred, 2006).



chapter will focus on difficulties faced in assessments of energy production alternatives, particularly in the valuation of nuclear energy production.

In general, cost-benefit calculations include impacts that are relatively easy to calculate and directly visible in terms of money (such as construction costs, operation and maintenance costs, benefits from lower electricity prices, etc.). Other indirect non-monetary impacts on nature and human health are also included, by converting them into monetary units (Hanley and Barbier, 2009). However, many non-monetary impacts are not immediately observed and require a prediction of future events, or are observed/known but impossible to calculate with certainty, and therefore are not included in CBAs. There are also cases where such impacts are completely unknown and (unintentionally) kept out of analyses, though they continue to occur and are actually shouldered by someone or other, over space or time.

In the case of nuclear energy production, the following problems arise in cost-benefit calculations:

- *Impacts on the environment and human health:* While various valuation methods (such as contingent valuation, travel cost method, choice experiment, etc.) are used to elicit values and calculate the cost of such impacts, their efficacy is highly debated (see for instance Knetsch, 1994; Spash, 2000a, 2000b; Vatn, 2004). Since these methods usually elicit only a partial value, an important part of occurred costs is unaccounted for and shifts onto nature and people.
- *Waste management costs:* Nuclear waste has a considerably long life and may burden future generations for millions of years. Furthermore, secure disposal of nuclear wastes is still not clear-cut issue. While calculating the total present costs of a nuclear power plant in a CBA analysis, these future costs are discounted to the present by a social discount rate, a process often justified by CBA proponents through arguments such as pure-time preferences and social opportunity costs (O'Neill, 1993). However, the present value of long term costs becomes negligible when discounting over very long periods of time (Rabl, 1996).<sup>39</sup> As O'Neill (1993, p. 48) posits, “[s]ocial discounting appears then to provide a rationale for displacing environmental damage into the future”; hence there is an important intergenerational equity problem.
- *Accident risk:* Potential future undesirable events may be dealt with through accident insurance schemes (involving the payment of a premium) to compensate for any damages. However, nuclear accidents are different from ordinary accidents in the sense that they are low probability, high consequence (LPHC) events. This means that while the probability of nuclear accidents may be very low, once they occur, they will have

<sup>39</sup> At any social discount rate larger than zero, the present value of a future cost or benefit is almost equal to zero after a long period of time (100 years).





catastrophic and irreversible impacts. Hence, nuclear accidents cannot be dealt with ordinary insurance schemes. Damages from such events may be so high that even governments may fail compensate for all the damage (Lempert, 2009).

Although accident risk is always considered miniscule, the world has already witnessed three major nuclear tragedies: The partial meltdown at Three Mile Island (1979), the much more catastrophic Chernobyl disaster (1986) and the most recent accident in Fukushima (2011). Fukushima was the last straw for many countries such as Germany, the U.K., the U.S. and Japan, which have begun to either shut down their plants or freeze investments in new projects. Nonetheless, the enthusiasm for future plants has not faded in many other countries, despite the recent catastrophe. The majority of new constructions are in China, India and Russia (*New Scientist*, 2013) and the new market for nuclear power plants (NPP) seems to be developing countries in the near east and Eastern Europe. Russia in particular is a very important player and wants to build two new plants: the Belene NPP in Bulgaria, and the Akkuyu NPP in Turkey. Both NPPs have a long history of conflict.

This chapter aims at outlining the difficulties in the valuation/evaluation of NPPs by using the two conflicted cases of Akkuyu and Belene, and is organised as follows: The following two sections will present Belene and Akkuyu NPPs respectively, from an historical perspective. The fourth section will look at the similarities of these cases from a valuation perspective. The final section will conclude with some theoretical and practical lessons for environmental justice organisations (EJOs), scientists, and policymakers.

## 8.2 The Belene NPP in Bulgaria

The story of the Belene NPP starts in 1981, during the socialist regime. The Bulgarian government decided to build a second NPP (after Kozloduy NPP) near Belene, by the Danube River. Construction and site preparation began in the late 1980s, right after the Chernobyl accident, but the project was cancelled in 1991 due to the counterarguments in the White Report prepared by the Bulgarian Academy of Sciences (mainly, related to seismic risk and lack of economic viability) and strong public opposition. The government then claimed that the project was actually cancelled due to financial reasons (Vassilev, 2012; Todorov and Petrova, 2012).

In 2003, the project was revived after the necessary decommissioning of the Kozloduy NPP to guarantee the energy security of the state (BNR, 2013). It was planned to build the new project on the remnants of the early construction, consisting of two units with a total capacity of 2000 MW. Given the recommendation in the Environmental Impact Assessment (EIA) Report (2006), the only technology applicable to the old site would be the Russian WWER-1000, Atomstroyexport (a subsidiary of the Russian Rosatom), which was contracted after a controversial tender procedure.

Map 6:

The location of  
Belene NPP and  
Kozloduy NPP.

Source: own  
elaboration



A strong opposition formed after the revival of the project. Non-governmental organisations (NGOs) such as the Foundation for Environment and Agriculture (FEA), Za Zemiata, Ekoglasnost, Green Policy Institute, Zelenite (The Greens), and many other international anti-nuclear groups such as Greenpeace, Friends of the Earth, Bankwatch, European Greens, Urgewald, Campagna per la Riforma della Banca Mondiale gathered forces. The campaign was carried out at the local, national and international levels, and the NGOs formed the “No to BeleNE” (or just BeleNE!) coalition with more than 17 organisations. The international coalition was quite successful in preventing foreign banks and potential investors from financing the project (Todorov and Petrova, 2012).

The initial price articulated by Atomstroyexport was EUR 4 billion. However, it went up to EUR 6 billion in 2009. In 2011, the Bulgarian government assigned HSBC to analyse the project’s economic viability. According to the appraisal by HSBC, the actual price of the project was estimated at EUR 10.3 billion, even without considering the possible environmental impacts. Not being able to secure the financing of the project from international banks over the years, the Bulgarian government cancelled the project in 2012. However, the Socialists opposition contested that decision, claiming that the country had already invested too much in the project to abandon it, and they secured 770,000 signatures (more than the necessary 500,000) obliging the government to seek a referendum (*Balkan Insight*, 2012) – the first referendum in democratic, post-socialist Bulgaria.



Year	Event
1981	After initial research and analyses, the Bulgarian government decides to build six nuclear units (four units of 1000 MW each are planned with a further two optional) by the Danube River and initiates the "Belene NPP" project.
1987-1990	Construction work on Belene-1 is completed with 80 per cent of the equipment delivered on site.
1990	The Bulgarian Academy of Sciences publishes the "White Report", which argues in detail against construction of the NPP, pointing to seismic risks and a lack of economic viability. The Bulgarian government suspends the project indefinitely one year later, due to funding problems.
2002	The early decommissioning of Units 1-4 of Kozloduy NPP in 2002 (1-2) and 2006 (3-4), coupled with aging coal-fired power plants, brings up the issue of constructing a new power plant compliant with up-to-date environmental requirements.
2003	The project is revived 12 years later. The government decides to re-start the Belene Project with total capacity of 2000 megawatts (two new reactor blocks). Energy Minister Milko Kovachev plays a large role in re-starting the project.
2003-2004	An Environmental Impact Assessment (EIA) is conducted on the Belene NPP project. The report is discussed in public in both Bulgaria (four times) and Romania (once). Bulgarian and Romanian NGOs, as well as international organisations (the BeleNE! coalition, Ekoglasnost / FoE Bulgaria, Greenpeace and WISE CEE Bankwatch Network, EEB) heavily criticise the quality and conclusions of the EIA report, claiming that it failed to properly address seismic conditions, heavy accidents and environmental impacts. Despite the protests, the Bulgarian Ministry of Environment approves the EIA report in November 2004. The EIA report covers eight types of nuclear installations on the basis of the technical and economic data provided by Atomstroyexport. Its summary ascertains that the optimal choice would be either VVER-1000/B-320 or VVER-1000/B-466 reactors.
2005	The government gives a final green light to the construction of Belene NPP in June, with total rated capacity of 2000 MW. The project is supposed to deliver electricity for under €0.04/kWh and estimated to need between €2.5 and 4 billion in investments.
31 Oct 2006	Russian company Atomstroyexport wins the tender for construction for €3,997 billion, with the pre-condition to use the old equipment at the Belene site. Later it becomes clear that the old equipment is no longer viable – a fact that experts had already claimed before the so-called "tender process".
Dec 2006	Bulgaria closes reactors 3 and 4 of the Kozloduy NPP, as agreed in the EU accession treaty. These are VVER 440/230 type reactors and not considered upgradeable to a satisfactory safety level.
July 2008	The Bulgarian Ministry of Regional Development gives Atomstroyexport a construction permit.
Sept 2008	The construction of the Belene NPP officially begins.
Feb 2009	Russian company Atomstroyexport announces that it wants to recalculate the price of the project according to the Russian inflation index of 13.3 per cent for 2008, and officially offers a price of €6 billion, arguing that most of the equipment is made in Russia.
March 2009	Protests in 60 towns in Germany are held over RWE's participation in the Belene project. RWE is also criticised for its investments in Belene during its take-over of Dutch utility Essent.
Aug 2009	Minister of the Economy and Energy announces that the project will cost €10 billion.
5 Oct 2009	Standard and Poor's downgrades NEK's (National Electricity Company) credit rating from BB to BB minus because of its participation in Belene. Two weeks later, German utility RWE abandons plans to participate in the project.
April 2011	The Bulgarian government signs a consulting contract with U.K.-based company HSBC for a financial analysis of the project to construct the Belene NPP. HSBC estimates a total construction cost of €10.35 billion – not including uncertain effects on humans and the environment.
22 July 2011	Russian Atomstroyexport launches a lawsuit against the Bulgarian National Electric Company (NEK) demanding payment of €58 million in arrears for its work on the construction of the Belene NPP.
25 Oct 2011	Bulgarian Energy Holding (BEH) announces that British bank HSBC, consultant of the Belene nuclear project, began working on an assignment to attract financing by Russian Rosatom.
Jan 2012	After the Fukushima nuclear meltdown, Belene NPP's project company decides to initiate a 'stress-test' to promote its stability and safety measures. The Bulgarian Nuclear Energy regulator announces that both Kozloduy and Belene NPP have successfully passed stress tests, in January 2012. This is the only 'stress-test' in the world administered to a non-existent nuclear power plant. The process of the 'stress tests' is not transparent, letters sent by NGOs receive no replies, no public consultations are held.
Jan 2012	Prime Minister Borisov states that fate of NPP Belene will be revealed by the end of January 2012.
March 2012	The Belene NPP project is officially cancelled by the government. The prime minister promises to build a gas power plant instead. The Socialists in opposition accuse him of treason and of ruining the Bulgarian energy industry. They demand a referendum. Surprisingly, Russia does not seem offended by that decision. Moscow promises not to sue Bulgaria and even announces it will sell natural gas to Bulgaria with an 11 per cent discount.
April 2012	An inspection from the State Financial Agency reports that all agreements between NEK and Atomstroyexport, as well as the transferred payments of over €810 million were done in violation of the Public Procurement Law.
27 Jan 2013	The referendum results with 61 per cent in favour of construction and 38 per cent against. However, only about 1,500,000 people vote (20.2% of the last parliamentary elections' turnout), which was below the required 4,350,000 to make the vote valid. Hence once again, the final decision is left up to parliament.
27 Feb 2013	One month later, in February 27, parliament decides to end the Belene project. However, since the referendum outcome was in favour of the NPP, it is decided to extend the life of reactors 5 and 6 at the Kozloduy NPP and initiate the construction of a new reactor at the Kozloduy site.

