

ejolt



ejolt report

no. **16**

October, 2014

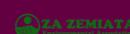
Economic tools for evaluating liabilities in environmental justice struggles

The EJOLT experience

Christos Zografos and Beatriz Rodríguez (Coord.)

with contributions by

Cem İskender Aydin, Andrea Cardoso, Paul Matiku, Serah Munguti,
Martin O'Connor, Godwin Ojo, Begum Özkaynak, Todor Slavov,
Desislava Stoyanova and Lidija Živčič



Economic tools for evaluating liabilities in environmental justice struggles

The EJOLT experience

Co-ordinating authors:

Christos Zografos and Beatriz Rodríguez-Labajos
(ICTA-UAB)

Contributing authors:

Cem İskender Aydin (UVSQ-REEDS), Andrea Cardoso
(Universidad del Magdalena/ICTA-UAB), Paul Matiku
and Serah Munguti, (Nature Kenya), Martin O'Connor
(UVSQ-REEDS), Godwin Ojo (ERA/FotEN), Begum
Özkaynak (Boğaziçi University), Todor Slavov and
Desislava Stoyanova (Za Zemiata), Lidija Živčič (Focus)

Cover:

Cem İskender Aydin

Series editor:

Beatriz Rodríguez-Labajos

The contents of this report may be reproduced in whole or in part for educational or non-profit services without special permission from the authors, provided acknowledgement of the source is made.

This publication was developed as a part of the project Environmental Justice Organisations, Liabilities and Trade (EJOLT) (FP7-Science in Society-2010-1). The EJOLT project (2011-15) has received funding from the European Union's 7th Framework Programme for research, technological development and demonstration under grant agreement no 266642. The views and opinions expressed in this report the authors' view and the European Union is not liable for any use that may be made of the information contained therein.

EJOLT aims to improve policy responses to and support collaborative research and action on environmental conflicts through capacity building of environmental justice groups around the world.

Visit our free resource library and database at www.ejolt.org or follow tweets (@EnvJustice) or updates on our facebook page (EJOLT) to stay current on latest news and events.

This document should be cited as:

Zografos C., Rodríguez-Labajos, B., Aydin, C. A., Cardoso, A., Matiku, P. Munguti, S., O'Connor, M., Ojo, G.U., Özkaynak, B., Slavov, T., Stoyanova, D., Živčič, L. 2014. Economic tools for evaluating liabilities in environmental justice struggles. The EJOLT experience. EJOLT Report No. 16, 75 p.



Abstract

Collaboration to deploy economic evaluation tools is a recent form of interaction between academia and social movements as a means to pursue more sustainable futures. Specifically, academics and environmental justice organisations (EJOs) conduct monetary valuations, cost-benefit analyses (CBAs) and multi-criteria analyses (MCA), in order to explore and reveal the un-sustainability of environmentally controversial projects. The effectiveness of such evaluation tools for pursuing environmental justice is still a matter of debate.

In this document, we report on the EJOLT project experience of developing evaluation processes between EJOs and academics in the context of specific environmental justice struggles. This resulted in a mutual-learning process that explored the conditions under which CBA, MCA, and economic valuation tools can be either enabling or disabling for EJOs in their struggles for environmental justice.

The outcomes suggest that methods are more effectively used through carefully planned interventions supporting debates on local futures and visions, and when there are complementarities with regulatory and institutional developments. Oppositely, evaluation methods disable local mobilization when they force communities to bring their concerns into assessment schemes that do not fit their own languages and concerns, when they reproduce uneven power relations, or where public decisions have little to do with formulating and advancing 'reasoned arguments'. Insights on the benefits from science-activism collaboration and recommendations on the use of evaluation tools are finally outlined.

Keywords

evaluation tools

cost-benefit analysis

environmental justice

multi-criteria analysis

environmental liabilities

monetary valuation



Contents

Foreword	5
1 Introduction	7
1.1 The challenge of assessing environmental liabilities	7
1.2 Report methodology	9
1.3 The report	10
2 Evaluation tools for liabilities	13
2.1 Environmental justice, liabilities, and evaluation tools to claim liability	13
2.2 Cost-benefit analysis for EJOs	16
2.3 Economic valuation of liabilities	22
2.4 Multi-criteria analysis and environmental justice	27
3 Using evaluation tools: The EJOLT experience	34
3.1 CBA as an advocacy tool: the Tana Integrated Sugar Project	34
3.2 Prospects for economic valuation of liabilities in Nigeria's Niger Delta	39
3.3 Evaluation of costs and benefits of nuclear power in Bulgaria and Slovenia	42
3.3 Reflections on value and liability from gold mining conflicts in Turkey	45
4 Effective evaluation tools for environmental justice. Insights from EJOLT insights	48
4.1 The importance of context and strategy	48
4.2 Enabling and impeding aspects of the tools	54
4.3 Facilitating and hindering conditions	59
4.4 Critical concerns	63



Conclusions and recommendations	67
DECALOGUE: When to use evaluation tools and how. 10 issues to consider	69
Acknowledgments	71
References	72



Acronyms

CBA	Cost Benefit Analysis
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CSO	Civil society organizations
CNR	Colombia Natural Resources
EC	European Communities
EIA	Environmental Impact Assessment
EJO	Environmental Justice Organisations
EJOLT	Environmental Justice Organisations, Liabilities and Trade
ELD	Environmental Liability Directive
ERA	Environment Rights Action
EV	Economic Valuation
FoEN	Friends of the Earth Nigeria
JIV	Joint Investigation Visit
LOIS	Leave the Oil in the Soil
MCA	Multi-Criteria Assessment
MSC	Mumias Sugar Company
NPV	Net Present Value
NPP	nuclear power plant
RSPB	Royal Society for the Protection of Birds
TARDA	Tana and Athi River Development Authority
TISP	Tana Integrated Sugar Project
TÜBİTAK	Scientific and Technological Research Council of Turkey
UNEP	United Nations Environment Program
WTP	Willingness to pay
WHO	World Health Organization
ECHR	European Court of Human Rights
CDM	Clean Development Mechanism

The ISO 4217 standard is used for the currency codes (e.g., USD for US dollar or KES for Kenyan shilling)



Foreword

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

The EJOLT project (*Environmental Justice Organizations, Liabilities and Trade*, www.ejolt.org) 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 organizations (EJOs), and the communities they support that receive an unfair share of environmental burdens to defend or reclaim their rights. This will be done through a process of two-way knowledge transfer, encouraging participatory action research and the transfer of methodologies with which EJOs, communities and citizen movements can monitor and describe the state of their environment, and document its degradation, learning from other experiences and from academic research how to argue in order to avoid the growth of environmental liabilities or ecological debts. Thus EJOLT contributes to increasing the EJO's knowledge of environmental risks and of legal mechanisms of redress. On the other hand, EJOLT is greatly enriching 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 tries to 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?



One of the core transversal themes in EJOLT is the use of methods for the evaluation of environmental liabilities and socio-environmental risks. In this respect, the project produced a guide to multi-criteria evaluation (EJOLT report 8, Gerber et al., 2012) which explains in detail how this tool can be employed by EJOs. In the same vein, an overview and discussion of the different economic approaches for the consideration of impacts in biodiversity, including the discourse of the ecosystem service approach, was presented in the EJOLT report 5 (Rodríguez-Labajos and Martínez-Alier, 2013a).

The limitations and potential of cost benefits analysis, economic valuation and other approaches for the benefit of environmental justice organisations was already initiated in the EJOLT report 13 (Gerber et al., 2014). In this EJOLT report 16, we take this work a bit further, by focussing more on the application of three evaluation tools, Cost Benefit Analysis, economic valuation [mainly monetary valuation] and multi-criteria assessment for the proper consideration of liabilities in environmental justice struggles.

Instead of providing blueprints, we opt for offering critical tools to help take critical decisions, which need to be taken by those involved in specific struggles and not given externally by checklists of 'how to do' things. For this, we count on the extremely valuable experience of well-known EJOs from different parts of the world. They share their experiences on the use of evaluation methods, and create together a set of final recommendations based on these experiences.



1

Introduction

1.1 The challenge of assessing environmental liabilities

On a daily basis, communities and Environmental Justice Organisations (EJOs) that support them face many injustices that result from damages and risks from economic activities. The health and environmental implications of petrol exploitation activities (such as oil spills), nuclear waste and radiation, and mining-related pollution represent some of the most well-known effects of the increasing energy and material use of the global economy. An increasing global social metabolism drives conflicts throughout the planet: in a considerable number of cases worldwide, the burden of those health and environmental effects unjustly falls upon communities adjacent to the site of resource extraction or waste disposal, who see little benefit from polluting activities and experience how environmental damage constraints their current and future options.¹ Such unjust distributions of health and environmental burdens and risks on the one hand and benefits on the other, constitutes a key expression of environmental injustice (Bullard, 2001; Schlosberg, 2013), which EJOs try to address through everyday struggles.

One way to deal with such injustices is by focusing on the damage they produce and then claim liability for this damage from those who have produced it. In a basic sense, and following the relevant EU legislation, i.e. the Directive 2004/35/EC (aka Environmental Liability Directive), environmental liability involves a situation where a polluter can be identified as responsible for provoking damage to the environment due to his/her activities (OJEU, 2004). According to this basic definition, liability lies in the polluter's responsibility – in terms of either prevention before the damage occurs, or remedy and reparation after causing it.

In either case, there is a cost involved in preventing and remedying or repairing an environmental damage, and academics have developed tools to calculate such costs. One of those tools is economic valuation (EV), which seeks to attach a monetary value upon aspects and functions of the environment such as biodiversity, ecosystem services. Beyond identifying the monetary value of the loss after damage has occurred (*ex-post*), it is also possible to conduct *ex-ante*

One way to deal with environmental injustices is focusing on the damage they produce and then claiming liability for this damage

¹ Some of those cases can be seen at the Atlas of Environmental Injustice (<http://www.ejolt.org/maps/>).



assessments of whether it is worth polluting by inserting monetary values of such environmental ‘assets’ into broader Cost-Benefit Analysis (CBA) exercises. Such CBAs are then used in order to decide whether it is economically sensible – i.e. whether benefits are more than costs – to incur such pollution.

However, there are issues with this approach. Ecosystems, for example, are highly complex and interconnected and their function cannot be compressed in a simple metric such as money (Gómez-Baggethun and Ruiz-Pérez, 2011). In ecological terms, and independently of what humans value or do not value, there are species or resources for which there are no adequate substitutes or equivalents. Also, individuals and communities hold multiple values that can be expressed into different languages of valuation (e.g. sacred nature, indigenous rights) other than money. In some cases, people are unwilling or not capable to reduce those values into money, i.e. their values are incommensurable, albeit necessary to consider (Martínez-Alier et al., 1998).

Moreover, values also depend on the institutional and distributional settings in which they are expressed (Martínez-Alier and O’Connor, 2002). People value things differently in a church and in a market (Vatn, 2005); they also value differently if they have the right to pollute or if they are offered compensation for environmental damage. In short, reducing all values concerning nature into monetary ones can be ethically, politically and methodologically problematic, as some relevant perspectives may be excluded or not properly considered.

An alternative approach to CBA and EV is Multi-Criteria Assessment (MCA), a set of methods that takes into account the environmental dimensions of decision-making without necessarily finding recourse to monetisation. MCA comprises a socio-economic evaluation tool that allows representing diverse biophysical flows in quantitative units other than money or in qualitative descriptions, so allowing environmental, cultural and social values to be expressed in their own terms (or at least close to these) and taking into account value incommensurability (Munda, 2008). This points to a clear difference between MCA on the one hand, and CBA and EV on the other hand, i.e. in terms of their attitudes towards the monetisation of nature in forms such as environmental goods and services. This is indeed crucial in terms of the implications of using each one of those tools and those implications are discussed later on in the report (**Chapter 2**, where those methodologies are presented).

Notwithstanding this, in this report we mostly reflect collectively on the use of all three evaluation tools – i.e. EV, CBA, and MCA – for pursuing environmental justice through liability claiming. This is not because we believe it is important to overlook those differences, but because in the context of environmental justice struggles, EJOs sometimes find it useful to know the implications of getting engaged in an evaluation exercise *per se*. On the one hand, the reality of everyday struggle implies that some EJOs embark on such exercises often with little knowledge or guidance as to how to use them and when, e.g., when they participate in valuation studies to pursue liability claims in courts although they may feel uncertain about the implications of using a technical tool to do so. On the other hand, EJOs themselves have developed analytical strategies and expertise

In this report we reflect on the use of three evaluation tools – monetary valuation, cost benefit analysis and multi-criteria analysis – for pursuing environmental justice through liability claiming



based on a deep practical knowledge of the real-world implementation of evaluation approaches, which is often overlooked by experts and academics.

Lately, some literature has emerged (e.g., Rodríguez-Labajos and Martínez-Alier, 2013a; Kallis et al., 2013) which discusses aspects of those tools that can be useful when dealing with environmental damage and the conditions under which this can happen. However, there is not much information on EJO experience with the use of those tools for pursuing environmental justice and on conjoint reflection on the topic between EJOs and academics. It is the aim of this report to help bridge this gap.

1.2 Report methodology

The question that motivates this report is: when and how could evaluation tools be beneficial for EJOs (including organisations set up by locally affected communities) for liability claiming in environmental justice struggles? We have looked at two key issues in order to try and address this question:

1. What **aspects** of evaluation tools are enabling and what aspects are hampering for EJOs in their project of pursuing environmental justice?
2. Under what **conditions** can the use of evaluation tools be enabling or hampering for EJOs in their struggles and their project of pursuing environmental justice?

EJOLT experience and expertise with evaluation tools – specifically CBA, MCA, and EV – is used to explore those two questions and then draw lessons and make recommendations as regards best practices related to the use of economic evaluation tools.