**Table 13: Timeline of the Belene NPP (sources: Vassilev, 2012; Todorov and Petrova, 2012; Todorov and Slavov, 2013).**



The referendum was not free of political manipulations and views that opposed nuclear energy were mostly muted by the mainstream media (Stanchev, 2012; Todorov and Slavov, 2013). While pro-nuclear arguments such as “nuclear power is the cheapest source” and “renewables are expensive” were covered widely (Stanchev, 2012), opposing views were limited due to high publicity fees charged by the mass media. To overcome this problem, EJOLT partner Za Zemiata joined forces with the “Green Alternatives” and prepared 15,000 leaflets that argued against nuclear power on the basis of the cost-benefit analysis conducted by Za Zemiata with support from the EJOLT scientific team (Todorov and Slavov, 2013). The idea was to draw attention to the high economic costs of the project, to which the public was most sensitive, and show that it was not advantageous even in economic terms.

In the referendum held on 27 January 2013, citizens were asked “Should we develop the nuclear energy sector in the Republic of Bulgaria by constructing a new nuclear power plant?” Framed this way, the question invited speculative interpretations for both positive and negative responses (Todorov and Slavov, 2013). Indeed, the results did little to solve the problem and instead, rendered it more problematic and open to speculation with both parties claiming victories. Of the citizens who took part in the referendum, 61 per cent voted yes and 38 per cent voted no, but participation rate was only 20 per cent, which was way below the necessary threshold. Hence, the final decision once again remained in the hands of the parliament. The pro-nuclear Socialist opposition party claimed that the results clearly showed support for the Belene NPP. Conversely, the government argued that 80 per cent of the population abstained from voting, and said this obviously reflected people’s unwillingness for a new NPP. One month later, on February 27, parliament reached a decision to end the Belene project. However, since most votes were positive, it was also decided to extend the lives of units 5 and 6 in Kozloduy, and begin constructing a new generation 3+ reactor (unit 7) on that site.

Interpreting the parliamentary decision is difficult. Whether the Belene story has really come to an end remains unclear. Especially after the recent resignation of the prime minister (after mass protests against high electricity prices), the opposition party is quite confident that the future government will restart the project. After all, as the decisions about continuing investment in Kozloduy illustrate, the Bulgarian government does not seem to be against nuclear power, but only had cold feet for the Belene project mainly because of high construction costs that exceeded the capabilities of the state budget. It seems safe to venture that had the government secured funds from an international investor, it would not have wanted to end the project. Hence, there are two important factors that facilitated the project’s rejection:

- HSBC’s independent report on the project’s economic viability: Although it was quite incomplete and excluded some important environmental impacts, the report was still central in reversing the views of the government and other potential investors against the project. This demonstrates just how



crucial valuation/evaluation methods are when making such important decisions.

- Successful lobbying activities and protests: The international coalition of NGOs put effective pressure on the international banks and investors, who withdraw their financial support. This illustrates the significant impact national NGOs can have through networking at an international level.

**Today, the danger remains that political parties will abuse the public's recent sensitivity and continue to push the myth that nuclear energy is a cheap source of electricity**

Today, the danger remains that political parties will abuse the public's recent sensitivity to high energy prices and continue to push the myth that nuclear energy is a cheap source of electricity (Todorov and Slavov, 2013). Experts state that the contract between the Bulgarian state and Atomstroyexport (having already manufactured part of the equipment in Belene) will continue to pose problems, and the legal proceedings initiated by the Russians against Bulgaria at the High Court of Arbitration in Geneva will remind the public about this controversial project (BNR, 2013).

### 8.3 The Akkuyu NPP in Turkey

Turkey does not have any nuclear power plants, but it interestingly has a long history concerning nuclear energy. The story starts with Turkey's involvement in the "Atom for Peace" initiative in 1955. About a decade later, NPPs were first mentioned in Turkey's Five-Year Development Plan in 1968. Later, Akkuyu, a small bay on the eastern Mediterranean coast, was selected for the construction of Turkey's first NPP for the following reasons: i) Akkuyu is seismically stable<sup>40</sup>; ii) it is well-situated to bring in heavy machinery by sea; iii) its low population density makes it safer in the unlikely event of an accident; iv) adequate cooling water is available at the site; and v) it is close to major electricity-hungry cities such as İçel, Adana, and Antalya (Akçay, 2009). The site license was acquired in 1976 and first attempts began in 1977.

The first project involved the construction of a 600 MW reactor, to be built by Swedish company Asea Atom (today Westinghouse Electric Sweden AB). It failed, however, because the Swedish government withdrew its credit guarantee in 1980 following opposition from national and Swedish civil society groups (Adalioğlu, 2009). Although the project was cancelled, the initial desire for nuclear power in Turkey was still intact. This first effort was followed by many other big and small attempts in the last 40 years, and almost all governments had nuclear energy on their agenda (Şahin, 2011).

<sup>40</sup> Back when decisions were being made about the first site selection, Akkuyu was considered safe in terms of earthquake risk. However, this was disputed in the early 2000s, and scientists now claim that the site is actually in a seismic zone, on the Ecemiş fault line.



**Map 7:**  
The location of  
Akkuyu NPP.

Source: Own  
elaboration.



The second serious attempt was launched in 1982, two years after the military coup. Following negotiations with Atomic Energy of Canada Limited (AECL), Siemens-Kraft Werk Union (KWU) and General Electric (GE), an agreement was reached in 1984, but this effort also failed due to financial reasons and price disagreements (Adalıoğlu, 2009).

Nuclear energy remained on the governmental agenda, however, and a third attempt was made to construct the plant in the early 1990s. The project consisted of building a 2,800 MW plant, and a tender organised in 1996 was attended by AECL, Siemens-Framatom, and Westinghouse (Adalıoğlu, 2009). Public reaction against the project was very strong, mainly because of what happened in Chernobyl<sup>41</sup>. A nationwide movement formed with the participation of over one hundred NGOs, including labour unions, political parties, ecologist initiatives, professional organisations, intellectuals, journalists and others. Called “The Anti-Nuclear Platform”<sup>42</sup>, the coalition – which still exists today – created a strong opposition movement through demonstrations, legal cases, direct actions, conferences, etc. This attempt also failed, when the tender was cancelled due to rumoured corruption, strong opposition by the anti-nuclear movement (Şahin, 2011) and various financial problems. Some claim that the International Monetary Fund (IMF) was largely influential in the cancellation decision because of the economic crisis (Akçay, 2009). However, the then prime minister, Mr Ecevit, clearly stated that the project would be back on the agenda “[o]nce the stability programme has reached its aims” (Akçay, 2009, p. 351).

<sup>41</sup> Right after the Chernobyl accident, authorities denied any radioactive fallout in Turkey, especially in the Black Sea region (known for tea and hazelnut production). In later years, the scientific evidence showed that the area and hence the crops were in fact contaminated. Consequently, the incidence of cancer cases increased in the region. This incident cause a severe decline in the public trust towards government authorities in the management of nuclear energy (Şahin, 2011; Ertör-Akyazı, et al. 2012).

<sup>42</sup> <http://www.nukleerkarsitiplatform.org/index.html>





The last (and on-going) attempt started in 2002 with the conservative, neo-liberal Justice and Development Party (AKP) government<sup>43</sup>. Numerous obstacles followed, such as cancellation of nuclear legislation by the High Court, various legislative and administrative difficulties, court cases, and a failed tender in 2009. Six companies were meant to participate in the tender, but only Atomstroyexport showed any real interest, the others stepping aside since the project seemed not profitable. Eventually, Atomstroyexport's bid was accepted by the government. However, this decision was cancelled by the High Court for not complying with tender laws. In a shrewd move, the AKP government decided to continue the project directly with Russia by signing a bilateral nuclear cooperation agreement in 2010, which was immune to legislative "chaos" (Şahin, 2011).

**Ultimately, Akkuyu will be the first NPP on a state's sovereign land, owned and operated by another state**

According to the agreement between Russia and Turkey, Rosatom – the Russian state-owned corporation – will construct and run the Akkuyu NPP. Turkey will provide the site and necessary permits, but exercise almost no power over its construction, operations or waste disposal methods. Turkey also avoids a large portion of potential future costs and risks, by giving the higher share of the plant to Rosatom, which will never be less than 51 per cent. Ultimately, Akkuyu will be the first NPP on a state's sovereign land, owned and operated by another state (Şahin, 2011). In a way, Turkey sub-contracts the costly construction, operation (by Russian engineers), fuel provision (from Russia) and waste disposal (into Russia) matters to Rosatom, with all the risks borne (and compensation guaranteed) by the state of Russia. Obviously, it is not possible to talk about technology transfer or energy independence. Under these conditions, Turkey is giving the purchase guarantee with a fixed price of EUR cent 12.35/kWh during the first 15 years, which according to the Center of Economics and Foreign Policy Studies report (EDAM, 2011) is cheaper than the other alternatives.

The construction of the plant was supposed to start in 2013, but has been delayed due to administrative difficulties. According to the latest statement by Rosatom, the project will proceed in 2015 not experiencing any further delays in energy production, projected to begin by 2020 (*Yeşil Gazete*, 2013).

A study by Ertör-Akyazı et al. (2012) shows that, even before the Fukushima accident, there was strong popular anti-nuclear sentiments –an opposition of 62.5 percent to nuclear power whereas only 7.2 percent endorsement. However, these views and in many cases local and national protests by activists have been completely ignored by the Turkish government who tries to impose a particular view and value system regarding the environment, without meaningful public deliberation (Ertör-Akyazı et al., 2012). Despite all these, the Anti-Nuclear Platform still continues its strong, vocal opposition.

<sup>43</sup> The AKP government has an aggressive economic development/growth agenda that does not prioritise any social or environmental concerns. An important component of this agenda is energy investments through the liberalisation of energy markets, fossil fuel plants, and hydropower plants, all of which currently face strong public opposition in Turkey, as of 2013.

**Table 14:**  
**Timeline of the**  
**Akkuyu NPP**

Source: Adalıoğlu, 2009; Şahin 2011; Akçay, 2009, *Yeşil Gazete*, 2013

Year	Event
1968	First mention of nuclear power plants in Turkey's Five-Year Development Plan.
1972	The Nuclear Plants Department is founded within the Turkish Electricity Administration (TEK).
1973	The first nuclear reactor prototype is planned and the search for a suitable plant site began.
1976	Akkuyu, 80 km west of Silifke on the eastern Mediterranean coast is chosen as the site and a site licence is obtained.
1977 - 1980	The first full-scale project for Akkuyu starts under the administration of the centre-left Republican People's Party (CHP). A tender is organised, where Swedish company Asea Atom (today Westinghouse Electric Sweden AB) is the only firm to make a bid for BWR type reactors. The firm is chosen to deliver the power plant, but fails due to several reasons, including the presence of a new, mostly local Turkish anti-nuclear movement, and opposition by Swedish civil society groups. The Swedish government withdraws its credit guarantee in 1980 and the project is cancelled.
1982 - 1984	After a two-year pause in the project due to the 1980 military coup, the military administration initiates a second attempt for Akkuyu in 1982. After negotiations with Atomic Energy of Canada Limited (AECL), Siemens-Kraft Werk Union (KWU) and General Electric (GE) in 1983, an agreement is reached in 1984.
1986	The second attempt also fails due to disagreements between the government and the construction consortium on electricity prices.
1992	A rather long-term third attempt starts in 1992 by a right-left coalition government.
1996	A tender is held in October for a 2,800 MW project, prepared with consultancy from South Korean firm KAERI. This project triggers the largest and most visible reaction in the history of the anti-nuclear movement in Turkey. AECL, Siemens-Framatom, and Westinghouse participate in the tender.
1997 - 2000	The tender deadline is postponed six times in four years due to technical and economic reasons, and sometimes because of intense opposition. This landmark victory of the anti-nuclear movement in July 2000, follows popular rumours about corruption in the tender process. The process is cancelled and once again, the third attempt fails.
2002	The first AKP (Justice and Development Party) government comes to power in late 2002. This conservative (or moderate Islamist) and neo-liberal one-party government launches an economic development programme without heeding any environmental concerns, particularly in its second term after 2007.
2004	The AKP government revives the nuclear project. Akkuyu is the first option, but Sinop, a small Black Sea city, becomes the target for a second plant.
2004 - 2009	The first years witness a number of unsuccessful attempts for Akkuyu, including nuclear legislation that was cancelled by the High Court in 2009, and a failed tender: While six companies intend to participate, only one – Atomsroyexport of Russia, which is a part of Rosatom – makes an offer, probably because the outcome does not seem profitable enough. The tender eventually is cancelled by the High Court.
2010	After the failure of the 2009 tender, the government decides to carry out the Akkuyu project directly with Russia, the only country to show enthusiasm during the tender. The governments of Turkey and Russia sign a bilateral nuclear cooperation agreement in 2010, ignoring the huge public reaction against it. The agreement is ratified in the Turkish Parliament in July 2010. Being an intergovernmental agreement, the opposition cannot seek recourse at the courts.
2013	Although construction is set to start in 2013, strong opposition and administrative processes cause delays. The Fukushima accident seems not to affect the pro-nuclear stance of the AKP government. According to the latest statement by Rosatom, construction is postponed to begin in 2015.
2020	Planned date for electricity production, despite the delays in starting construction.



## 8.4 Twin cases: similar aspects

The cases of both Belene and Akkuyu are good examples illustrating the struggle between national/international anti-nuclear movements and governments. Marked by a long history of failed construction attempts, the main reason for these failures are financial constraints (lack of international funds) and strong civil society opposition.

The construction of nuclear plants often comes to a halt because high amounts of initial investments are required. Neither the Bulgarian nor the Turkish governments have been able to secure the necessary initial financing as of yet. This is mainly because in the developed world (where the required capital lies), faith in nuclear is not as strong as it used to be, due to several accidents and strong international opposition. Presently, both projects have ended up with Russian Rosatom (and its subsidiaries) as their financier, who appears to be extremely enthusiastic about entering new/developing energy markets. It is obvious that the “energy independency” argument often attributed to nuclear energy is not true for these two cases, since both countries will continue to depend on Russia (which already meets their current energy needs in terms of natural gas).

### Box 2: Some similarities between the Belene and Akkuyu projects

- Developmentalist arguments: Both cases are marked with similar “we need nuclear energy for economic growth” types of arguments. Especially for Turkey, the plant signifies a milestone in modernisation.
- Energy dependency arguments: Both the Turkish and the Bulgarian governments argue that high capacity nuclear plants will reduce their energy dependency. However, because the enriched uranium will come from Russia in both cases, there is actually no room for improvement. It might even be said that Turkey will become all the more energy-dependent.
- Seismic zone: According to plans, both projects will be constructed close to active fault lines. Although both governments argue that the plants will be built with state-of-the-art technology and be earthquake-ready, even the latest technologies have been known to fail, Fukushima being a very specific case in point.
- Rosatom: The Russian nuclear energy state corporation has quite a bad transparency record and is involved in both projects (among others in Middle East, North Africa and the Balkans – the firm operates in more than 40 countries).
- Technical design: Both projects are going to use WWER type (2x1000MW in Belene and 4x1200MW in Turkey), Russian made reactors – a previously untested design – which both governments use in their “the latest technology” arguments.
- Non-transparent procedures: Both cases witnessed failed and manipulated tenders that favoured one party, and badly conducted EIAs that endorsed nuclear energy. In both cases, the conducted EIAs received harsh (and well-deserved) criticism for not analysing the full nuclear fuel chain, including mining, upgrading and fuel production, and fuel and waste transport. They also did not include a proper analysis of alternative methods such as wind or solar energy.