The EJOLT experience is drawn from two main engagements with evaluation tools: first, the execution of specific evaluation studies either by project EJOs with the support of academics from the project and outside it, or by other entities (e.g., UNEP in the Nigeria case explained in **Chapter 3**); and second, the (i) discussion of findings, challenges, and opportunities of the tools in the context of those studies, preceded by an (ii) explanation and critical discussion about those tools, which took place during a project workshop in Rome, Italy² and which involved academics and EJOs participating in the project.

Specifically, the Rome intensive 2-day training workshop on ‘Liabilities and Evaluation’ focused on presenting and discussing into detail best practices of economic evaluation of environmental liabilities. This involved teaching of the evaluation tools of CBA, EV, and MCA followed by questions and answer sessions further explaining and discussing the tools. This was preceded by a more theoretical discussion of the normative underpinnings of those tools, namely the notion of maintaining a given level of utility that underlies monetary compensation and the perspective based on Kantian rights, which can be operationalised by

Two relevant elements to elucidate whether the evaluation tools are beneficial or not for liability claiming are related with *aspects of evaluation tools* and with *conditions for their use that enable or hamper EJOs in their project of pursuing environmental justice*

² The workshop took place between November, 11th-12th, 2013.



MCA. Moreover, issues like the economic value of human life and the valuation of foregone ecosystem services³, as well as questions of incommensurability of values (e.g. sacredness vs. monetary value) were also explained. The workshop also involved presentations and discussions of the results of the four EJOLT experiences with evaluation for identifying or claiming liabilities used in the context of environmental justice struggles. Specifically, two of those cases involved EJOs directly developing evaluation tools (CBA) in collaboration with academics either from the project (Bulgaria and Slovenia) or from outside the project (Kenya); one involved an EJO's experience with an external study of EV of liabilities in a key area where the EJO is very active (Niger Delta, Nigeria); and a final one (Turkey), which involved the experience of one EJOLT partner with the use of monetary values in court cases for claiming liability compensation.

Building upon those activities of the first day of the workshop, a discussion took place the second day, on the conditions under which the tools (CBA, MCA, and EV) are enabling or hindering for EJOs in their struggles for environmental justice, as well as the aspects of those tools that help or hinder EJO work. The discussion was organised through the presentation (by EJOs) of two critical cases regarding key challenges facing EJOs in their work and the relation of those challenges to liability evaluation, which were then discussed by a panel of project partners with expertise and experience in evaluation tools. This was followed by a broader debate on helpful and limiting conditions and aspects of evaluation tools among all project partners. Both days of the workshop were recorded and transcribed, and this data together with data from the four EJOLT studies was then analysed with the use of the qualitative analysis software ATLAS.ti to identify key themes, concepts and patterns in the data, which are presented in the 'Findings' section of this report.

1.3 The report

In order to answer when and how tools for the evaluation of environmental liabilities can be beneficial in environmental justice struggles, our findings develop along four main dimensions that we find relevant for answering these questions. We then describe and discuss the key issues that are relevant within each dimension. The first dimension is context and strategy, which highlights the crucial importance of power in determining how and when tools can be used, and outlines the key characteristics of strategic attitudes that are useful to be assumed by EJOs when engaging with the tools. The second dimension looks at specific aspects of the tools that can be either enabling or hindering for environmental justice struggles when those tools are employed. The third dimension involves the conditions which may hinder or facilitate the beneficial use of the tools and includes a reflection on the type of action EJOs can take in order to help shape

³ Many EJOs and academics question the "objective" existence of such services and instead attribute their construction to neo-liberal conceptualisations that aim at commodifying and privatising nature in order to facilitate capital accumulation (for more on this see: Kallis et al., 2013).



such conditions. Finally, our findings outline and discuss a number of concerns that are critical to take into account when engaging with evaluation tools for liability analysis in environmental justice struggles. On the basis of our discussion of those findings, we then put forth a series of recommendations, which are presented in the last section of this report in the form of a Decalogue of issues to consider before, during, and after using evaluation tools.

The work here reported should not be taken as a fully-fledged study of when evaluation tools work and when they do not work. Nevertheless, this is a report that makes suggestions as regards the use of evaluation tools on the basis of direct project experience and considerable expertise. Thus, although we do not claim universality in our suggestions and findings, we do claim that based on our critical experience and considerable expertise, as well as our joint discussions between academics and EJOs, our findings can be useful and relevant for environmental movements.

In this report, we first introduce the three evaluation tools that are relevant for considering liabilities in environmental justice struggles. Nevertheless, this report is not aimed at ‘teaching’ or presenting evaluation tools for liabilities – which is something the EJOLT project does with other reports (e.g., see Gerber et al., 2012): the presentation of the tools serves to set the stage for the presentation of how they have been applied within EJOLT (**Chapter 3**)⁴ and the discussion of when and how to employ them (**Chapter 4**). We consider that the added value of the report lies in setting out how through the EJOLT practical engagement with and reflection upon the use of those tools, we can provide a set of suggestions as to when and how those tools can be useful for environmental justice struggles and liability evaluation.

The report aims to be a guide for EJOs who are considering the use of evaluation tools. This guide is not a ‘cook book’ for when to use those tools and when not to use them. Instead, what we provide is a reflection on aspects, conditions, and critical issues concerning that decision, in order to allow EJOs themselves to reflect on a case-by-case basis as to whether using evaluation tools is relevant to their struggle or not. In that sense, EJOLT engagement with those tools has been a step in the process of advancing debates about the use and meaning of evaluation tools, liability and environmental justice rather than an attempt to ‘resolve’ controversial issues. We see this report as step in that process.

Building then on previous methodological reviews offered by or developed with work within the EJOLT Project (Gerber et al., 2012; Rodriguez-Labajos and Martinez-Alier, 2013b), we now focus on the three evaluation tools of CBA, EV, and MCA and the circumstances under which they can be useful for pursuing liabilities. This is done by analysing in more detail how those tools can be

⁴ Although we present EV, CBA and MCA, our EJOLT cases basically focus on the use of the two further. This is because EJOLT partners have in their cases employed or reflected upon the use of these, and we found it crucial to base our report on EJO practical experience with applying the tools.



deployed to pursue liability (**Chapter 2**), by presenting four cases either using or reflecting on the use of the tools within the context of the EJOLT project (**Chapter 3**), and then by reflecting on the findings of EJOLT project experience as well as on broader project expertise to discuss the use of those tools to pursue environmental liability (**Chapter 4**). We conclude the report with some recommendations as regards the use of evaluation tools (**Chapter 5**).

2

Evaluation tools for liabilities

This chapter begins with a conceptually-oriented reflection on the links between environmental justice, liabilities and evaluation tools, which aims at contextualising and putting into perspective the relevance of the tools. We then move on into a more detailed presentation of each of the tools.

2.1 Environmental justice, liabilities, and evaluation tools to claim liability

Decisions on the use of evaluation tools for the servicing of liability claims are influenced by a crucial distinction between damages and the liabilities stemming from those damages. The literature on ecological debt distinguishes three relevant categories of **damage**: *contamination* that harms human beings, ecosystems and the cultural and social heritage based on them; *over-use* on the extraction and use of natural resources; and landscape and ecosystem *degradation* reducing diversity or productivity in terms of biomass production (Paredis et al., 2009).

According to positions sustained by the Southern Peoples Ecological Debt Creditors Alliance, the problem goes deeper, such that responsibility and injustice should be attributable to the predominant mode of production. By pursuing accumulation, increased resource use unavoidably generates these different categories of damage (Ivonne Yáñez, pers. comm.).

In this light, the legal definitions seem to be more stringent. For instance, the already mentioned Environmental Liability Directive (ELD) (OJEU, 2004) 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”.



Conceptualising an environmental damage as a liability is one way of trying to stop further damage (Martinez-Alier et al., 2014). 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" (authors' 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" (authors' Italics).

In other words, environmental liabilities refer to any situation of damages or 'harms' (i.e. risks of such damages or losses) that are imposed on third parties without a reasoned justification, according to prevalent rationalities. This lack of justification, if and inasmuch as it is affirmed or admitted, produces an injustice, an unfairness, a debt, a liability, or perhaps an 'obligation' for compensation (not necessarily monetary), for restoration, or more generally for an effort to make good and eventually stop further damage.

Therefore, the 'factual' identification of a damage or loss is associated with a *moral* dimension of the unfairness or the inappropriateness of harm and, the imperative to avoid or make good the damage (including, in some cases, via reparations or compensation). Yet, this is polite language for situations that are sometimes struggles for survival and may even involve violent crimes.

What does 'unfair' or 'inappropriate' mean in this context? Very often, the challenge is to articulate the moral status of different features of the world or living beings. One can readily find examples of statements that an act (or proposed action) is simply sacrilege and unacceptable, for example to destroy a *prayag* (a sacred river confluence in India) (Colopy, 2012).

The point becomes less simple when the question is posed of payment, when compensation or reparations for a loss or harm has been imposed or is proposed, or when criminal acts are detected. Decisions and governance processes will in this respect involve what institutional economists Samuels and Schmid (1981) call sacrificial or moral choices, or the 'distribution of sacrifice'. To illustrate their complexity, let us consider a stylised fable (see **Box 1**).

By illustrating this moral complexity, the example in the box also undermines any ideal of neutrality that could be attached to the framing of the liability concept. Liabilities have been operationalised in diverse circumstances. For instance, Gerber et al. (2014) provide an extensive list of international treaties addressing civil responsibilities in the operation of activities entailing risk of damage in different sectors. One must be aware that the evaluation tools that are coherent with each liability framing, regardless of how well-established these might be, are never exempt from moral choices, as outlined below.

What is the difference between environmental damage and environmental liability?

Box 1 How to share a poisoned cake?

A group of people is together in a room, for example discussing environmental damage and human health problems. The group leader has a chocolate cake, because it is his (or her) birthday; and proposes to share the cake with everybody. Just at the moment of sharing out the cake, a telegram arises which gives some strange and bad news. The cake, according to the message, is poisoned, and what is worse, the message insists that nobody can leave the room until the cake is eaten. The doors and windows are immediately tested and, indeed, are found to be hopelessly locked!

The group thus constituted is faced with the obligation of establishing conventions for the 'distribution of sacrifice' within the group. Confronting the obligation imposed, of eating the poisoned cake, we have a 'substantive' and a 'procedural' problem. What decision rule or decision process will be put in place to resolve what – paraphrasing J.S. Mill – must be considered as the unfortunate inheritance of the entire group? How will the group resolve the problem? Some key points that typically arise in the presentation of this 'problem' as a collective exercise are as follows:

Ex ante, there is uncertainty about who will (or will not) die. There may be factual uncertainty (e.g. is the poison in the cake diffused or concentrated? How lethal is it? How susceptible are the various individuals, relative to the conceivable dose?). But the cake must be eaten and so, the 'risks' must be run.

There is significance and weight attached to dying (or not). And, both are possibly different for each person in the group and — as the group dynamics rapidly confirm — these social dimensions are largely relational (notions of status, shame, honour, respect, etc.). What we can expect therefore is that, ex post, out of it all, we will see the emergence of conventions for 'managing' the distribution of sacrifice. Table 1 offers a typology of 'solution strategies' that have been spontaneously suggested in real group discussions.

Description of the procedure	Characterisation of agency
Panic/Force majeure	Might is right
All eat a piece of cake	Quantitative equity
Designate a 'natural' victim	Fault or flaw (e.g. Racism)
Majority Vote	Democracy
Voluntary Self-sacrifice	Altruism / Heroism
Lotto	Fate, luck chance
Wait and see...	Until when? (phase change)

Table 1
"Solution" strategies
for the distribution of sacrifice

Source: Martin O'Connor, pers. comm.

Note that the approach to moral rightness in each solution relies on radically different understandings of justice in procedural terms. As far as these are conceivable 'procedures', there is an infinite regress: what procedure should be adopted for deciding what procedure for deciding ... what procedure to adopt for deciding ... There is no obvious concept of 'optimisation' to apply and so, it is implausible to argue that, in general, these outcomes in terms of cake eating behaviour or social relations amongst the survivors (if there are any) are determined in advance.

Clearly, there is always option to break the doors, to pursue the poisoner, or to destroy the cake. Here the example is only used to illustrate how procedural solutions are always related to moral choices. However, the discussion about the moral dimensions of liability should not deflect attention from the political dimension, but should strengthen it.

This is important, because evaluation tools are designed and regularly employed in policy-making in order to provide 'objective' assessments of situations where there is conflict between different options for using environmental resources. For example, CBAs are used to identify which alternative – from a number of available options (e.g. oil exploitation, ecotourism and intensive farming) provides with the best returns; CBAs assess this in terms of money and so decide which use of resources (by the different available options) – is optimal. Similarly, MCAs are usually employed to assess alternatives or options (sometimes called 'scenarios') against a set of chosen criteria and identify the best option and hence use of resources.

Nevertheless, moral complexity and the inevitability of choice also imply that tools are imbued with analytic choices made in the early stages of their design and development. However, this is not necessarily undesirable. Tools can be used to show how different assumptions, analytical decisions and inputs may generate different results. These results furthermore illustrate how the different interests (supported by different interest groups) that correspond to those different



assumptions, decisions and inputs change what ends up being judged as optimal or as ‘the best’ solution. This is important because it can allow for a dismantling of the interests behind different evaluations of what is to be prized, preserved or consumed as regards the environment. In this way, tools provide input to a process of political decision-making, to a process of negotiation, rather than serving to close down discussions by pointing out to ‘the best solution’. This aim coincides with EJO purposes and interests, i.e. the use of evaluation tools as instruments to better conduct their environmental justice struggles.

Finally, 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 during its operational phase. This interpretation is related to the idea that, while generating a physical transformation through its operation, a company is creating a debt that at some point has to be compensated. An example of valuation of liabilities from coal mining, presented below (**Section 2.2**), elaborates on this aspect, unveiling that the liabilities of a commodity during its life cycle can be identified and classified into two broad categories: compensable and uncompensable.

Strictly speaking these ‘uncompensable liabilities’ are closer to the idea of damages than to the one of liabilities. However, their identification in the context of allocating moral responsibility is also important. In this respect, conceptualising damage as ecological debt and ecocide (i.e. a crime formally established in law) and pursuing a cessation of, and responsibility for liability of damages through social mobilisation is another way to try to prevent damage (Martinez-Alier et al., 2014).

In Spanish there is also a distinction between ‘*indemnización*’ (indemnity or sum paid for compensating a particular loss suffered) and ‘*compensación*’ (involving different types of claims, beyond economic ones). Additionally, new potentially useful categories arise from the experience of environmental justice groups. For instance, the recognition of the Rights of Nature (as in the case of the Ecuadorian constitution) has brought the new term ‘integral restoration’ of Nature, the interpretation of which may differ considerably depending on the perspective of the actors involved. This point is not trivial bearing in mind the multicultural character of some countries, and remains a methodological challenge for development of the assessment of liabilities.

2.2 Cost-benefit analysis for EJOs

Deciding on policy alternatives, such as whether to introduce a particular government policy (e.g., a new energy tax) or a particular investment project (e.g., building a new motorway or hydroelectric power plant), is no easy task. Governments and other decision-makers make extensive use of CBAs in this context, claiming that reaching a decision should be based on a simple and straightforward rule: implement the project if total benefits are greater than total

Moral complexity and the inevitability of choice imply that tools are also imbued with choices that materialise in analytical decisions

costs. The main underlying goal here is to select the option that maximises total societal welfare and ensures efficient resource use.

It is clear that while a particular project may increase social welfare, the distribution of its costs and benefits may be distorted, as there may be winners and losers over the course of project implementation. In dealing with this problem, CBA employs the potential Pareto improvement criterion, the *Kaldor-Hicks compensation principle* (O'Neill, 1993). Accordingly, a policy change/project is 'Pareto efficient' if gains are greater than losses, where winners are potentially able to compensate losers for the losses caused by project implementation, a principle which opens possible avenues for claiming liabilities.

An eight-step guideline to CBAs is introduced below, and certain key challenges that arise in its application to environmental issues are discussed. Next, the way in which CBAs cope with the issue of liabilities is explained, and matters relating to equity and distribution are assessed. Comments on the implications of using CBAs for EJOs in their fight for environmental justice conclude the section.

2.2.1 Conducting a CBA step-by-step

A state-of-the art CBA consists of the essential stages described below, in the eight-step guideline inspired by Hanley (2000) (see **Figure 2**). The order and number of steps may change depending on institutional and social contexts.

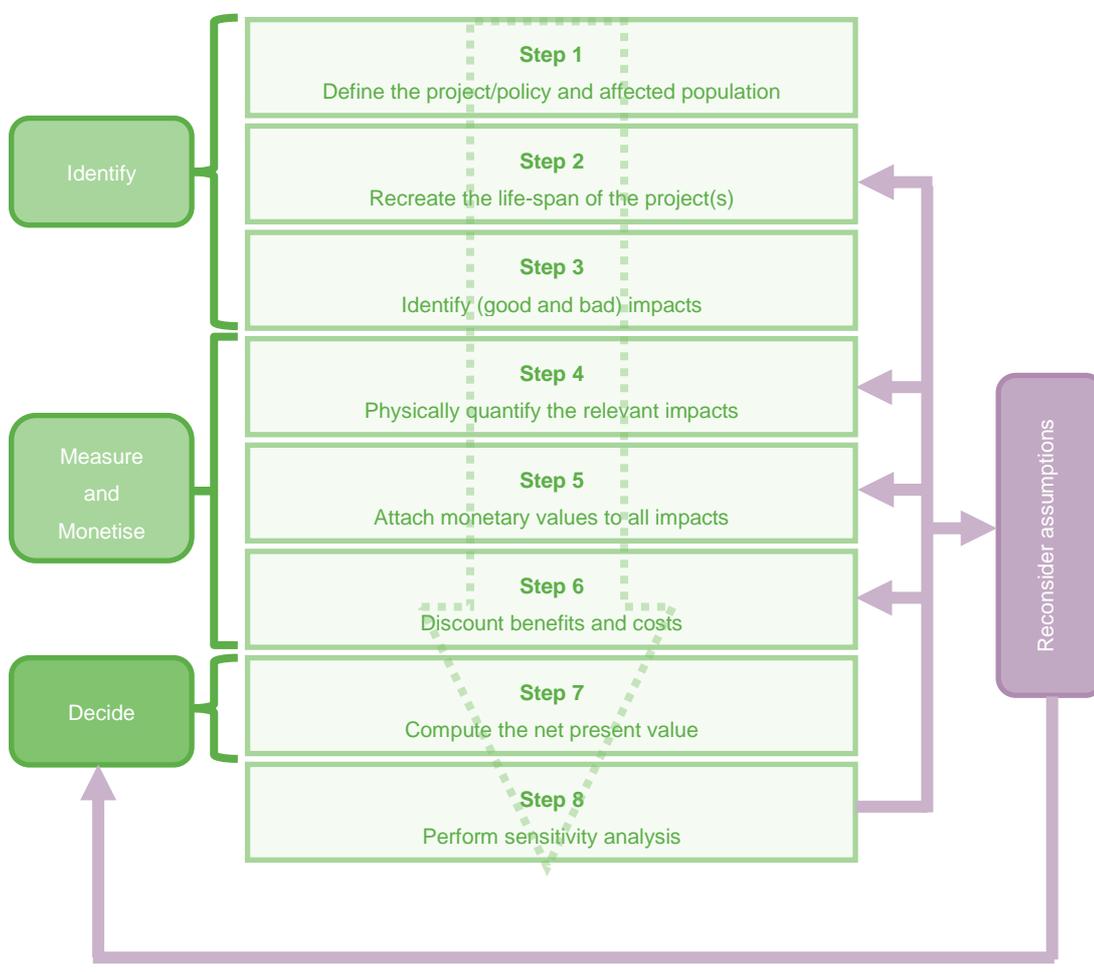


Figure 1
Conducting a CBA step-by-step

Source: own elaboration



Step 1 – Define the project/policy and relevant population: This first step involves (i) identifying the policy alternatives that will be analysed (What?) and (ii) defining the relevant population (Who?) of gainers and losers. In defining the project, the so-called *counter-factual project*⁵ that will serve as a basis of comparison should be defined well, and care should be taken to include all legitimate projects. Determining the relevant population depends on the answer given to the question “whose welfare will be affected by the change in policy?” (e.g., a nation vs. International community). A project may have positive or negative effects on participants/users and non-participants/non-users. Identifying the affected parties correctly is essential for cost-benefit calculations.

Step 2 – Recreate the life-span of the project(s): The second stage requires determining when the impacts will occur. Policy changes may have short, medium and long term costs and benefits, so defining the life-span of the project(s) correctly is important for the validity of the analysis.

Step 3 – Identify (good and bad) impacts: Another important stage involves identifying which impacts affect the population and how (positively or negatively). Since projects usually create winners and losers, it is crucial to identify all impacts to see who are the winners and losers. An important point here is that the impacts of a project/policy change are included in the analysis, as long as they create some (positive or negative) welfare change for the affected population. If a population is not affected by a particular impact, it is excluded from the calculations (Hanley, 2000).

Step 4 – Physically quantify the relevant impacts: This step involves determining and measuring impacts in physical quantities (e.g. number of trees to be cut, amount of CO₂ to be emitted in tonnes, etc.). What is difficult about this stage—particularly in terms of environmental issues—is determining and measuring all impacts, since some are not immediately observed and require a prediction of future events (forecasting). Also, some impacts are unknown (ignorance), or they are known but their probability of occurrence is not (uncertainty). In some cases, it may be possible to assign probabilities to such uncertain events and come up with the ‘expected value’ of that impact.

Step 5 – Attach monetary values to all impacts (costs and benefits): Once the list of impacts is clear, the next step involves monetising them. As expected, while some impacts are easy to measure in monetary terms because they have a market price (e.g. cost of construction, price of electricity, etc.), this is not the case for some others that do not have a market price (e.g. environmental impacts such as biodiversity loss). Nevertheless, there are a number of techniques available to estimate the monetary value of such impacts, including but not limited to contingent valuation, choice experiments, the travel cost method and so on.

Step 6 – Discount benefits and costs to obtain present values: Given that a future impact does not have the same value as an immediate one because of interest rates, impatience, and risk (Hanley, 2000), it is important to convert all

⁵ A project that would be displaced if a potential investment is realised.

In each of the steps of the CBA, the analyst will naturally be confronted with challenges, very particularly those related with monetisation and discounting

future costs and benefits to their present values. Present value may be calculated with the following formula: $\text{Present Value} = \text{Future Value} \times (1/(1+d)^t)$, where d represents a social discount rate (to be determined) and t is the period (number of years) over which the impact occurs.

Step 7 – Compute the net present value (NPV) of the project(s): The NPVs of alternatives are calculated by extracting the present value of costs from the present value of benefits. In single-alternative cases (against the status-quo), the project is chosen if the net present value is positive. For multiple-alternative cases, the alternative with highest net present value is chosen.

Step 8 – Perform sensitivity analysis: To understand how results change if key assumptions are varied, it is necessary to re-run the analysis with different discount rates, future estimations/forecasts, accident probabilities, scales, and other important parameters specific to the project. It may be necessary to return to a previous step and reconsider the relevant calculations and assumptions depending on the magnitude of the changes. One reason for the sensitivity analysis is to determine which assumptions/parameters the NPV is most sensitive to (Hanley, 2000).

In each of the steps described above, the analyst will naturally be confronted with considerable challenges. For instance, ensuring the inclusion of all legitimate policy alternatives and accounting for all the affected parties is not an easy task—a problem presumably common to all evaluation tools. Or, defining and measuring impacts in CBA is thought to require extensive expert knowledge—and hence is generally seen as a technical issue rather a value-laden one. Monetisation and discounting are the other major challenges, and are discussed in detail in the following section.

2.2.2 Welfare implications of CBA—compensation and liability

CBA is strongly tied to economics notions of social welfare, as it is concerned with increasing total welfare and creating potential Pareto improvements. The Kaldor-Hicks test checks whether “the gainers compensate the losers and still be better off” (Vatn, 2005: 109). In practice, this criterion implies a comparison between the sum of individual benefits across all who gain, and the sum of individual losses across all who lose (Hanley, 2000) (see **Figure 3**). Overall, it is assumed that gains and losses are equally valuable at the margin, meaning that additional satisfaction/dissatisfaction from any additional gain/loss is taken as the same for all individuals (Farrow, 1998; Hanley, 2000).

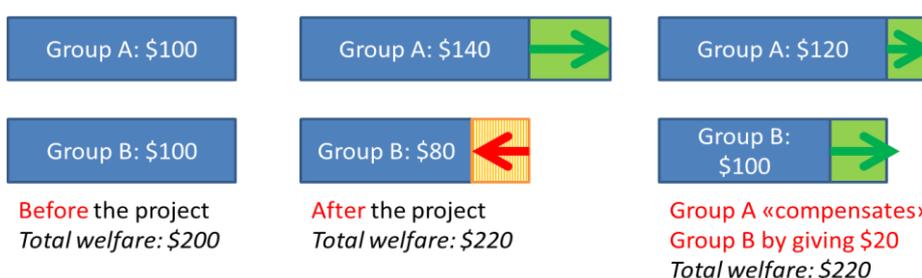


Figure 2

An example of a Pareto efficient project where there is a total welfare increase and winners are able to compensate the losers in monetary terms by giving them USD 20.

Source: Own elaboration



CBA also assume that all benefits and costs can be expressed in terms of one measurement scale—money—and hence are comparable and compensable. Here, differing impacts are assigned monetary values, and multiplicity and incommensurability are generally omitted (O'Neill, 1993; Munda, 2004; Aldred, 2006). Monetisation is mainly based on the aggregation of individual preferences—more specifically, of individuals' willingness to pay (WTP)—and assumes that individuals are the ultimate judges who have well-informed preferences for the goods involved, i.e. assumption of the rational individual (Niemeyer and Spash, 2001)⁶.

Obviously, WTP depends not only on preferences, but also on the ability to pay. Therefore, allocations depend on the distribution of income, and it might be that the poor are compensated with less. Consequently, it is necessary to examine how different income groups in society are affected and how different weighting schemes affect cost-benefit calculations (Vatn, 2005).

Another important issue concerning equity and liability arises at the discounting step, since the equity problem is not only intra-generational but also inter-generational. While calculating the total present value of a project, future costs and benefits are discounted to the present by a social discount rate. Depending on the chosen discount rate, the present value of long term costs and benefits (and consequently the amount of monetary compensation) becomes negligible over very long periods of time, as shown in **Table 2**. As a result, CBAs fail to properly take liabilities to future generations into account, which implies a significant threat. In this regard, “[s]ocial discounting appears...to provide a rationale for displacing environmental damage into the future” (O'Neill, 1993: 48).

Discount Rate example: The present value of USD 100 in corresponding years Source: Own elaboration	Discount rate (%)	Time horizon in years			
		25	50	100	200
	2	60.95	37.15	13.80	1.91
	4	37.51	14.07	1.98	0.04
	6	23.30	5.43	0.29	0.0009
	8	14.60	2.13	0.05	0.00002

All in all, conducting a CBA can be useful in terms of checking economic efficiency/inefficiency, but strong conclusions cannot be drawn about the net impact on equity, distribution and liabilities. This is due to the fact that the foundations of CBA are somewhat shaky in terms of interpersonal welfare impacts and interpreting inter-generational equity (Hanley, 2000).

⁶ Moreover, the efficacy of the methods meant to elicit values and calculate monetary costs and benefits may also be debated on both theoretical and practical grounds (see for instance Knetsch, 1994; Spash, 2000a, 2000b; Vatn, 2004).