Through the years, the governments of both countries tried to trounce civil opposition movements through non-transparent procedures, by hiding crucial information about financing and construction plans. Turkey surpassed the legislative processes through an intergovernmental agreement, hence further reducing the transparency of the decision-making process. The Bulgarian government has abandoned the Belene NPP for the time being, following HSBC's cost estimations for construction and operation. While the HSBC report helped the (temporary) abandonment of the Belene project, the Bulgarian government does not seem to be categorically against nuclear energy: it has decided to build another reactor unit at Kozloduy (which will cost less only in terms of construction since most of the infrastructure is already there), illustrating its continued interest in the nuclear sector. For the Akkuyu project, neither the state nor independent agencies have conducted (or published) any economic-viability reports. It is unlikely that the Turkish government is unaware of the risks and uncertainties related to the nuclear plant, but Turkey's final move to cope with such uncertainty and unknown costs has been to shift them on Russia by an agreement similar to sub-contracting.

In their campaign against nuclear power during the referendum process, Za Zemiata chose to run a CBA to be able to develop counterarguments. The problem is that cost-effectiveness (or cost-benefit) analyses are unable to cover many important issues as the real value of nature, value plurality involved in such cases, and especially the uncertainty and ignorance that is crucial in the case of nuclear energy. Za Zemiata's strategy to choose a CBA was rather a strategic decision, which was still effective since they were able to show that the project was not profitable, even without taking its social and environmental costs into account. Yet such strategy would not be advantageous if the NPP was indeed profitable economically.

## 8.5 Comments and conclusion

Cost-benefit analysis (CBA) seems to be a quite simple and straightforward decision-aiding tool commonly used in policy-making. However, the complexity of current policy problems (such as nuclear energy) needs to be addressed with a multidimensional framework. In many instances, CBAs are not useful since they reduce the problem to the economic dimension only, often disregarding environmental and social issues (Rietveld and Ouwersloot, 1992; Munda, 2004).

CBA fails to properly address important aspects of decision-making regarding nuclear energy such as impacts on environment and health, waste management, and nuclear accidents. These aspects are associated with ecological complexity, uncertainty, and irreversibility. As Ravetz (2004) argues, in such cases, the assumption that science can construct "facts" is not quite true, since as also put forward by Latour and Woolgar (1986), 'scientific facts' cannot be isolated from values and interests. Various actors (such as power utilities, governments, current and future consumers, local communities and so on) with various interests are involved in such policy problems. Hence, Funtowicz and Ravetz (1994) propose

**CBA fails to properly address important aspects of decision-making regarding nuclear energy such as impacts on environment and health, waste management, and nuclear accidents.**



that the policymaking process in such cases should actually be a “dialogue” between all stakeholders, through the democratisation of knowledge that extends to the peer community.

The CBA employs the potential Pareto improvement criterion, the Kaldor-Hicks compensation test. According to this criterion, a proposal is “Pareto efficient” if gains are greater than losses, so that gaining parties are able to compensate the losers for their losses caused by project implementation (O’Neill, 1993). However, in the case of nuclear energy, the losses incurred by some stakeholders cannot be fully compensated since many damages (especially those after the nuclear accidents) are irreversible. There is a need to change the compensation principle (lying at the centre of the welfare perception of the CBA) for the *precautionary principle* (Munda, 2004), which often requires abandoning projects that may have irreversible, unknown, and uncertain impacts on stakeholders and nature.

On this background, it is clear that the proper method for assessing nuclear energy production should:

- be able to incorporate the evaluation of multiple alternatives,
- be able to address the multiplicity of dimensions,
- avoid reductionism by addressing incommensurability and ecological complexity, and
- be open to stakeholder participation and hence be transparent.

Cases like these call for a set of tools and an analytical framework that address multiplicity in a non-reductionist manner and with a process of stakeholder participation. Multi-criteria evaluation techniques provide such a set of tools that give structure to problem formulation, address multiple dimensions, enhance transparency and facilitate participation (Munda et al., 1994; Stagl, 2006). There exists many participatory multi-criteria methods (such as Social Multi-Criteria Evaluation [SMCE], Multi-Criteria Mapping [MCM] and Integraal)<sup>44</sup> that are able to address all these issues, and should replace cost-benefit (or cost-effectiveness) analyses in policymaking practices.

Of course, multi-criteria methods are not yet perfect tools to be applied to decision-making cases either, since:

- Conducting them still requires expert guidance through the process. That is why, as seen in the Belene case, activists may still choose to run a CBA, which is more established than MCE methods.
- End-users still perceive multi-criteria models as being quite complicated (Gamboa, 2008) and results obtained by MCE models are not as easily communicated as the simple monetary result of a CBA.

<sup>44</sup> For more information, see Gerber et al. (2013) EJOLT Report No. 8: <http://www.ejolt.org/2013/02/guide-to-multicriteria-evaluation-for-environmental-justice-organisations/>



- In many cases, it is difficult to gather all stakeholders together as some social movements may be unwilling to participate in such processes due to distrust in governments (Gamboa, 2008), or governments/decision-makers may not care about the arguments of the social movements and choose not to employ participatory procedures.

In the light of these issues, further action should be taken to make MCE methods accessible to communities in a way that meets the needs of the end-users (particularly EJOs and government agencies), and promote them more to help both activists and decision-makers trust the usefulness of MCE methods.





# 9

# Valuation and sustainability:

## Some elements for a practical-theoretical synthesis

**Julien-François Gerber, Begüm Özkaynak,  
and Beatriz Rodríguez-Labajos**

### 9.1 Introduction

In all their diversity, each one of these case studies from four continents deals with *how to adequately take a decision* about a given 'development project' and/or *how to 'compensate' for the socio-environmental destruction* involved. Two chapters are concerned with socio-environmental impact assessments (oil spills in Nigeria and river diverting in Brazil), two others tackle cost/benefit approaches and their limits (forest NPV in India and nuclear plants in Bulgaria and Turkey), one criticizes a particular multicriteria evaluation exercise ('leave oil in the soil' in Ecuador), and one analyses a conflict of valuation languages (gold mining in Turkey). Among these case studies, two (Nigeria and India) also tackle the compensatory mechanisms involved as well as their appropriateness (see **Table 15**).

Regarding valuation issues, is there any 'best practice' for EJOs that emerges? In fact, none of the chapters offers a successful 'model' to be generally applied. Quite the opposite, each case study highlights severe flaws in the assessment of the 'development projects' at stake. In Nigeria, fairly reliable data on the socio-environmental impacts are only available for a small portion of the delta (Ogoniland). In Ecuador, no convincing evaluation method has been applied to date. In Brazil, the environmental impact assessment does not take into account distributive and equity issues. In India, the compensation method for forest losses is blatantly reductionist in scope. In Turkey and Bulgaria, cost/benefit analyses at best provide a temporary brake on the projects but are unable to take into account longer-term perspectives and key uncertainties.



Conflict location	Country	Key resource	Valuation issues discussed	Corporate liabilities involved?	Are valuation issues properly addressed by authorities?	What is needed then?
Niger Delta	Nigeria	Oil extraction	Liabilities, restoration costs	Yes, but not paid yet	No: only partial studies available	Generally speaking: a participative/ deliberative MCE and a rigorous EIA of the project taking into account the entire regions at stake
Yasuní	Ecuador	Oil extraction	MCE	Yes, but not paid yet	No: no adequate evaluation available	
São Francisco River	Brazil	Water megaproject	EIA	Not yet	No: insufficient EIA	
N.A.	India	Forest, tree plantations	NPV	Compensatory scheme	No: reductionist approach	
Mount Ida	Turkey	Gold mining	Valuation languages	Not yet	No: insufficient EIA	
Akkuyu & Belene	Turkey & Bulgaria	Nuclear plant	CBA	Not yet	No: reductionist approach	

**Table 15: Summary of the case studies.**

This is not so surprising when one thinks of the deeply political and multidimensional nature of any evaluation process. A government aggressively promoting a given ‘development project’ – as it is generally the case – has little incentive to undertake a thoroughly deliberative and transparent multicriteria evaluation that may very well put in doubt its legitimacy. This also applies to cases where there are private investments involved and even more so when there is a corporate liability assessment undertaken.

It has become part of the mainstream discourse that environmental issues are best handled with the participation of the concerned citizens. Indeed, any discussions about economic and environmental issues virtually always involve confrontation with a diversity of objectives and interests that are expressed in a variety of languages of valuation. If participation is to be taken seriously –which is too rarely the case –, EJOs should develop/support communication frameworks that allow combining (‘objective’) scientific validity and the ability to take into account multiple (‘subjective’) value standpoints. How would such a framework look like?