2.2.3 Key issues of CBA for environmental justice and implications for EJOs

While CBA seems in theory to provide a simple and straightforward decision rule, the reductionism inherent in the nature of this simplicity is an important disadvantage. This is particularly the case when dealing with environmental conflicts. In general, CBA reduces complex and multifaceted problems to only their economic dimension, which often disregards or misrepresents environmental and social issues (Munda, 2004).

As Getzner et al. (2005) suggest, these issues may be grouped under two headings, summarised in **Table 3**: i) those concerned with the theoretical foundations of the valuation and evaluation, and ii) those concerned with the validity of the produced numbers and the employed tools.

Issues on theoretical foundations	Issues on the validity of calculations	
	Practical obstacles	Political Obstacles
- Rationality assumptions	- Framing	- Manipulation
- Incommensurability	- Institutional setting	- Representation
- Incomparability	- Societal aggregation	- Participation
	- Uncertainty	- Corruption
	- Ignorance	

Table 3

CBA-related Issues

Source: Own elaboration

Considering that EJOs are mostly involved in ecological conflicts that are quite complex and multifaceted, CBAs may or may not be beneficial in environmental justice struggles, depending on context. Some key issues to consider may be summarised as follows:

- *The valuation of non-market goods is problematic*: CBA assumes that the environment is essentially no different from any other good or service that provides utility. Hence, a trade-off between nature and other (produced) goods is possible. This possibility may create problems in terms of sustainability – given for example that some ecological functions cannot be substituted without serious ecological disruption.
- *CBA results are sensitive to assumptions*: Potentially, every assumption made in CBA (choice of discount rate, choice of stakeholders, calculation of probabilities and so on) can have a major impact on the end result. Furthermore, in cases of uncertainty, the method is problematic (Vatn, 2005).
- *Those who conduct CBAs may have their own agenda*: Another important concern (as raised by Spash, 2002) is the potential for the institutional capture of information. Although CBA is deemed to be impartial and objective, the party that runs the analysis is not free of value judgements. As Hanley (2000) notes, agencies can maximise the likelihood that a given project will commence by bending the rules of CBA procedures. EJOs may turn the institutional capture problem to their advantage by



running alternative CBAs to show that CBAs conducted by the government or companies are flawed, and that the project in question is not viable. The important issue here is public trust, so the analysis should be commissioned by independent and trustworthy institutions. Such cases are useful in showing to the public that CBA is not “informing a decision, but is rather a justification for a decision already made” (Spash and Carter, 2001: 11).

- *CBAs have little to say on participation and procedural justice:* As stated above, CBAs rely heavily on expert knowledge. Hence, affected parties (especially those less powerful) may find it difficult to voice their concerns. This in turn creates problems for transparency, participation, and representation.
- *Valuation language and compensation mechanism:* CBAs consider only one value sphere—that of economics—and reduce the problem to economic efficiency, assuming that impacts are comparable and compensable. Therefore, the analysis permits trade-offs between ‘natural’ and ‘man-made’ capital, which may mean that consistently applying CBAs to make decisions can actually lead to a decline in the natural capital stock (Hanley, 2000). Furthermore, the Kaldor-Hicks criterion only mentions a potential for compensation rather than actual compensation (Farrow, 1998), and says nothing about how it should be operationalised except that it is a *monetary* compensation.

CBAs consider only one value sphere—that of economics—and reduce the problem to economic efficiency, assuming that impacts are comparable and compensable

2.3 Economic valuation of liabilities

Economic Valuation (EV) entails deriving monetary estimates of the value of natural resources. This approach includes both the estimation of monetary values of goods and services provided by environmental resources and the quantification in economic terms of environmental impacts. In practice, the degradation or loss of environmental resources leads to disappearance of multiple values that sometimes are difficult to measure and translate into economic terms.

Values are expressed in different language and scales (Martinez-Alier, Munda and O'Neill, 1998) due to the diversity of actors involved that have different perspectives and different dependency on the use of natural resources. In general, EV methods involve observing or directly enquiring the monetary value of natural resources or environmental change in a real or hypothetical market. However, EV is a dynamic field of study that is constantly being re-evaluated and develops new techniques that try to integrate monetary and non-monetary values.

This section uses a specific example to better illustrate the way in which EV can be employed to calculate liabilities and mediate environmental conflict. The case study overviews the quantifiable (monetary and non-monetary) and qualitative environmental liabilities of coal mining in Cesar, Colombia. In this case, EV approach help to assess the distribution of environmental costs from the extraction of coal.



Identifying and evaluating liabilities through economic valuation gives an overall idea of order of magnitude of liabilities

Generally speaking the direct beneficiaries of resource overexploitation are not usually the same who bear the social and environmental cost of such exploitation (de Groot, et al., 2007). This also entails that environmental liabilities rarely appear in the balance sheet of extractive companies. Although environmental liabilities are an ecological debt, the companies involved do not amortise (pay off) this type of debt (Martinez-Alier, 2008). For this reason, the process of identifying, and estimating the economic value to socio-environmental liabilities, based on a collective reflection (e.g. at a local and regional level) involves moral, legal and economic responsibility over environmental damage. It also gives elements to claim environmental justice and ecological debt payment, and can potentially be used in court reclamations.

Regardless of the context, it is sometimes useful to claim environmental liabilities, as in this way liabilities can become more expensive, hence more difficult to produce the anew. This could then encourage precautionary measures to reduce environmental impact in the future. Additionally, monetary compensation through legal proceedings has a symbolic value that can reaffirm the right of people over their territory (Martínez-Alier and Roca, 2013). However, EJOs may consider that sometimes this strategy may be counterproductive, for instance, when the acceptance of compensation ex-post damage is oppositely undermining *de facto* people's rights to their own territory (Ivonne Yanez, com. pers.) and therefore should be employed with caution.

The concept of environmental liability in the case of mining in Latin America has been incorporated into the public sector as the management of abandoned or orphaned mines. In some cases it is not possible to determine responsibility for such mines and it is up to the State to identify and provide proper management. However, this concept is under debate. For example, the firm Econometría Consultores (2010) in a mining environmental liabilities study for the Colombian Ministry of Mine and Energy considered two types of mining environmental liabilities:

1. Environmental liabilities from uncompensated damage of inactive or abandoned mines
2. Environmental liabilities from damage caused by current mining activities

Therefore, it is necessary to consider not only the effects associated with inactive or abandoned mines, but also other types of environmental liabilities in active mines. In addition, the concept of environmental liabilities (*'pasivos ambientales'* in Spanish as previously mentioned) is not linked to the issue of responsibility in legal terms. In the case of environmental liabilities of mining, the main culprit is the one who develops the mining activity, but there may be others, equally responsible, such as environmental and governmental authorities at national and local levels, who with their action or omission have allowed the generation of environmental liabilities.

Then, the key for the valuation of mining liabilities is not the EV methodology itself. To monetarily value the liabilities it is necessary to identify, evaluate and measure them. Although not all liabilities can be measured and valued, they can be



evaluated through qualitative indicators. In the following section, we explain the methodology used to identify and value socio-environmental liabilities generated by the coal mining in Cesar, Colombia at different scales based on the coal life cycle (extraction, transport and combustion).

Coal is a basic commodity literally fuelling the world economy. Coal mining in Colombia has increased by 56% in the last decade with a production of 89 million tonnes in 2012. The expansion of large-scale mining has been promoted by neoliberal policies of recent governments that consider mining as a development locomotive. Coal production in the department of Cesar (Colombia) has increased by 72%. This is generating considerable environmental and social impacts that generate environmental liabilities not quantified either by multinational mining companies or by the State.

2.3.1 Monetary valuation of the environmental liabilities of mining

According to Kallis et al. (2013) the purpose of evaluation should include the following criteria: environmental improvement, distributive measures (one of the dimensions of environmental justice), recognition of the plurality of values, and access to different resources. In the case of the evaluation of environmental liabilities in the Cesar coal mine, EV implies estimating community welfare losses and the damage to human health and ecosystems. The methodology used consists of three sequential phases (**Figure 3**):



In the first phase, we analysed social movements, environmental mining conflicts and environmental liabilities through semi-structured interviews (June 2013) with different actors and stakeholders, including: sick miners and union leaders from the multinational company Drummond and Colombia Natural Resources (CNR); community leaders; NGOs; the Secretary of Agriculture in Cesar; and, experts on coal mining in Cesar.

Table 4 shows the socio-environmental liabilities identified according to the carbon life cycle and the level of impact (local, national and global). In the second phase, we classified environmental liabilities that are quantifiable and monetisable, those that are quantifiable but difficult to value economically, and those that are qualitative. Then, we estimated economic values (of those possible to monetise) through market prices, treatment and mitigation costs, according to the specific conditions of mining in Cesar. Moreover, since there is some uncertainty in environmental damages accumulated over time and their effects, the estimates are presented within minimum and maximum ranges.



The EV study shows that every tonne of coal extracted in Cesar and transported in Colombia carries socio-environmental liabilities of a value that ranges between USD 106.39 – 161.63. Since all the coal mined in Cesar is exported, the value of global socio-environmental liabilities by combustion of a tonne of coal must be added, giving a total of USD 483.38 – 2,062.36 in liabilities. These liabilities are higher than the market price of a tonne of coal, which in 2012 was between USD 95.56 – 174.25.

Scale	Environmental and social liabilities		Indicators (Qualitative and quantitative)	US\$/tonne 2012		Economic Valuation Method used in the literature	Limitations of the economic valuation
				Min.	Max.		
Local	<i>Pollution</i>						
	Air	Coal dust, Particulate Matter MP10 and MP2.5	PM10 percentage exceedance ca. 60.5% in Plan Bonito and 73.3% in vía la Jagua	0.23	7.31	Hedonic prices and contingent valuation method (CEDE, 2010). Treatment cost (Li et al, 2011)	Overestimated
	Soil	Mining waste	Ratio coal/mining waste = 1/10	39.76	59.65	Treatment cost	Underestimated
	Water	Loss of water quality	Risk of water quality index > 35%	0.38	0.5	Treatment cost	Underestimated
	<i>Territory loss by open pit mining</i>						
		Water resources committed: diversions of rivers and groundwater affected	Possible ground water abatement 10-14m				Lack of data
		Loss of agricultural land and livestock	Do not identify changes in agricultural sector added value	1.82	6.50		Unidentified
		Relocation: El Hatillo, Plan Bonito y Boquerón	912 families should be relocated.	0.65	1.15	Compensation agreement in Plan Bonito	Underestimated
		<i>Ecosystem services loss - Protected Areas</i>	10% of protected areas have mining titles and 11% in mining request				It must be an Integral Valuation
		<i>Public health loss</i>	60% of doctor visits are respiratory illnesses	36.51	44.4	Dose-response method (Morales et al. 2012)	Underestimated
National	Loss by coal transportation and shipment		The distance travelled by the coal train is 240 km. It passes through 10 villages. It operates 24 hours a day	2.44	2.44	Hedonic prices, travel cost and contingent valuation (Coronado and Jaime, 2010)	Underestimated
	Lives lost in coal transportation accidents		2008-2011 has been 25 deaths and 300 injured	0.2	1.36	Value of statistic of life-VSL (Epstein et al. 2011)	Underestimated
	Coal reserve loss (non-renewable resource)		about 1.800 Mton of coal reserve	24.4	38.34	'User cost' method (Serafy, 1989)	Depends on the reserves and interest rate
	Subtotal Colombia			106.39	161.63		
Global	Losses by the effects of coal combustion			376.99	1,900.73	(Epstein. et al. 2011)	Underestimated
	Total			483.38	2,062.36		

Table 4 Economic valuation of coal mining socio-environmental liabilities in Cesar, Colombia

Source: Own elaboration

The identification and evaluation of liabilities through quantitative and qualitative approaches gives an overall idea of the scale of liabilities in different languages of valuation. However, in some cases the methodology for appraising environmental



liabilities may require monetary estimates of the value of nature and human life. This is quite debatable because of the risk of commodification of nature and life itself. Also, among other challenges, the difficulty in quantifying environmental liabilities lies on the uncertainty of long-term pollution consequences, incommensurability between environmental values and different valuation languages due to the multiplicity of actors in play and different social and ecological values involved. Besides this, the valuation of environmental liabilities may vary depending on the scale and environmental damage assessed.

Despite those difficulties, environmental liabilities involve moral, legal and economic responsibility over ecological damage. Therefore, the process of identifying, evaluating and attaching an economic value upon socio-environmental liabilities can generate useful information about damages expected to be compensated, particularly in court processes. It can also serve as an example for other communities beyond those directly affected of ways in which they can object future damaging projects.

2.3.2 Compensation beyond money: the example of Plan Bonito collective economic valuation

In 2010 an Environment Ministry resolution regulated the relocation of three village in the coal mining zone in Cesar, due to the high levels of air pollution that exceed the limits allowed. This resolution regulates corporate responsibility of the mining companies Drummond, Glencore-Prodeco, and CNR for the relocation of three villages (Hatillo, Plan Bonito and Boqueron) of about 900 families.

The relocation of Plan Bonito is a special case because the community decided to obtain a direct compensation to leave the place instead of being relocated. For one year, community leaders and the mining companies discussed what aspects to compensate and which ones to compensate with direct monetary compensation or not (**Table 5**). This can be seen as an interesting example of a collective EV for determining the compensation of environmental liabilities.

Nevertheless, the discussions did not include damage to ecosystems, poor water quality and groundwater affected. In this case, it is important to consider that the compensation in money is just an intervention at the end of the problem, which does not resolve the distribution of benefits and damage between the community and the polluters. In addition, compensation may reinforce inequalities between communities and generate new forms of conflict and corruption⁷, as well as de facto preclude the option to pursue environmental justice through terminating the polluting activity.

The process to attach an economic value upon socio-environmental liabilities generates useful information about compensable damages, particularly in court processes. This may also help communities beyond those directly impacted, preventing future damaging projects

⁷ Norwich declaration on environmental Justice "Money can't buy Justice", <http://www.uea.ac.uk/documents/439774/0/Norwich+Declaration/ea31d880-ca9d-4176-9289-35e017a58350>



Aspects to compensate	Compensation	
House Replacement	depends on the number of family members	
Home furniture	Living room, TV, bed	
Terrain	Average 105 m2 housing with kitchen and patios + 180m2 of productive gardens	
Crops	The productive life of a fruit tree and crop value.	
Profits loss- commercial establishments	compensation for loss of earnings for 6 years	
Profits loss - peasants	minimum wage compensation for 6 years	
Emerging damage	the cost of moving and the rising cost of living	
Dismantling the housing	Companies compensate to remove reusable material	
Bonus for damages	depends on the number of years lived in the town	
Livelihood restoration program	Psychological support during and after the relocation. Assessment on Banking. Fund for the education of young people. Fund for the creation of microenterprises. Grant to elderly people	
Health	Medical tests to determine the current health status of the population. All residents will be affiliated to an EPS (private health care)	

Table 5 Direct negotiation in Plan Bonito

Note: Two meetings each month during one year with mining companies, community leaders and lawyers

While this exercise sheds light on the potential of valuation tools to evaluate and manage liabilities, it also points out their limitations. Complete reparation of damages, over all when they involve severe impacts in the health, may go far beyond the topics indicated here. For an example of interventions aiming at integral reparation, Maldonado (2013) compiles experiences based on community work done by the Environmental Clinic (www.clinicambiental.org) in several Amazonian communities in Ecuador.

2.4 Multi-criteria analysis and environmental justice

MCA methods⁸ help organise information about complex issues in cases where different objectives are involved, and several groups with a range of interests use a diversity of valuation languages to express their views about plausible courses of action. Generally speaking, the multi-criteria approach allows a comparison of alternative courses of action and, in this respect, can be regarded as a decision-support tool. However, its importance in accompanying deliberation rather than merely pointing out desirable outcomes of the social choice problem has been increasingly emphasized.

On this note, it is important to underline that MCA involves a large number of methods that are significantly different, both technically and regarding their basic propositions on the sustainability concept and stakeholders' involvement. EJOLT report 8 (Gerber et al., 2012) expands on this idea, distinguishing broad categories of MCA frameworks, from the more technical multi-criteria decision

⁸ Alternative terms in the literature include Multi-Criteria Evaluation (MCE) and Multi-Criteria Assessment. Notwithstanding differences amongst them, we here use the more generic term Multi-Criteria Analysis (MCA) that probably best describes the overall approach.



making methods to more participatory deliberative approaches. The report also reviews the desirable properties for MCA methods that can be most relevant for EJOs and describes three of these methods, paying special attention to benefits and practical constraints of each one.

Generally speaking, a typical [discrete] multi-criteria problem starts from a similar social choice problem as the one stated above in the description of CBA. In the case of MCA, the problem is represented through an ‘impact matrix’, involving the following aspects:

1. A set of alternatives or courses of action in relation to the problem at hand: For instance, in Santa Quitéria (Ceará, Brazil), an area currently under the pressure of a uranium-mining project, some plausible scenarios of development configure the alternatives presented in **Table 6**.
2. Different evaluation criteria for the assessment of such alternatives: Such criteria could be derived from a number of relevant dimensions to be considered (e.g., economic, social, environmental). These in turn can be represented through several indicators that express a criteria score (e.g. profitability, indicators of employment, types of environmental impacts). Arguably, the criteria score should be either maximised (+) or minimised (-) in the most desirable alternative. Again in the case of Santa Quitéria, concrete examples of possible criteria, criteria scores and likely related objectives are presented in **Table 6**.

Criterion	Indicator (criteria score)	Obj	Alternatives			
			A Business as usual	B Boost for local	C Mining	C1 Mining + shock
			Base scenario, Small-scale farming, extraction of construction materials	Small-scale farming, boost tourism potential in the protected areas of the region	Uranium + marble extraction, small-scale farming	Uranium Mining plan implemented, accident generates effects at the river basin level
Healthy local food provision	Aggregate production (t)	+	(...)	(...)	(...)	(...)
	Self supply (%)	+				
	Income agriculture (BRL)	+?				
Local employment	Employed workers (N.)	+				
	Unemployment (%)	-				
	Female employment (%)	+?				
Energy	Contribution to primary energy supply (MWh)	+	(...)	(...)	(...)	(...)
	EROI (ratio)	+				
Added value to GDP	Production (BRL)	+?				
	Exports (BRL)	+?				
Environmen. quality	Water quality (FQ state)	+	(...)	(...)	(...)	(...)
	Radioactive contamination (in soil, water, vegetables, milk) (e.g. Bq/m2)	-				
Risk perception	Qualitative	-				

Table 6

Example of an impact matrix for the multi-criteria problem “Which development profile for Santa Quitéria?”

Source: Own elaboration, building on pers. com. with Dr. Marcelo Firpo Porto

3. Once the values for the indicators are available, there is usually no alternative that reaches all of the desired objectives at once, which makes it necessary to use an algorithm – a step-by-step sequence of operations – to identify which of the alternatives is the best ‘compromise solution’. Depending on the algorithm employed, the outcome of the multi-criteria evaluation may be a quantitative rating of each alternative, a ranking of alternatives or a joint deliberation about the determinants and implications of a given choice. The identification of the compromise solution is done based on these outcomes.

MCA can be undertaken as a technical exercise operated by a single analyst or a group of analysts, but the evolution of this approach has demonstrated the benefits of opening the process to the participation of relevant stakeholders. A concrete example, in this respect, is presented in **Box 2**.

Stakeholder engagement is particularly crucial in case of projects with likely effects in communities whose ways of life suddenly become ‘an alternative’. Therefore, in order to use MCA in a way that truly supports communities seeking environmental justice, a first step even before the evaluation starts is to answer the question of whether this exercise is worthwhile for them or not.

A well-known approach of MCA – the so-called Social Multi-Criteria Evaluation (SMCA)(Munda, 2008) – pays particular attention to stakeholder involvement. Thus each of the steps in an evaluation exercise is accompanied and nourished by the participation of the main actors in the dispute (**Figure 4**).

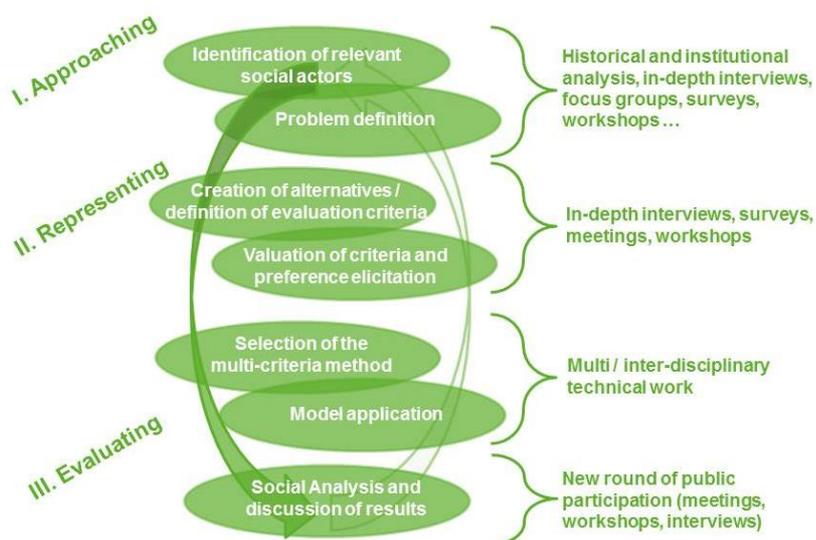


Figure 4
Framework of a Social Multi-Criteria Evaluation

Source: Garmendia et al., 2010

An interesting application of some MCA approaches and software is the possibility of analysing the alternatives not only from the point of view of criteria, but also taking into account stakeholders' positions in relation to the alternatives. **Figure 6** shows an example of the Santa Quitéria case using SMCE's associated software NIADE (Munda, 2008).

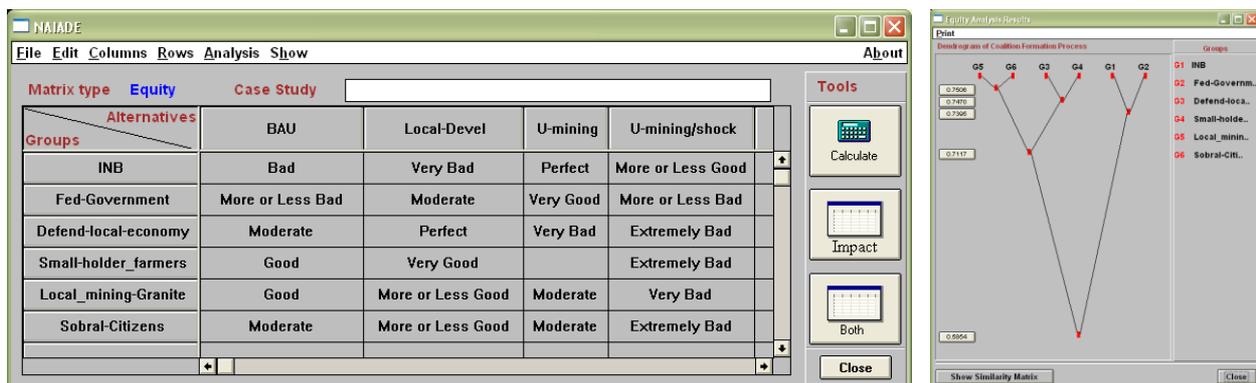


Figure 5 Equity matrix for the multi-criteria problem "Which development profile for Santa Quiteria? and result of the assessment using NAIAD

Source: Own elaboration

For this example, note that the positions of the groups in relation to the alternatives are presumed and they have not been validated through a participatory process. Based on a matrix representing stakeholders' positions (called equity matrix), the analysis of the distance between the different positions stated allows for an analysis of the distance between the different groups, and thus the likelihood of possible coalitions between actors. This is revealed with a dendrogram of coalitions, also shown in **Figure 5**.

This type of analysis, while helpful for organising information, should be employed with caution so as not to hinder political decisions on the problem. Such is the risk of using simplifying tools like software.

2.4.1 MCA and the consideration of liabilities

MCA is extremely flexible to the inclusion of all kinds of information (quantitative, qualitative, probabilistic or even fuzzy) about the problem at hand, and it does not require using only one same standard of measurement. For this reason, actual or potential liabilities are easy to include as assessing criteria. Nor is it necessary to estimate monetary indicators associated with liabilities, since damages can be expressed in different types of biophysical or qualitative indicators.

This is a basic **advantage** of the use of MCA for decisions related with environmental justice issues. Other benefits more generally attributed to MCA, but easily linkable to the specific issue of liabilities are listed below:

- MCA offers substantial opportunities for public participation in developing the tool.
- MCA methods provide opportunities to discuss, learn, understand and convince, in addition to those for the simple technical validation of the EJOs points of view.
- These methods unveil the mechanisms of creation of a compromise solution.

Box 2 A social multi-criteria evaluation approach to assess extractive and non-extractive scenarios for Íntag, Ecuador
 Source: Sara Latorre, Mariana Walter and Carlos Larrea

The expansion of the mining extraction frontier in Latin America is fostering a growing number of conflicts. Within these, contrasting views regarding the economic, environmental, social and cultural implications of developing mining activities are deployed by affected communities, governments and mining companies. Hegemonic discourses led by governments stress the contribution of extractive activities to the overall national interest, de-legitimizing critical views and the concerns of local actors. Íntag, located in the north of Ecuador, presents a relevant case of examination. Since the 1990s, local communities and organizations have expelled mining companies on two occasions, that were attempting to explore a copper-molybdenum deposit in the area of Junín (Íntag). Recent news that the Junín mining project will be reactivated in a joint-venture project between the Ecuadorian (ENAMI) and the Chilean (CODELCO) national mining companies are feeding old and new concerns and expectations in the region: What could be the social, economic and environmental implications of developing a large-scale copper mine in Íntag? Will available technologies able to prevent and/or mitigate the environmental impacts of mining activities? What proportion of mining royalties will be invested in Íntag if the mine is developed? How will mining royalties be invested locally? Is mining the only viable option for Íntag? What impact would other economic activities have in comparison to mining?

From 2011 to 2013 a team of researchers from the ICTA-UAB (Sara Latorre, Mariana Walter and Giuseppe Munda) and the Universidad Andina Simón Bolívar of Quito (Carlos Larrea and his team) conducted research to explore the potential of social multi-criteria evaluation (SMCE) approaches to structure, and to assess the multi-dimensional implications of developing extractive and non-extractive local scenarios according to the criteria relevant to local inhabitants.

Figure 1(a) illustrates one of the workshops conducted in Íntag where the researchers discussed with local inhabitants their concerns, needs and expectations. Workshops, interviews and participation in local assemblies (**Figure 1(b)**) were the main inputs used to build the assessment criteria.



Fig. 6
 a) Workshop in Íntag
 b) Regional Assembly in Íntag
 Source: Mariana Walter, 2011

In order to structure, make transparent, and contribute to the opening up of the mining debate, two scenarios of 25 years (2013-2038) were built. These scenarios assessed two key activities in tension in Íntag, and their implications. The deployment of these activities was possible due to the support of different social groups. The first scenario addressed the implications of developing the copper mine and was structured around the question of what would happen if the economic and technical feasibility of exploiting a large-scale copper mineral deposit located in Junín/Llurimagua was confirmed, and exploitation started in the short term. This scenario addressed key expectations and concerns in the mining conflict. Table 1 presents the dimensions, criteria and the assessment approach used.

The results of the research (Larrea et al. 2014) aim to feed ongoing debates regarding the implications of developing extractive activities in socially and environmentally sensitive areas.