## 9.2 Towards an integrated approach to valuation: the four fold framework<sup>45</sup>

Together with an increasing number of social scientists, we strongly believe in the relevance of 'integrative approaches'. An integrative approach to valuation is more exigent than an 'interdisciplinary' one and it represents the needed opposite of a reductionist methodology (e.g. focusing on monetary valuation only). Such an integrative approach must find a complementarity between, on the one hand, an understanding of the *feasibility* of a given project embedded in a given socio-ecological system and, on the other, an understanding of the criteria of *desirability* for feasible courses of action.

### 9.2.1 Feasibility

The feasibility aspects of a given 'development project' (whether agricultural, industrial, service-oriented or extractive) can be tackled by a scientific approach. The latter may entail various forms of system representations, simulation modelling, and so on, regarding the **economic** (e.g. technological capacities) and **ecological** dimensions (e.g. showing patterns of water use and greenhouse gas emissions). Such integrated appraisals have become a major activity of interdisciplinary policy-relevant research endeavour.

Broadly speaking, resource management must fulfil two complementary functions. The first is the delivery of economic welfare in the narrow sense, through production of economic goods and services; the second is the maintenance of the ecological welfare base through assuring reproduction or enhancement of critical environmental functions. In this second sense, 'sustainability' objectives can be thought of as responding to a kind of social demand for the maintenance of key environmental functions.

As we have seen continuously within EJOLT, this social demand for environmental quality (and for assuring fairness toward future generations) cannot easily be reduced to simple monetary values. Rather, scenarios that explore different conceivable co-evolutions of ecological and socioeconomic systems need to be formulated and evaluated from various points of view (see e.g. Gerber et al., 2013, EJOLT Report No. 8). These viewpoints include scientific preoccupations and also societal preoccupations that can be summarized in the key question: sustainability of what, and for whom?

This key question is relevant for each one of the case studies presented in this report. In some cases such as gold mining in Turkey or water diverting in Brazil, the economic and ecological scientific analyses have been inadequate. It is not clear if lower-income sectors will benefit at all or if they will simply have to bear the costs. When environmental impact assessments are carried out, they often lack an 'equity' dimension and they do not encompass the entire region at stake.

<sup>45</sup> The next sections draw heavily on O'Connor (2002; 2007). See also O'Connor and Martínez-Alier (1998).



### 9.2.2 Desirability

The social choice side is to decide what might be desirable within the bounds of the feasible. Abstractly, this takes on the form of an arbitrage between different interests. As O'Connor (2002) pointed out, "in the context of environmental valuation problematics, this [arbitrage] in turn can be seen as one aspect of a more generalized structural opposition – between 'us' and the 'others', between self-interest and interest in the livelihoods of others, between human and nonhuman communities, between 'our' culture (whichever it is) and other cultures, and so on. The variety of candidate sustainability ethics that, over the years, have been put forward, tend indeed to turn around this time-honored problem of reconciling concern for oneself with a consideration for the other(s)".

This suggests that two forms of social information or representation will have special pertinence for a deliberative approach to resource valuation and governance: (i) **local-level** individual and community information: that is, the immediate life experience of 'ordinary' members of society, in their homes, workplaces, farms, shops, schools, with friends, and on their travels; and (ii) **political** and institutional information: the terms in which the regulation of human action is conceived, that link local and economic and ecological information to frameworks of collective purpose, responsibilities, conflicts, and policy.

In the present report, it appears that local-level knowledge is crucial. This is for instance obvious in the case of the Yasuni or in India's forest management. Local population know better than 'experts' that they depend of forest resources for their daily life and that 'tree plantations are not forests' in this respect. In Ecuador, on one hand the institutional framework – through the rights of Nature incorporated in the Constitution – can be supportive of local struggles, but on the other, the power structure so heavily dependent on oil may undermine popular mobilizations.

The above formulation thus distinguishes four basic dimensions of information: (1) ecological and (2) economic systems information, (3) local-level individual and community knowledge and values, and (4) political or institutional framing information. As O'Connor puts it, "these may be considered as irreducible dimensions for building a good representation of an environmental issue".

### 9.2.3 Criteria and indicators

In order to be able to deal with this fourfold model, an adequate set of indicators must be developed to shed light on the kind of decision or institutional arrangement that are needed for the pursuit of the sustainability goals within a social justice framework. Prospects for framing and promoting sustainability policy choices as collective and concerted actions can, we suggest, be enhanced through bringing the different scales of information and different stakeholder perspectives into constructive confrontation with each other. At a scientific level, this means establishing 'bridges' between representations at different levels of aggregation or based on varied conceptual frameworks. At the socio-political level, it means building the capacities for mutual understanding of the contrasting perspectives and preoccupations of different stakeholders, in order to search for points of common ground.

**Four basic dimensions of information: (1) ecological and (2) economic systems information, (3) local-level individual and community knowledge and values, and (4) political or institutional framing information.**



### 9.3 Valuation as a political process: The need for deliberation

Conflicts of interests, valuation languages contests, uncertainties, and dissent amongst scientists, as well as governance challenges, can be explored by cross-comparison of different scenarios about what would happen with or without to-be-defined 'development projects' and the corresponding institutional arrangements. One set of scenarios would typically be trend-based or business-oriented projections, which generally involve trends in resource use that are unsustainable. Other scenarios would then be constructed that involve the satisfaction of specific sustainable use criteria, on the basis of various hypotheses about systems potentials and about social choices of 'what, and for whom?'

This multicriteria style of scenario-based evaluation can be seen as an extension of the well-known fundamental inseparability of allocative (efficiency) and distributional (equity) goals. Three remarks at this point:

- When the long-term future is taken into account, inter-temporal distributional considerations will predominate over allocative efficiency.
- Substantive attention must be given to inter-group and intra-generational distribution issues. This is done through the analysis of the incompatibilities between the diverse sustainability concerns expressed by the different stakeholders (O'Connor and Martínez-Alier, 1998).
- The unavoidable normative dimension of any valuation process is reflected in the way in which scenarios are formulated with respect to social, economic, and ecological sustainability. The values entailed in the different scenario must be clear (see Myrdal's urge for 'explicit value premises', 1932).

Having established the general conceptual orientation, the next task is to design an institutional and deliberative context. Information about interests and priorities can be built and debated in what O'Connor has called a 'theatre of sustainability'. A stakeholder concertation process can be developed that integrates systems science with deliberation in a recursive cycle as follows. The representation of an **iterative loop** is intended to emphasize the real-time process of putting on to the scene interests, knowledge, disagreements, and possible solutions: the first step in the cycle privileges the desirability (or social choice) preoccupations at the stakeholder level; the next step privileges the feasibility aspect of analysis; and the last step again privileges the social choice problem, this time also at the governance level. The deliberation process includes both formalized and 'informal' knowledge, the latter being typically held by members of local networks and communities. Interactive stakeholder-linked approaches imply the need to present and discuss scientific and socioeconomic findings to interest groups with a range of different interests, on a permanent (recursive) basis. It is here that frameworks such as SMCE or Integraal can be very useful (see Gerber et al., 2013, EJOLT Report No. 8). Such frameworks are instruments that provide opportunities for discussing, learning, understanding, convincing, and that may strengthen EJO activists side by highlighting the virtue and solidity of their viewpoints.



## 9.4 Conclusion

The resolution of environmental resource management problems means dealing incessantly with ethical and political choices, and this makes calculation, measurement, and technical expertise on their own insufficient. Decision quality and socially legitimate processes can be assured only through integrating scientific, technical, and economic expertise within a permanent stakeholder communication process, in order to search for a reasonable common ground.

However, there will evidently be many situations in which people, or different cultures, or different species of plants and animals, simply cannot, or do not want to, find a basis for durable coexistence. Therefore, reflective deliberation, as advocated here, may work to highlight appreciation of tensions, but it does not necessarily find a way to put an end to them. If one party does not want to seek out some form of coexistence, it may be because it holds an ethic of exclusion or domination. Or it may be that the differing experiences of the coexisting parties are incomparable, being grounded in different existential conditions and in different ethical and epistemological postulates that, each in their own terms, are somehow reasonable. As O'Connor (2002) puts it:

The “coexistence” ideal of a dignified compromise does not mean finding, by some magical process of option creation, a win-win outcome in which everyone takes away from the negotiating table a large part of what they came to bargain for. Rather, it means reciprocal consideration, the acceptance of sacrifices in a spirit of coexistence, and the ability to refine and change one’s personal (or group, or national) goals in the interests of the wider community.