Dimension	Criteria	Assessment approach
Socio-economic	Fiscal (& royalty) income to national and local governments and its impact in local development	Fiscal (& royalty) incomes to local and national governments were estimated for 25 years. Moreover, the potential impact of mining activities in the local economy was assessed qualitatively reviewing recent experiences in Latin America.
	Local employment covered by local workforce	The generation of total and local employment opportunities for the main activities of each scenario was quantified.
	Gender balance in direct employment opportunities	The percentage of jobs that could be covered by women and men in mining and tourism activities was assessed.
	Indirect employment and production linkages	The number of indirect jobs of mining and tourism activities in each scenario was assessed quantitatively. The production linkages of mining and tourism activities was qualitatively assessed reviewing case studies conducted in Ecuador and Latin America.
Socio-economic	Socio-cultural impacts	For each scenario the key socio-cultural impacts were reviewed, identified and discussed. Relevant studies and cases of Ecuadorian, Latin American and international experiences were reviewed.
Environmental	Environmental impacts	For each scenario the key environmental impacts were reviewed, identified and discussed. Relevant studies and cases of Ecuadorian, Latin American and international experiences were reviewed.

Table 7
 Dimensions, and assessment criteria in this case
 Source: Larrea et al., 2014



Together with the abovementioned advantages, there are also **drawbacks** that should be taken into account. A major issue is that whenever a liability is involved, the emergence of vetoes is possible – and even likely. This happens when according to some participants in the process, there are uncompensable damages involved that automatically rule out those alternatives that incorporate them.

This is not problematic if there is consensus on the threshold that must not be crossed. However, it is difficult to achieve consensus in the absence of strict institutional arrangements, such as enforced legal dispositions. As a consequence, the outcome of an MCA that admits trade-offs when some of the involved stakeholders consider them unacceptable can be highly controversial. For instance, in the Yasuní case (Gerber et al. 2012), an MCA was carried out that was technically sound, but highly contested by the EJOs involved.

Other cautions to bear in mind when implementing an MCA for a problem where liabilities are involved are:

- Analysts must be aware that the option of ‘no MCA’ might be the best one for supporting on-going struggles.
- The consideration of multiple scales (e.g., impacts of different scenarios) may be challenging in terms of a proper inclusion of relevant perspectives.
- Similarly to CBA, the assessment process can be time-consuming and the ability to update information may be an issue in the context of highly dynamic conflicts. Moreover, the spatial and temporal setting for the implementation of the assessment is crucial. If the evaluation needs to involve actors from different cultural backgrounds the exercise needs to be adjusted to diverse interpretations of time.
- Clear and stable rankings of alternatives are often obtained at the expense of less flexibility and through acceptance of compensability.
- MCA ranks alternatives but cannot find a perfect solution, so compromises need to be found.
- Technically complex analyses face challenges in terms of operating transparently.

2.4.2 Key issues of MCA for environmental justice and implications for EJOs

Does MCA help communities and EJOs fight for environmental justice? MCA may indeed be pertinent in concrete cases where decision makers are interested in being informed by ongoing debate related to the issue at hand. However, MCA or other methods that compare options such as CBA should only be developed after agreement with local communities on ‘what they want.’ After that, these methods can better inform the debate. If there is no willingness to debate and readiness to negotiate, multi-criteria assessments may be irrelevant, just as CBAs may be under the same circumstances.

As regards environmental justice in particular, MCA could be used and, under certain circumstances be beneficial, in cases in which it:

A major issue in the use of MCA methods is that whenever a liability is involved, the emergence of vetoes is possible, and even likely



The use of MCA is valuable in collaborative research environments that are linked to specific environmental justice struggles, as it does not force a given metric and therefore facilitates that all kinds of information can be used

- makes distributional issues explicit by illustrating which stakeholders are disadvantaged with regards to which alternatives. MCA stakeholder matrixes also show the tension between actors' preferences for alternatives;
- recognises and enables the expression of value pluralism by allowing values to be expressed in several units and languages;
- provides space and facilitates for participation in selecting criteria and alternatives.

MCA is also valuable in collaborative research environments that are linked to specific environmental justice struggles. It does not force a given metric and therefore facilitates the use of multiple forms of information in support of unveiling the mechanisms of environmental injustice.

Among those criteria, elements as corruption or political costs, such as the 'cost of protest', can be made visible in assessments, together with the more traditional indicators of profitability rate or number of jobs generated. The idea here is not that the project developer, aware of this source of 'cost', decides to intervene to reduce it or suppress it. If there are reasons to believe that a better understanding of the social implications of a project in terms of social dissent means that the project developer urges the repression of protesters, then the exercise should not take place.

Rather, the point is that assessment becomes sensitive to issues (e.g., corruption and protest) that are hard to take into account in other types of evaluation methods. Then, of course, the question arises of the usefulness of this visibility for the protesters (or for the corrupt officials).

In this respect, MCA is valuable not only as a method for decision-making, but also as support for public deliberation. It can help to understand what happens when protest stresses the political or economic system. Does the system concede, co-opt, or ignore? MCA can be useful to make the cost of protest clear, thus signalling for which alternatives such costs will be high, and to communicate this to the set of involved stakeholders. In this case MCA offers new tools for EJOs to broaden the visibility of their actions also from the point of view of techniques of social choice.

While MCA tools are not aimed at encouraging conflict, their use can result in attenuating conflicts in moments when it might be more appropriate for the EJOs to provoke them or enhance them. For EJOs, finding a solution to a particular environmental injustice may depend on encouraging protest until the nuisance cost becomes higher than other costs.

Generally speaking, there are key questions that should be answered before initiating the technical steps of an MCA. "Why, with whom, in what context, and for what" can we use MCA? How can it be used to align environmental movements? Before starting this process, communities should sit and decide on how to use any particular form of assessment. For this, they need to think about their dreams and visions of the future.



3

Using evaluation tools

The EJOLT experience

In what follows, we present four cases where EJOLT partners have applied or reflected upon the application of evaluation tools for considering environmental liabilities within the context of struggles for environmental justice. EJOLT EJOs have actively participated in two of those studies here reported (Kenya; Slovenia and Bulgaria); one case (Nigeria) involves a reflection on the use of evaluation tools applied in an area where one EJOLT EJO has been long active in pursuing environmental justice; and the fourth case (Turkey), involves reflections from an academic EJOLT partner on the use of evaluation tools by EJOs in two environmental conflicts over liabilities.

3.1 CBA as an advocacy tool: the Tana Integrated Sugar Project

The Tana River is Kenya's largest river and discharges, on average, 4,000 million m³ of freshwater annually. The Tana River catchment has an area of 126,000 km² (equivalent to 21.7% of the land area in Kenya) and a population of over 7 million people (Water Resources Management Authority, 2009). The last 65 km of the river Tana are characterized by a wide flood plain covered by alluvial sediments, ox-bow lakes, swamps and marshes. In addition to the River Tana, there are seasonal rivers in the west of the district draining the district from Kitui and Makueni Counties and eventually discharging to River Tana (Odhengo et al, in press).

The area known as the Tana River Delta is a vast patchwork of palm savannah, seasonally flooded grassland, forest fragments, lakes, marine wetlands and the river itself. This ecosystem supports several communities and enormous numbers of livestock, wildlife and water birds. People have adapted their lifestyle to seasonal extremes. Farmers cultivate on receding lake edges, seasonally fertile floodplains, and where the river spills fresh water into their fields with the tidal

We present four cases where evaluation tools for considering environmental liabilities have been applied within the context of struggles for environmental justice

flow. Other people raise livestock or engage in fishing (Nature Kenya, 2008a). When the wetlands are left undisturbed, they act like sponges, absorbing floods, storing the water and remaining green during the dry season. The thick vegetation absorbs carbon dioxide gas from the air. In times of drought, pastoralists bring livestock from as far as the Somali and Ethiopian borders to graze on the grasslands. In times of flood, the Delta fills with water, and water birds from all over Kenya nest and raise young, replenishing bird populations throughout the country (Nature Kenya, 2008a).



Figure 7: The Tana Delta

Source: Nature Kenya

BirdLife International has designated the Tana River Delta as an Important Bird Area mainly on account of the presence of large assemblages of water birds. In October 2012 the Delta was declared Kenya's newest Ramsar site. A 1992-1993 study recorded 22 different species of water birds frequenting the Tana Delta in significant numbers – 1% or more of the biogeographic population (Bennun and Njoroge, 1999). A brief survey in 2012 indicated that similar numbers are still found in the Delta despite an increasing human population. The vast numbers of migratory and resident waterbirds are particularly dependent on the seasonally flooded grasslands and Borassus Palm savannah that cover some 70,000 ha at the heart of the Delta.

The Tana River catchment plays an important role in the national economy through provision of electricity. There are many hydropower generation plants constructed on the Tana River with the main plants located in the Seven Forks within the middle catchment. These account for nearly 70% of electricity in the national grid (Odhengo et al, in press). There are plans to construct another 5



billion cubic metre multipurpose dam at High Grand Falls as Kenya seeks to increase its hydropower capacity, provide water for irrigation, domestic use and supply the upcoming Lamu Port (Odhengo et al., in press).

The economic use of the Tana Delta by traditional economic systems includes: dry season and drought refuge grazing for enormous herds of cattle from the Tana River, Lamu, Ijaara, Malindi and other districts; major fisheries for the local and export market; and growing of subsistence crops, cash crops and fruit trees. New economic uses include tourism, with lodges, boat rides and a wildlife conservancy all currently under development (Nature Kenya, 2008).

Over the past decade, conflicts have been increasing in the Tana Delta due to a number of factors: increasing population, competition for land and water, delineation of land into private ownership, declining natural resources, encroachment into fragile ecosystems, poverty and changing climatic conditions (Odhengo et al., 2012). Between August 2012 and January 2013 more than 180 people lost their lives in violent clashes between Pokomo farmers and Orma pastoralists.

Demand for large chunks of land for commercial activity started in the 1980s and 1990s. However it was not until 2007 that a real scramble for land hit the Tana River Delta with more than seven national and multinational corporations, national and international governments jostling to exploit the potential riches of the Delta. The corporations seek more than 300,000 ha of land in the Delta and outlying terraces (Odhengo et al., in press).

3.1.1 The evaluation study

The Tana Integrated Sugar Project (TISP) project came to public limelight on Thursday 6th and 13th December 2007 when notices calling for comments to Environmental Impact Assessment (EIA) were placed in national newspapers. In a planned private joint venture, Mumias Sugar Company (MSC) Ltd. and Tana and Athi River Development Authority (TARDA), proposed 20,000 ha of irrigated sugarcane production, together with sugar and ethanol plants in the midst of the Tana River Delta. Nature Kenya submitted comments to the TISP EIA on December 21st, 2013. After this Nature Kenya with other environmental NGOs within the umbrella of the Kenya Wetlands Forum mounted an intensive campaign against the project at local, national and international levels. The campaign was also supported at regional and global levels by the BirdLife International partnership, notably the Africa and Global Secretariats, the Royal Society for the Protection of Birds (BirdLife in the UK), DOF (BirdLife in Denmark) and Schweizer Vogelschutz SVS/BirdLife Schweiz (BirdLife in Switzerland). The project had high level political support hampering the advocacy campaign.

By April 2008 Nature Kenya and other conservation groups realized the need for more than biodiversity data to save the Tana Delta from sugarcane plantations. The same month Nature Kenya and the Royal Society for the Protection of Birds (RSPB) commissioned a cost benefit analysis on the sugarcane project. After assuming that irrigation water and land will be obtained free of charge, the sugar project's feasibility studies projected annual profits of KES 3,176,875,000 (USD

By 2008 Nature Kenya and other conservation groups realized the need for more than biodiversity data to save the Tana Delta from sugarcane plantations

37,143,400). The CBA done by Kenyatta University lecturers recalculated the cost of the project taking into account water charges levied under Kenyan law and the opportunity cost of use of land arriving at an annual profit of KES 1,239,352,270 (USD 14,490,264) (Miri et al, 2008). The developers had overestimated profits by almost 70%.

In contrast, the annual value of farming, fisheries, livestock, tourism and other incomes derived from land and wildlife was already more than KES 3,500,000,000 = USD 40,921,315 (Nature Kenya, 2008b). The CBA did not value ecosystem goods and services.

3.1.2 Usefulness of evaluation tool

Nature Kenya and RSPB used the results of the CBA to fire up an ongoing media campaign. The CBA became the single most powerful campaign tool against the project and was widely published by media in Kenya and leading global media including BBC, Reuters and The Economist (**Figure 8**). The key message was that the biofuel project is not economically viable. In spite of this spirited campaign by environmental groups the Tana Integrated Sugar Project was approved to proceed in June 2008. A few days later conservation groups obtained court orders against the project.

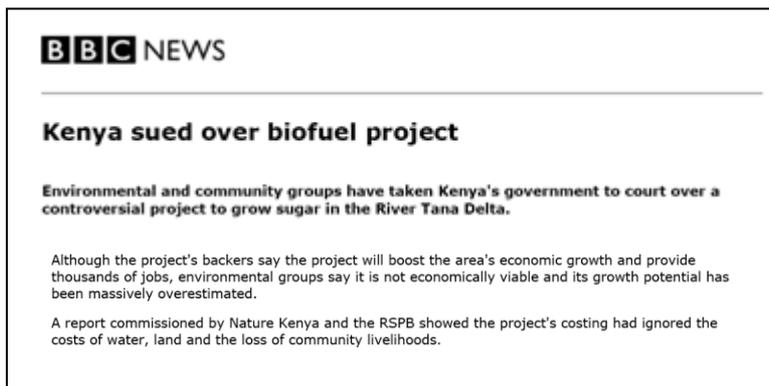


Figure 8: International media coverage of Nature Kenya's study

Source: BBC
(<http://news.bbc.co.uk/2/hi/7513444.stm>)

Though the Tana Delta CBA did not stop the sugarcane project proposal, Nature Kenya view it as a success, because they achieved what they had set out to do which was to create awareness on the potential negative impacts of the project and to raise awareness on the importance of the Tana Delta for communities and biodiversity. Some of the factors that contributed to this success are the following:

1. The project's feasibility study **omitted** charges for the use of water levied under Kenyan law and the opportunity cost of the use of land. Even with the use of very conservative data from government sources Nature Kenya were able to recalculate a significantly eroded value of the sugar and biofuels project.
2. The CBA was done by senior university dons as opposed to private consultants. The dons used unquestionable data from government sources. As a result the **credibility** of the CBA was never questioned.



3. The CBA was done at the project proposal **stage**, during the consultative phase to inform the National Environment Management Authority's decision on the project's environmental impact assessment. It might have been more difficult if the project had been under implementation since more factors such as job losses and loss of revenue would then come into play.
4. Environmental groups were finally able to speak the same **language** as **politicians** – in terms of money. The CBA brought out the fact that the project lacked economic sense.
5. Media loves a good controversy and the CBA did just that. In the entire campaign against the sugar and biofuels project the CBA received the widest **media** coverage in Kenya and elsewhere.
6. CBA provided crucial additional information reinforcing already documented social, ecosystem/ecological data. The CBA served a **complementary** role to Nature Kenya's arguments

Limitations of the tool include:

1. CBA was a useful campaign tool but did not stop the project proposal as intended.
2. In some cases, CBA may not work at all – for instance, in cases where vast gold deposits or oil are discovered under a forest or wetland.
3. In the Tana Delta case, time and resource constraints did not allow valuation of ecosystem goods and services which would have further devalued the project but in the end this may not have mattered at all. Political decisions can still be made without due consideration for evidence from valuation.
4. CBA presents a danger of commoditization of nature. In a case where communities are only seeking monetary compensation it may work. However it may not work for species conservation and EJOs must insist on the intrinsic value of biodiversity and ecosystems and use CBA as supporting evidence.

Nature Kenya's experience with CBA is that it has been an important and powerful advocacy tool and should be used as part of the evidence supporting other lobby/advocacy tools. In the Tana Delta campaign Nature Kenya opened at least 10 battle fronts at any given time, and won. They raised sensibility within the community on project impacts; lobbied decision makers in face to face meetings; submitted comments to EIA; provided evidence of the biodiversity and ecosystem values of the Tana Delta; held press conferences and supported reporters for field visits; raised litigation issues; had the matter brought up in the Kenyan, UK and European parliaments; pursued and supported the listing of the Tana Delta as a Ramsar site; brought the plight of the Delta to the attention of the secretariats of the Ramsar Convention and the Convention on Biological Diversity; catalysed mass letters to decision-makers; put up online petitions. It is not clear which battle front worked better. But what is clear is that they all contributed to the overall results of the campaign.

Nature Kenya's experience with CBA is that it has been an important and powerful advocacy tool and should be used as part of the evidence supporting lobbying and advocacy



3.2 Prospects for economic valuation of liabilities in Nigeria's Niger Delta

On a global scale environmental degradation and violent conflicts are increasing due to rising demands for energy based mainly on the extraction of fossil fuels. Establishing liabilities through valuation of environmental goods and services as a tool for environmental justice is gaining global attention among activists, environmentalists, researchers and civil society groups. The aim of this approach is to guarantee environmental health, reduce deforestation and compensate for the impact of oil and gas extraction on rural economies and traditional livelihoods sources.

In Nigeria's Niger Delta oil and gas impact is severe on the rural economies. Yet, the mechanism for seeking compensation is warped and often manipulated in favour of the government and oil companies due to lax environmental laws. Hence, the establishment of liabilities and EV of the resources in the environment becomes very relevant. At the same time activists, environmentalists and development practitioners in Nigeria work with rural communities on an enhanced model to ensure the protection of pristine environment and combat climate change through structural changes in the management of natural resources. They advocate for "leaving oil in the soil, coal in the hole and tar sands in the sand" because environmental goods and services cannot simply be reduced to mere figures to be appeased.

Since the discovery of oil in commercial quantities in Nigeria's Niger Delta the region has been faced with severe environmental degradation from exploration activities resulting in deforestation and pollution. Oil activities also impact rural livelihoods through frequent oil spills and persistent gas flaring since 1956. There are over 1,000 gas flare sites some of which are within neighbourhoods and farmlands.

UNEP (2011) reports severe health problems in Ogoniland (Niger Delta) noting that the region is an ecological disaster zone with carcinogenous chemicals such as benzene in soils below five metres and exceeding the standards of the World Health Organization (WHO). In a nutshell, the report says that the Shell Oil Company failed to comply with the Nigerian's government regulatory standards and was not meeting its own standards.

Since Nigeria's oil dependency is about 85% on oil revenues, the multinational oil companies' abuse of economic and political powers with impunity have wreaked havoc on Nigeria's political-economic fortunes. The nation is in the loop of conflicts over the control of political powers all in a bid to control the oil wealth by elites. Citizens have become poorer and polarized. It is difficult to calculate this sort of losses that are often unknown to economists.

The struggle for environmental justice in the case of Shell has been long drawn. It culminated in the Ogoni uprising in the late 1980s and by 1995 its champions Ken Saro Wiwa and 8 others were sentenced to death by a military tribunal and hanged. Several other oppressive measures were rolled out by the state to intimidate, and suppress dissent. The result was increased human rights



violations, thousands arrested, detained or killed. Hundreds of human rights violations were undocumented. By 1993 while the clashes between Shell and communities continued the company was expelled from Ogoniland locking under the ground approximately 20% of Shell's annual oil production. On a global scale, the Ogoni uprising is a symbol of the enclaves of "Leave the Oil in the Soil" (LOIS) campaign that is similar to the Ecuadorian Yasuni-ITT case.

3.2.1 Evaluation tools and liabilities

Environmental Rights Action (ERA) in conjunction with impacted communities has deployed valuation through qualitative and quantitative methods. Site observation and documentation of impacted areas and interviews of victims provide the basis of quantifying losses and monetary valuation mainly geared towards compensation for lost livelihoods.

In some instances, the Joint Investigation Visit (JIV) for ascertaining the reason and magnitude of oil spills also provides figures on the volume of oil spills in ways that support compensation claims or denials. However, in this way, EV as currently applied loses sight of environmental degradation and remediation measures. A recent study indicated between USD 16 to 51 billion as corporate liabilities for the destruction in the region related to oil spills by five multinational oil companies, without taking into account punitive costs and compensation (DeSimone, 2012).

Although the UNEP report recommends an initial Clean Up fund of about USD 1 billion for Ogoniland, the ERA/ Friends of the Earth Nigeria (FoEN) suggest that it will require about USD 100 billion to clean up the entire Niger Delta. A full evaluation of the different items in the different calculations can be found in the EJOLT report 9 on liabilities of oil companies (Greyl et al., 2013).

Environmental considerations are also being left out in issues of compensation involving arbitration and out of court settlements. Thus, there is a high risk of valuation to be counter-productive if impacted communities only use the monetary values from the study to try and get monetary compensation instead of using the monetary value as a tool of pressure to stop environmental degradation. Mostly, valuation has been reduced mainly to the realm of compensation rather than campaigns to convince governments to take proactive action or re-consider decisions in favour of environmental protection and conservation.

This however is now gradually receiving attention through petitions to the central government by ERA to leave oil in the soil and the international court cases instituted by ERA/FoEN from Nigeria and the Milieudefensie in Netherlands against Shell in the court sitting in the Hague. In this last case, the four Nigerian fishermen plaintiffs are not only seeking compensation for destroyed fishponds and livelihoods and income sources, they are also requesting for clean up of spills which destroyed the farms and the environment as well as a requirement for protective measures to prevent reoccurrence.

A recent study indicated between USD 16 to 51 billion as corporate liabilities for the destruction in the Niger Delta related to oil spills by five multinational oil companies, without taking into account punitive costs and compensation



While the quantification of externalities may be incomprehensive and subject to manipulation or abuse, the indicators for calculation are a product of politics and sometimes done in such a way that polluting projects remain viable

3.2.2 Usefulness of evaluation tool

However, how EV would quantify human rights violations, dispossession of land and resources, and the accompanying impoverishment remains obscure. Of far more significance are the lost opportunities arising from such displacement and the possibility to be unable to recover from such setbacks. Thus, while the quantification of externalities may be incomprehensive and subject to manipulation or abuse, the indicators for calculation are a product of politics and sometimes done in such a way that polluting projects remain viable. Indeed, ERA support that if full valuations were to be conducted as in the case of the Niger Delta, Shell and other multinational oil companies operating in the area would have no business being in the Niger Delta. They would simply pack and go because it would become highly unviable to continue their operations. Already, Shell's profit continues to dwindle due to conflicts and unrest in the Niger delta with responses of divestment and low returns on investment. This is significant and shows that the more they tended to deny or cover up these externalities the more they shed profits.

The use of evaluation tools in seeking environmental remediation is important. In contrast, valuation is held circumspect because of the views of economic modernists who believe that natural resources are elastic, and given proper pricing are almost inexhaustible. ERA's experience points that this warped position seeks to place the environment, forests and rivers up for EV by placing monetary value in ways that the environment is transformed into capital goods open for speculation and stocks. In this sense valuing nature will only lead to increased despoliation of the environment because it is unquantifiable and therefore cannot be monetized.

The practice also makes nature open for the highest bidders who are able to raise the capital while they expect returns on investment. It can also distort decision making processes in ways that rivers and streams or biodiversity enclaves can be eliminated based on any imposed superficial monetary value by capitalism. The value of ecosystems remains largely unknown and valuation is conducted without necessarily taking into account the value of maintaining the earth's equilibrium and ecosystems interrelationships. Economists often miss this point.

Moreover, and as regards the value of evaluation tools, the end result differs from EJOs such as ERA/FoEN and impacted communities. While communities may stress survival tenets in livelihoods protection and compensation for destroyed crops, ERA seems to project the broader picture of environmental remediation, and preventive measures.

Since the methodology of valuation is a product of politics and power relations, it is bound to be value laden, in favour of powerful actors and to the detriment of vulnerable groups such as impacted communities. Experience from environmental justice struggles in Nigeria suggests that valuation in the best of intentions is only subservient to a politicized environment in which power relations are privileged. This holds true especially in countries in Asia, Africa and Latin America often with weak institutional mechanisms for redress, and in some cases in the USA and



Europe where imperialism and neocolonialism are furthered at the behest of industrialized nations to support multinational companies to do business with terms and conditions close to the terms of colonialism.

Within this context the prospects of CBA and valuation is found severely limited in scope for seeking environmental justice in Nigeria. Nevertheless, if full valuations of costs and benefits were to be made, the liabilities would make oil exploitation projects not viable, especially if subsidies and grants inspired by the Breton Woods extractivism-supporting institutional framework were eliminated. Thus, the selective use of the tool for valuation might elicit different approaches for differing actors in the quest for environmental justice.

3.3 Evaluation of costs and benefits of nuclear power in Bulgaria and Slovenia

In Bulgaria and Slovenia nuclear energy is an important part of the energy mix and both countries have plans for developing new nuclear power plants (NPPs). At present, Bulgaria operates two nuclear reactors generating about 35% of its electricity (in 2012). Government commitment to the future of the nuclear energy is strong, though there is no finance secured. Different options have been considered: the construction of Belene NPP project with two units of 1,000 MW each (now abandoned) and the expansion of the Kozloduy NPP site with construction a new unit Kozloduy 7 of 1,000 MW, and/or reopening the closed 3 and 4 units. Slovenia operates one reactor, Krško NPP. The Krško Nuclear Power Plant (NEK) generates over five billion kWh of electrical energy per year, supplying power to consumers in Slovenia and Croatia. Currently, activities are ongoing to extend the lifetime of this reactor by 50 % (for another 20 years). Also construction of an additional unit in the Krško power plant is planned, in the range of 1,100 MW.

The current exhausted state of natural resources, environmental pollution and climate change have put into question the future of nuclear energy in those countries. More importantly, the high environmental and health risks related to nuclear power together with the high costs of constructing a nuclear power plant are a serious obstacle for future nuclear developments. This is why Za Zemiata and Focus tried to challenge the plans for investing in nuclear power by placing them vis-à-vis future investments in renewables.

3.3.1 The evaluation study

Two studies analysing the costs and benefits of nuclear energy were undertaken, one in each country, and were compiled together into a report (Raeva et al., 2013). The Bulgarian analysis sets nuclear power vis-à-vis renewables, while the Slovenian analysis adds coal as an energy path, not because it is considered a good option, but because a new coal power plant is currently being constructed. The report looks into the expansion of nuclear energy in Europe with a focus on Bulgaria and Slovenia, discusses the economics of nuclear power, and analyses



the impact of uranium mining and alternatives to nuclear power in the two countries.

The Bulgarian case focuses on two cases of expansion of nuclear energy: Belene NPP on a new site, and Kozloduy 7 (new unit on the existing Kozloduy NPP site). A chronology of the projects is presented, outlining the main risks and problems, including social and environmental issues, especially with regard to the seismic risks. Further on, an analysis of the costs and benefits of Belene NPP is elaborated. As an example of the impact that the whole nuclear chain can also create, the analysis looks also into the current status of the closed uranium mines in Bulgaria. Finally, the report discusses the alternatives to nuclear energy, whereby a full analysis of the renewables potentials in Bulgaria is provided.

In the case of Slovenia two nuclear cases are considered: the prolonging of the life-time of the currently operating Krško NPP and the construction of a new block, called Krško II. As with the Bulgarian case, the analysis looks into the chronology, main risks and problems, as well as public involvement. To give an example of the problems that uranium mining has caused in Slovenia, the analysis looks into a closed uranium mine, Žirovski vrh. The analysis concludes with discussing the alternatives to nuclear energy in Slovenia.

3.3.2 Usefulness of evaluation tool

In Bulgaria the results of the cost benefit analysis (CBA) were used to inform the Bulgarian citizens on the real cost of the Belene NPP project in the light of a referendum held in the country on the future of a nuclear power plant. This has been a useful tool, as the cost of the Belene NPP has significantly risen over the years several billion euros with no clear debate being held on the real cost of nuclear energy. Since the mainstream media was not accessible for EJOs, these opted for an alternative information strategy distributing 30,000 hard copies of the results of the CBA in the form of a Christmas card called “Your Christmas Electricity Bill” (**Figure 9**)⁹, also distributed via internet channels (the pro-Belene NPP campaign distributed over 1 million brochures and TV advertisements).