**The “coexistence” ideal of a dignified compromise means reciprocal consideration, the acceptance of sacrifices in a spirit of coexistence, and the ability to refine and change one’s personal (or group, or national) goals in the interests of the wider community**





# 10 Concluding remarks

**Julien-François Gerber**

More than sixty years ago, the eco-institutional economist K. Willian Kapp published a critique of the misleading character of economic valuation in terms of market prices, a critique that he developed into the ‘theory of social costs’<sup>46</sup> (Kapp, [1950] 1978). There, he focused on capitalism as an institutional system that, rather than leading to the classical harmony of interests, repeatedly generates a privatisation of benefits and a socialisation of costs. He added that capitalism can essentially be seen as an economy of unpaid social and environmental costs (see also Steppacher et al., 1977; Elsner et al., 2006; 2011; Gerber and Steppacher, 2012). The problem of valuation is therefore especially central in this context, and particularly for ‘anti-systemic’ actors such as EJOs. Kapp’s answer was to develop an objectivization of social and ecological disruption through the elaboration of minimum standards, welfare criteria, and the use of a variety of social-ecological indicators. Kapp was aware of the technical and political difficulties involved in using socio-ecological standards and insisted on keeping the mopen for modification in the light of new experiences and political processes. But overall, his answer remains entirely correct.

**Most of the case studies in this report show that lower-income sectors (especially indigenous people and peasants) do not simply seek a monetary compensation**

In virtually every socio-environmental conflict, a variety of languages of valuation is deployed (Martínez-Alier, 2002). This variety reflects the multidimensionality of such struggles. The inclusion of multiple valuation languages is particularly important since governments and companies usually try to portray socio-environmental impacts solely as a technical problem that will be handled with the proper use of technology or monetary accounting. In fact, contrary to what is sometimes said, most of the case studies in this report show that lower-income sectors (especially indigenous people and peasants) do not simply seek a monetary compensation. At Mount Ida for example, lower-income groups consider that the burden of the environmental impacts will fall on them and tend to reject

<sup>46</sup> The astonishing fact that most of the discussion on social costs is based on Ronald Coase, ignoring entirely the earlier and fundamental contribution of Kapp, is discussed in Berger (2011).



the mining project. The relatively well-off, on the other hand, are likely to support it in expectation of new business and employment opportunities. In Ecuador, indigenous people are at the forefront of the battle for 'leaving oil in the soil' and a recent poll suggests that three quarters of the Ecuadorian are actually behind them. These results show that 'popular sectors' do worry about local environmental matters, even more so, sometimes, than higher income groups. In many cases therefore, monetary compensation is likely not going to be sufficient to resolve disagreements. More fundamentally, these valuation contests also highlight opposite visions about local development between on one hand (lower-income) locals and on the other, the state and the corporate sector.

In view of the differences in material interests, values and perceptions, it may be inferred that the evolution of these conflicts will very much depend on the extent to which different languages of valuation are acknowledged and addressed. Generally speaking, this would require, firstly, carrying out a rigorous socio-environmental impacts assessment of the region at stake, and secondly, undertaking an in-depth deliberative multicriteria evaluation. As Avcı et al. (in this report) aptly put it, "Undoubtedly, in a society where power relations were more equally-distributed among actors, it would be easier to explicitly recognise all these different languages. Still, it is clear that the state may arrive at a legitimate decision only through participatory and deliberative mechanisms that acknowledge and address these issues".

**The evolution of these conflicts will very much depend on the extent to which different languages of valuation are acknowledged and addressed.**



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# References

- Adalıođlu, U. (2009) *Türkiye'de Nükleer Enerjinin Tarihçesi (Chronology of Nuclear Energy in Turkey)*. Retrieved on 05/04/2013, from Enerji 2023 Derneđi: [http://www.enerji2023.org/index.php?option=com\\_content&view=article&id=230:tuerkye-de-nuekleer-enerjnn-tarhces&catid=6:nuekleer&Itemid=156](http://www.enerji2023.org/index.php?option=com_content&view=article&id=230:tuerkye-de-nuekleer-enerjnn-tarhces&catid=6:nuekleer&Itemid=156)
- Akçay, B. (2009) The case of nuclear energy in Turkey: From Chernobyl to Akkuyu nuclear power plant. *Energy Sources, Part B, 4(4)*, 347-355.
- Al-Damkhi, A.M., Abdul-Wahab, S.A. and Al-Khulaifi, N.M. (2009) Kuwait's 1991 environmental tragedy: lessons learned. *Disaster Prevention and Management, 18*:233-248.
- Aldred, J. (2006) Incommensurability and monetary valuation. *Land Economics, 82(2)*, 141-161.
- AMD, Altın Madencileri Derneđi. (2008) *Madencilik Sektörü ve Türkiye'de Altın Madenciliđi* [Mining Industry and Gold Mining in Turkey]. Ankara: Altın Madencileri Derneđi.
- Anderson, R., and W. Huber (1987) *The hour of the fox. Tropical forests, the World Bank, and indigenous people in central India*. Seattle: University of Washington Press.
- Arsel, M. (2005) The Bergama Imbroglio. In *Environmentalism in Turkey: Between Democracy and Development*, F. Adaman and M. Arsel (eds.), 263-275. Aldershot: Ashgate.
- Avcı, D. (2012) Opposition to gold mining at Mount Ida, Turkey. EJOLT Factsheet
- Avcı, D., F. Adaman and B. Özkaynak. (2010) Valuation languages in environmental conflicts: How stakeholders oppose or support gold mining at Mount Ida, Turkey. *Ecological Economics 70*, 228-238.
- Awasthi, K. (2008) Diversion route. *Down To Earth Magazine*, 31 October 2008.
- Balkan Insight (2012) *Officials verify signatures for Bulgaria Belene referendum*. Retrieved on 05/04/2013, from <http://www.balkaninsight.com/en/article/officials-verify-signatures-for-bulgaria-belene-referendum>
- Barry, J. (2007) *Environment and Social Theory*. London and New York: Routledge.
- Berger, S. (2011) The discourse on social costs: The Kapp theorem vs. neoliberalism. In W. Elsner, P. Frigato and P. Ramazzotti (eds.) *Social costs today – Institutional economics and contemporary crisis*. London: Routledge.
- Bernier, A. (2012) Ecuador's plan falters. *Le Monde diplomatique*, English edition, July 2012.
- BNR, Bulgarian National Radio. (2013). *National Assembly gives*

- official end of Belene NPP project .Retrieved on 05/042013, from <http://bnr.bg/sites/en/Economy/Pages/280213NationalAssemblygivesofficialendofBeleneNPPproject.aspx>
- Bridge, G. (2004) Contested Terrain: Mining and the Environment. *Annual Review*
- Carson, R.T. and Walsh, S.M., 2008. *Preventing damage from major oil spills: lessons from the Exxon Valdez*. Ecological Damage Caused by Oil Spills: Economic Assessments and Compensations, 32:351-374.
- CDCA web page on the 'Deviation of the São Francisco River': <http://www.cdca.it/spip.php?article1616&lang=en>
- Chopra, K. (2006) Report of the Expert Committee on Net Present Value. Submitted to the Honourable Supreme Court of India, May 2006.
- Çoban, A. (2004) Community-based Ecological Resistance: The Bergama Movement in Turkey. *Environmental Politics* 13(2), 438-460.
- Das, S. (2010) The strange valuation of forests in India. *Economic and Political Weekly* XLV(9): 16–18.
- DeSimone, P. (2012) Investor risks looming in the Niger Delta. Sustainable Investments Institute.
- Dicks, B. (2008) *Compensation for environmental damage caused by oil spills: an international perspective*. Ecological Damage Caused by Oil Spills: Economic Assessments and Compensations, 32:409-420.
- Down to Earth (DtE) (2009) Free cheers to the Forest Rights Act. *Down to Earth Magazine*, 15 January 2009.
- Duffield, J. (1997) Nonmarket valuation and the courts: The case of the Exxon Valdez. *Contemporary Economic Policy*, 15:98-110.
- Dunford, R.W., Ginn, T.C. and Desvousges, W.H. (2004) The use of habitat equivalency analysis in natural resource damage assessments. *Ecological Economics*, 48:49-70.
- EDAM (2011) *Nükleer Enerjiye Geçişte Türkiye Modeli*. İstanbul: Ekonomi ve Dış politika Araştırma Merkezi. Available at: <http://www.edam.org.tr/document/edamnukleerrapor.pdf>
- Efroymson R.A., Nicolette J.P. and Suter G.W., 2004. A framework for net environmental benefit analysis for remediation or restoration of contaminated sites. *Environmental management*, 34:315-331.
- Elsner, W., P. Frigato and P. Ramazzotti (eds.) (2006) *Social costs and public action in modern capitalism – Essays inspired by Karl William Kapp's theory of social costs*. London: Routledge.
- Elsner, W., P. Frigato and P. Ramazzotti (eds.) (2011) *Social costs today – Institutional economics and contemporary crisis*. London: Routledge.
- Environmental Rights Action (ERA) (2009) Building a post petroleum Nigeria: Leave new oil in the soil. Benin City: ERA/FoEN Publications.
- Ertör-Akyazı, P., Adaman, F., Özkaynak, B., and Zenginobuz, Ü. (2012) Citizens' preferences on nuclear and renewable energy sources: Evidence from Turkey. *Energy Policy*. 47, 309-320.



- FASE/ETTERN (2011) *Relatório Síntese: Projeto Avaliação de Equidade Ambiental como instrumento de democratização dos procedimentos de avaliação de impacto de projetos de desenvolvimento*, Rio de Janeiro.
- Finer, M., Jenkins, C.N., Pimm, S.L., Keane, B., and Ross, C. (2008) Oil and gas projects in the Western Amazon: threats to wilderness, biodiversity and indigenous peoples. *PLoS ONE*, 3(8): e2932. Doi:10.1371/journal.pone.0002932
- Food and Agricultural Organization (FAO) (2011) *Global forest resources assessment 2010*. Rome: FAO.
- Funtowicz, S.O., and J.R. Ravetz (1994) The worth of a songbird: ecological economics as a post-normal science. *Ecological economics*, 10(3): 197-207.
- Gadgil, M., and R. Guha (1992) *The fissured land: an ecological history of India*. New Delhi: Oxford University Press.
- Gadgil, M., and R. Guha (1995) *Ecology and equity: the use and abuse of nature in contemporary India*. London: Routledge.
- Gamboa, G. (2008). Social Multi-Criteria Evaluation in practice: Two real-world case studies. *Unpublished PhD Thesis, Universitat Autònoma de Barcelona*
- Gandy, M. (1999) Rethinking the Ecological Leviathan: Environmental Regulation in an Age of Risk. *Global Environmental Change* 9(1), 59-69.
- García Dos Santos, L. (2007) The proposal of the oil left underground and the value... beyond value. In: P. Boedt and E. Martínez (eds.) *Keep oil underground: the only way to fight climate change*, pp. 34-35. Port Harcourt: Oilwatch.
- Garvin, T. (2001) Analytical Paradigms: The Epistemological Distances Between Scientists, Policy Makers, and the Public. *Risk Analysis* 21(3), 443-455.
- Geistfeld M.A. (2011). The Principle of Misalignment: Duty, Damages, and the Nature of Tort Liability. *Yale Law Journal*, 121:144.
- Gerber, J.-F. (2011) Conflicts over industrial tree plantations in the South: who, how and why? *Global Environmental Change* 21(1): 165-176.
- Gerber, J.-F., and R. Steppacher (eds.) (2012) *Towards an integrated paradigm in heterodox economics: Alternative approaches to the current eco-social crises*. Basingstoke: Palgrave-Macmillan.
- Gerber, J.-F., B. Rodríguez-Labajos, I. Yáñez, V. Branco, P. Roman, L. Rosales and P. Johnson (2013) Guide to Multicriteria Evaluation for Environmental Justice Organisations. EJOLT Report No. 8. Available online.
- Ghosh, P. (2006) Pricing forests: net present value assessed. *Down To Earth Magazine*, 30 June 2006.
- Ghosh, S. (2006) Creating 'manageable' forests: plantations and plantation workers in India. *World Rainforest Movement Bulletin* N° 105, April 2006.
- Guha, R. (1989) *The unquiet woods: ecological change and peasant resistance in the Himalaya*. Berkeley: University of California Press.



- Guha, R., and J. Martínez-Alier (1997) *Varieties of environmentalism: essays North and South*. London: Earthscan.
- Hanley, N., and E. Barbier (2009). *Pricing nature: Cost-benefit analysis and environmental policy*. Edward Elgar Publishing.
- Healy, H., J. Martínez-Alier, L. Temper, M. Walter and J.-F. Gerber (eds.) (2012) *Ecological economics from the ground up*. London: Routledge.
- Hedge, P. (1989) The Appiko movement: forest conservation in southern India. *Cultural Survival Quarterly* 13(2): 29-30.
- Hurley, P.T. and Y. Arı (2011) Mining (Dis)amenity: The Political Ecology of Mining Opposition in the Kaz (İda) Mountain Region of Western Turkey. *Development and Change* 42(6), 1393-1415.
- International Maritime Organisation (IMO) (2013). *International Convention for the Prevention of Pollution from Ships (MARPOL)*. Adoption: 1973 (Convention), 1978 (1978 Protocol), 1997 (Protocol - Annex VI); Entry into force: 2 October 1983 (Annexes I and II).
- Jones C.A. and Pease K.A. (1997) Restoration-based compensation measures in natural resource liability statutes. *Contemporary Economic Policy*, 15:111-122.
- Jones, C.A. (2000). Economic valuation of resource injuries in natural resource liability suits. *Journal of Water Resources Planning and Management-Asce*, 126:358-365.
- Kancı, T. (2009). Reconfigurations in the discourse of nationalism and national identity: Turkey at the turn of the twenty-first century. *Studies in Ethnicity and Nationalism* 9 (3), 359–376.
- Kapp, K.W. ([1950] 1978) *The social costs of business enterprise*. Nottingham: Spokesman.
- Keyman, F. (2005) Modernity, Democracy and Civil Society. In *Environmentalism in Turkey: Between Democracy and Development*, F. Adaman and M. Arsel (eds.), 33-50. Aldershot: Ashgate.
- Kling, C.L., Phaneuf, D.J. and Zhao, J. (2012). From Exxon to BP: Has Some Number Become Better than No Number? *The Journal of Economic Perspectives*, 26:3-26.
- Knetsch, J. L. (1994) Environmental valuation: some problems of wrong questions and misleading answers. *Environmental Values*, 351-368.
- Kohli, K., and M. Menon (2011) *Banking on forests: assets for a climate cure?* New Delhi: Heinrich Böll Foundation.
- Kohli, K., M. Menon, V. Samdariya and S. Guptabhaya (2011) *Pocketful of forests: legal debates on valuating and compensating forest loss in India*. New Delhi: Kalpavriksh & WWF-India.
- Krishnan, S., and S. Purushothaman (2008) Value of deforestation? *Down To Earth Magazine*, 15 August 2008.
- Larrea, C. (2007) Yasuní National Park: is there economic sense in leaving the oil underground? In: P. Boedt and E. Martínez (eds.) *Keep oil underground: the only way to fight*



- climate change*, pp. 28-29. Port Harcourt: Oilwatch.
- Latour, B., and S. Woolgar (1986) *Laboratory life: The construction of scientific facts*. Princeton: Princeton University Press.
- Lempert, R., (2009) Low Probability/High Consequence Events: Dilemmas of Damage Compensation. *University of Michigan Program in Law and Economics Archive: 2003-2009*. Working Paper no: 97. <http://law.bepress.com/umichlwps-olin/art97>
- Lewis M., 2011. The UK Compensation Scheme for Radiation-Linked Diseases.
- Martínez, E. (2012) Ecuador: el Yasuní depende de ti. In: Oilwatch (ed.) *Abrigando futuros*, pp. 11-58. Port Harcourt: Oilwatch.
- Martínez-Alier, J. (2002) *The environmentalism of the poor: A study of ecological conflicts and valuation*. Cheltenham: Edward Elgar.
- Martínez-Alier, J. (2003). Environmental conflicts, environmental justice and valuation. In: Agyeman, J. et al. (eds.) *Just sustainabilities: Development in an unequal world*, pp. 201-28. London: Earthscan.
- Martínez-Alier, J., G. Munda and J. O'Neill (1998) Weak comparability of values as a foundation for ecological economics. *Ecological Economics* 26: 277–286.
- Martínez-Alier, J., G.U. Ojo, L. Temper, I. Yanez (eds.) (2013) To Yasunize is a verb – Global initiatives to leave fossil fuels in the soil. EJOLT Report No. 6.
- Martin-Ortega, J., Brouwer, R. and Aiking, H. (2011) Application of a value-based equivalency method to assess environmental damage compensation under the European Environmental Liability Directive. *Journal of environmental management*, 92:1461-1470.
- McAvoy, E. (2011) Oil or life? Ecuador's stark choice. *New Internationalist*, Issue 441. Available online.
- McLaughlin, S.M. (1998) The indexed discount rate method for fair valuation of liabilities. In 'The Fair Value of Insurance Liabilities', *The New York University Salomon Center Series on Financial Markets and Institutions*, 1: 331-349.
- Mitra, M.N. (2008) Landgrab? *Down to Earth Magazine*, 15 January 2008.
- Movement for the Survival of the Ogoni People (MOSOP) (1992) *Ogoni Bills of Rights*. Port Harcourt: Saros International Publishers.
- Munda, G. (2004) Social multi-criteria evaluation: Methodological foundations and operational consequences. *European journal of operational research*, 158(3), 662-677.
- Munda, G. (2008) *Social Multi-Criteria Evaluation for a Sustainable Economy*. Berlin: Springer-Verlag.
- Munda, G., P. Nijkamp and P. Rietveld, P. (1994) Qualitative multicriteria evaluation for environmental management. *Ecological economics*, 10(2), 97-112.

Myrdal, G. (1932) *Das Politische Element in der Nationalökonomie Doktrinbildung*. Berlin: Junker & Dünhaupt.

New Scientist (2013) *The pall of Fukushima overshadows our energy future*. Retrieved on 05/04/2013, from <http://www.newscientist.com/article/mg21729072.800-the-pall-of-fukushima-overshadows-our-energy-future.html>

O'Connor, M. (1997) The internalization of environmental costs: Implementing the polluter pays principle in the European Union. *International Journal of Environment and Pollution*, 7:450-482.

O'Connor M. (2002) Social costs and sustainability. In D.W. Bromley and J. Paavoli (eds.) *Economics, ethics and environmental policy: Contested choices*, pp. 181–202. Oxford: Blackwell Publishing.

O'Connor, M. (2007) The “four spheres” framework for sustainability. *Ecological Economics* 3(4): 285-292.

O'Connor, M., and Martínez-Alier, J. (1998) Ecological distribution and distributed sustainability. In S. Faucheux, M. O'Connor and J. van der Straaten (eds.) *Sustainable development: Concepts, rationalities and strategies*, pp. 33-56. Dordrecht: Kluwer.

O'Neill, J. (1993) *Ecology, policy and politics: human well-being and the natural world*. Routledge.

Oilwatch (2012) Commentary on the document “La iniciativa Yasuni-ITT desde una perspectiva multicriterial”

authored by M.C. Vallejo, C. Larrea, R. Burbano and F. Falconí. Available online.

Fagbohun O. and G.U. Ojo (2012) Resource governance and access to justice: Innovating best practices in aid of Nigeria's oil pollution victims. *Nigerian Institute of Advance Legal Studies Environmental Law Journal*, Vol. 2

Ojo, G.U. (ed.) (2010) *Envisioning post-petroleum economy for Nigeria*. Ibadan: Kraftbooks.

Overbeek, W., M. Kröger and J.-F. Gerber (2012) An overview of industrial tree plantation conflicts in the global South: conflicts, trends, and resistance struggles. *EJOLT Report No. 3*.

Paredis, E., Goeminne, G., Vanhove, W., Maes, F., Lambrecht, J. (2008) *The concept of Ecological Debt: its meaning and applicability in international policy*. Academia Press, 288 p.

Rabl, A. (1996) Discounting of long-term costs: What would future generations prefer us to do? *Ecological Economics*, 17(3): 137-145.

Ravetz, J. (2004) The post-normal science of precaution. *Futures*, 36(3): 347-357.

Rhee, R.J. (2012). A Financial Economic Theory of Punitive Damages. *Michigan law review*, 111:33-87.

Richards, M., J. Davies and G. Yaron (2003) *Stakeholder incentives in participatory forest management: A manual for economic analysis*. ITDG Publishing.

- Rietveld, P., and H. Ouwersloot (1992) Ordinal data in multicriteria decision making, a stochastic dominance approach to siting nuclear power plants. *European Journal of Operational Research*, 56(2): 249-262.
- Rival, L. (2002) *Trekking through history: the Huaorani of Amazonian Ecuador*. New York: Columbia University Press.
- Rival, L. (2011) Planning development futures in the Ecuadorian Amazon: the expanding oil frontier and the Yasuní-ITT Initiative. In: A. Bebbington (ed.) *Social conflict, economic development and extractive industry*. Evidence from South America, London: Routledge
- Rodríguez-Labajos, B. and Martínez-Alier, J. (2012) The economics of ecosystems and biodiversity: recent instances for debate. EJOLT Report No. 5. Available online.
- Şahin, Ü. (2011) Country perspective: Turkey. In: Netzer and Steinhilber (eds.) *The end of nuclear energy? International perspectives after Fukushima*, pp.71-74. Friedrich Ebert Stiftung.
- Santopietro, G.D. (1998). Alternative methods for estimating resource rent and depletion cost: the case of Argentina's YPF. *Resources Policy*, 24:39-48.
- Shiva, V. (1989) *Staying alive: women, ecology and development*. London: Zed Books.
- Shue, H. (1999) Global environment and international inequality. *International Affairs*, 75: 531-545.
- Smith, E. and Marquez, M. (2000) The Other Side of the NIMBY Syndrome. *Society and Natural Resources* 13(3), 273-280.
- Spash, C. L. (2000a) Ethical motives and charitable contributions in contingent valuation: Empirical evidence from social psychology and economics. *Environmental Values*, 453-479.
- Spash, C. L. (2000b) Multiple value expression in contingent valuation: economics and ethics. *Environmental science & technology*, 34(8), 1433-1438
- Stagl, S. (2006) Multicriteria evaluation and public participation: the case of UK energy policy. *Land Use Policy*, 23(1), 53-62.
- Stanchev, K. (2012) *Манипулирането на избирателите от поддръжниците на АЕЦ „Белене“ и строителството на нова ядрена централа (Manipulation of voters by the supporters of Belene NPP and the construction of the new nuclear power plant)*. Retrieved on 05/04/2013, from Institute for Market Economics (IME): <http://ime.bg/bg/articles/manipulirane-to-na-izbiratelite-ot-poddryjnicite-na-aec-belene-i-stroitelstvoto-na-nova-yadrena-centrala/>
- Steppacher, R., B. Zogg-Walz and H. Hatzfeldt (eds.) (1977) *Economics in institutional perspective: Memorial essays in honor of K. William Kapp*. Lexington, MA: Lexington Books.
- Suassuna, J. (2011) *Transposição do Rio São Francisco na perspectiva do Brasil real*, Porto de Ideias Editora.



Supreme Court of India (2008) Decision on case: T.N. Godavarman Thirumulpad v. Union of India. 28 March 2008.

Todorov, T.D., and D. Petrova (2012) *The short story of Belene NPP – the end of the illusion: Key points of the campaign against the nuclear power plant*. Available at: <http://www.spareworld.org/eng/bulgaria/2012/nuclear>

Todorov, T.D., and T. Slavov (2013) *Nuclear religion: The story of a referendum*. Retrieved on 05/04/2013 from EJOLT Web Site: <http://www.ejolt.org/2013/03/nuclear-religion-the-story-of-a-referendum/>

United Nations Environment Program (UNEP) (2011) *Environmental Assessment of Ogoniland*. Nairobi: UNEP.

United Nations Security Council (1991). *Report of the Secretary-General pursuant to paragraph 19 of Security Council Resolution 687* (1991). S/22559, 2 May 1991:1-10.

United Nations Security Council (1992). *Decision taken by the Governing Council of the United Nations Compensation Commission during its third session, at the 18th meeting, held on 28 November 1991, as revised at the 24th meeting held on 16 March 1992. Criteria for additional Categories of Claims*. S/AC.26/1991/7/Rev.1, 17 March 1992:1-9.

United Nations Security Council (2001). *Report and Recommendations made by the Panel of Commissioners concerning the first instalment of "F4" claims*. S/AC.26/2001/16, 22 June 2001:1-181.

United Nations Security Council (2002). *Report and Recommendations made by the Panel of Commissioners concerning the second instalment of "F4" claims*. S/AC.26/2002/26, 30 October 2002:1-51.

United Nations Security Council (2003). *Report and Recommendations made by the Panel of Commissioners concerning the third instalment of "F4" claims*. S/AC.26/2003/31, 18 December 2003:1-58.

United Nations Security Council (2004a). *Report and Recommendations made by the Panel of Commissioners concerning part one of the fourth instalment of "F4" claims*. S/AC.26/2004/16, 9 December 2004:1-81.

United Nations Security Council (2004b). *Report and Recommendations made by the Panel of Commissioners concerning part two of the fourth instalment of "F4" claims*. S/AC.26/2004/17, 9 December 2004:1-38.

United Nations Security Council (2005). *Report and Recommendations made by the Panel of Commissioners concerning the fifth instalment of "F4" claims*. S/AC.26/2005/10, 30 June 2005:1-152.

Vallejo M.C., Larrea, C., Burbano, R. and Falconí, F. (2011) *La Iniciativa Yasuní ITT desde una perspectiva Multi-criterial*. Quito: Facultad Latinoamericana de Ciencias Sociales, Universidad Andina Simon Bolivar.

Vassilev, I. (2012). *The Belene NPP Project: Mission Impossible*. Center



for Balkan and Black Sea studies. Available at:[http://3e-news.net/getatt.php?filename=oo\\_o\\_22373.pdf](http://3e-news.net/getatt.php?filename=oo_o_22373.pdf)

Vatn, A. (2004). Environmental valuation and rationality. *Land Economics*, 80(1), 1-18.

Vatn, A. (2007). Institutions and the environment. Edward Elgar, Cheltenham, UK.

Wakeford R., 2007. *The Compensation Scheme for Nuclear Industry Workers in the United Kingdom*:25.

Waterhouse R. (1994). The balance of power: Disturbing questions persist about the effects of the Sellafield nuclear plant on people who work there or live in the area. *The Independent*.

Watts, M. (2007) Petro-insurgency or criminal syndicate? Conflict and violence in the Niger Delta. *Review of African Political Economy*, 34(114): 637-660.

Watts, M. (2008) Sweet and Sour. Working Paper No. 18. Berkeley CA: Institute of International Studies, University of California Berkeley.

WWF (2007) *Pipedreams? Interbasin water transfers and water shortages*, June 2007, Global Freshwater Programme.

Yeşil Gazete. (2013) *Rosatom: "Akkuyu'da inşaat 2015'e kaldı"*. Retrieved on 05/04/2013, from: <http://www.yesilgazete.org/?p=75208>





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