Although the study did not explicitly focus on calculating liability costs, the CBA in the Belene NPP case was a useful tool for EJOs to deconstruct the price of nuclear energy and use it in a decisive moment such as the referendum. The analysis will further be used in the debate for developing new nuclear capacities in the country. The limitation of the method is that when used by the nuclear lobby, which defines the price of nuclear energy in a narrow fashion by using the same method, they create the myth of ‘cheap nuclear energy’ versus ‘expensive energy from renewable energy sources’. In Slovenia the analysis has not been used yet in campaigns, however, it will be used in campaigning against lifetime extension and the creation of an additional nuclear block. The analysis provides a useful insight into more realistic costs of nuclear capacities than the ones provided by the investor. However it was hardly possible to put the three options – coal, nuclear and renewable – side-by-side and directly compare them. Direct comparison was

In Bulgaria the results of the CBA were used to inform the citizens about the real cost of the Belene NPP project in the light of a referendum on the future of a nuclear power plant

⁹ 1 EUR = 1.95583 BGN



not possible because of the different installed capacities, different life-spans and different operation times of the coal, nuclear and renewable scenario. Another potential disadvantage has been that the economic and political situation in Slovenia is, at the moment, so critical, that the use of a 'rational economic' argument in debates about different projects is largely neglected. This is why the use of the analysis is expected to be challenging in Slovenia.

Figure 9 and Box 3 Bulgarian National Electricity Company -- Electricity bill –
Source: Za Zemiata

The Bulgarian NEC informs you that you have unpaid electricity bill of the amount of **10405,67 BGN (5312,27 EUR)** due to the construction of the Belene Nuclear Power Plant. We ask you to pay your bill urgently, otherwise your electricity power will be interrupted as of 27th January 2013.

1. The bill includes:

- The construction of new capacities (including credit interests): **10121,42 BGN (5169.26 EUR)** /Calculated on the basis of 10.34 bln EUR divided among 2 million households/
- Fee for connection to the grid and distribution: **284,25 BGN (145.17 EUR)** /Including additional investments for new substations and electricity distribution lines 568,5 million BGN (290.35 million EUR).

In the occasion of no payment, the amount will be withheld from your salary and taxes.

2. Additional expenditures, to be included in your next electricity bill:

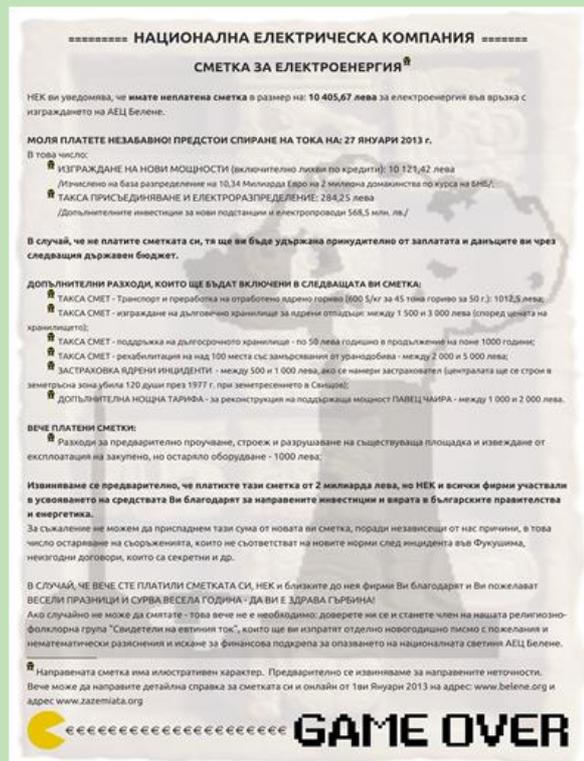
- **Waste fee** – Transport and processed nuclear fuel (600\$/kg per 45 tonnes of fuel for a period of 50 years): **1012,5 BGN (517.77 EUR)**;
- Waste fee – construction of long-term nuclear waste storage: between 1500 and 3000 BGN (766.94 EUR) depending on the price of the storage
- **Waste treatment fee** – Maintenance of the long-term storage – 50 BGN (25.56 EUR) annually for a period of minimum 1000 years;
- **Insurance against nuclear accidents** (since Belene NPP will be constructed in an earthquake zone where in 1977 the earthquake near the town of Svishtov caused the death of 120 people), and assuming that there will be an insurance company willing to take the risk;
- **Additional night tariff** – for the reconstruction of the supporting capacity Chaira Hydro Power Plant – between 1000 and 2000 BGN (511.3 and 1022.58 EUR);
- **Waste fee** – rehabilitation of over 100 sites polluted by uranium mining – between 2000 and 5000 BGN (1022.58 EUR and 2556,46 EUR).

3. Bills already paid:

- Expenditures for initial research, construction and clearance of the existing field and for taking out of exploitation outdated equipment – 1000 BGN (511.3 EUR).

We apologise in advance that you have paid this bill of 2 billion BGN, however NEC and all companies that have taken part in acquiring the financial resources are grateful for your investments and your trust in the Bulgarian government and energy.

In case you have already paid your bill, NEC and the companies related thank you and wish you Merry Christmas and Happy Holidays.





3.3 Reflections on value and liability from gold mining conflicts in Turkey

How can we assess the social and ecological costs of a particular mining project?

This section is based on insights drawn from two notable cases of resistance to gold mining in Turkey, at Bergama and Mount Ida, and reflects on valuation contests that often occur in mining conflicts to discuss the usefulness and limitations of (e)valuation methods in liability claiming and environmental justice. It is well known that mining activities generate various environmental and social risks and damages, including deforestation, biodiversity loss, high water consumption, groundwater contamination and population migration (Ozkaynak et al., 2012). Yet, in many developing countries that have witnessed dramatic increases in mining activities especially since the 1990s, environmental and labour regulations are weak (Hilson, 2002; Smith et al., 2012), and states do not require companies to include risks and/or costs of social and environmental impacts on their balance sheets as they do for financial liabilities. How, then, can we assess the social and ecological costs of a particular mining project?

Indeed, when risk concerns and/or pollution complaints arise, liabilities that the mining industry originally overlooked are found to be at the centre of such environmental conflicts. In those cases, individuals or communities usually respond by filing court cases or taking direct action and claim liabilities either *ex-ante*, in the form of requests for improved care and technology standards or reduced output, or *ex-post*, through remedial actions that carry the idea of repairing the harm done (Segerson, 2002).

Depending on the circumstances, the latter is done, for instance, through monetary or in-kind compensation or an apology that acknowledges the wrongdoing (O'Neill, 2012). Although there was no explicit evaluation study conducted at Bergama and Mount Ida, which are both briefly described below based on Avcı et al. (2010) and Arsel (2012), these cases help establish the grounds to discuss the type of injustices encountered in mining conflicts within the context of (e)valuation, liabilities and compensation.

3.3.1 Values and liabilities

The Bergama movement is known as the first community-based resistance movement against gold-mining activities in Turkey that emerged in the 1990s and continued for over a decade. The mining site was established on some of the most fertile agricultural lands and important tourism fields in the country, and surrounded by 17 villages with a total population of 11,000 who were dependent on the land. According to Taşkın (1998), the mayor of Bergama, the annual production of cotton, tobacco, tomatoes and olive oil in the Bergama district reached USD 42 million, which exceeds the total amount of the investment by USD 7 million.

Opposition was motivated primarily by environmental and public health risks posed by cyanide leaching, and communities were concerned about an actual instance of water contamination from a cyanide leak that threatened both agricultural activities and drinking water. Resistance soon transformed from a small peasant movement against locally unwanted land use into a national case



that highlighted the tension between environment and development in a rapidly developing and globalising Turkey. From the perspective of the corporation and the state, the local environment was an object of capital accumulation and economic growth, the only emphasis being on the economic benefits of gold extraction and the mine, which was said to be environmentally friendly. As a resistance strategy, the local community made extensive use of courts—at both the national and international levels—to prevent the operation of the mine, while the state and the company also invested heavily in fighting liability claims.

At first, the court ruled in favour of the villagers by stating that the environmental and public health risks of cyanide leaching amounted to a breach of their constitutional rights. Faced with forceful protests from the community, the company was required to remove 18 tonnes of cyanide from the mining site. Yet, the state and the company came back with a report from the Scientific and Technological Research Council of Turkey (TÜBİTAK), which ruled that cyanide leaching posed ‘zero risks’.

Failing to score a decisive legal victory in Turkey, the movement later took its case to the European Court of Human Rights (ECHR). In its 2004 decision, the ECHR found the state of Turkey guilty of violating the activists’ procedural rights and awarded EUR 3,000 each to the 315 claimants. Of course, such rights cannot be traded off for money and this payment rather than being a real compensation was just a symbolic fine which legitimised the position taken by the villagers by publicly recognising the damage and signalled the state would be responsible for any future acts. However, the ECHR refused to back the activists in their calls to order Turkey to shut down the mine.

The demand would clearly be much stronger if there was an apology enforced through ruling as well. Nevertheless, the protests forced the company to make a number of salient technological changes before operations began to reduce the likelihood of any future environmental damage—an example of *ex-ante* increased care and compliance by the company in order to avoid future penalties. Would the investment decision pass the cost-benefit test if these sensible policies had been taken into account as part of the project plan and companies liabilities? If yes, why such costs were not correctly been evaluated prior to the investment? No doubt, environmental policy debates turn on issues of distribution and power and ‘successful internalisation of costs’ usually work against the interests of the poor and disempowered groups.

Mount Ida, with a population of 150,000, is situated in north-western Turkey. 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. While several locations in the region had been host to sporadic gold prospecting since the early 1990s, companies increased their efforts in 2004, following changes in the Mining Law and the rise in international gold prices. Similar to the Bergama case, this led to the development of a broad-based opposition that consisted of homeowners, olive and olive oil producers, and business owners in the tourism industry, and aimed at halting several cyanide leaching open-pit gold mining projects. The discontent was based on the potential



In the case of the opposition to the mining project in Mount Ida, Turkey, monetary reductionism would have harmed the social legitimacy of other values articulated, such as territorial rights and access to resources

impacts of open-pit, cyanide leaching gold production in an environment valued for its agricultural production, landscape, and historical and cultural importance.

While the government and companies tried to portray the matter of environmental impacts solely as a technical problem that could be handled with the proper use of technology, the movement pushed the analysis beyond standard economic theory, claiming the incommensurability of values, and spent effort to keep the discussion of a multi-criteria dialogue type. Their discourses included sustaining peasant livelihood and ways of life, protecting ecological integrity and public health, and defending national interests versus those of foreign companies.

The articulation of multiple standards of valuation was particularly important in putting pressure on decision-making, since a narrow cost-benefit dispute that hinged simply on monetary gains and losses had the danger of falling weak—or even being counterproductive—in the face of a government that focused solely on the economic benefits of gold mining for local and national development and increasing rents. Monetary reductionism would presumably have harmed the social legitimacy of other values articulated, such as territorial rights and access to resources.

This stance helped villagers at Mount Ida to illustrate the critical importance of symbiotic community–environment relationships, and highlighted the fact that much more than their incomes were at stake. Although this may appear as a position that could be modified by compensation to some, this turned out not to be the case; offers of monetary and/or technical compensatory schemes—such as improved technology and monetary payments—did not suffice in satisfactorily resolving disagreements in the region. For the time being, because the mine site sits on top of a catchment area that provides water to over 20 villages, the company needed to find another water source and construct the infrastructure to carry it to the villages—an example of ex-post in-kind compensation.

3.3.2 Usefulness of evaluation tools

A general overview of the discourses in both those cases illustrates that justice claims in the mining debate are broad and diverse, and that there are often clashes in the valuation standards that companies, the state and local communities use. Environmental liabilities in mining conflicts might surely be strengthened in legislative and governance processes through the use of evaluation mechanisms set out in this report.

The question is whether all evaluations in a given conflict can be made in a single dimension of value. The opposition movement would benefit strategically from understanding well which standards of valuation are more appropriate and relevant in which cases and types of contexts and at what times. In conflicts with an economic or technical focus, and in particular if the damage has already been done, there is more room for EV and monetary compensation. But in conflicts of non-technical, non-monetary nature, it may be important to insist on using evaluation tools that accept and incorporate the plurality of incommensurable values.



4

Effective evaluation tools for environmental justice

Insights from EJOLT

4.1 The importance of context and strategy

4.1.1 Power and politics

Evaluation tools operate within a context of power. The political balance of forces provides the context in which their relevance for making decisions becomes institutionalised. Indeed, in many cases the political context is such that public decisions are made without due consideration of evidence from evaluation tools, as experience from the EJOLT Kenya case shows. But also, the indicators used for making calculations within evaluation tools are themselves a product of politics and can be generated in such a way that controversial projects remain viable. This is evident in the EJOLT Bulgaria case where costs and benefits defined in a narrow way were used by the nuclear lobby to promote the myth of ‘cheap nuclear energy’ versus ‘expensive energy from renewable energy sources’.

Indeed, tools are regularly required to operate within a context of highly *asymmetrical* power distributions (Paulson et al., 2003). For example, in the context of the Niger Delta, we observe a very unequal playing field in terms of power, between one of the world's largest companies and some of the world's most marginalized communities. The question “what role can such tools play within such a context?” becomes highly relevant. Do we run the risk of further marginalising community priorities through using evaluation tools that produce a series of technical recommendations that in the end depoliticises the conflict and risks escalating dispute within communities? How can tools add to environmental



Asymmetrical power may reveal itself in the absence of proper valuations of controversial investments

justice struggles where the objective is to ensure a community's right to decide how they use their land and territory?

Conversely, **asymmetrical power** may reveal itself in the absence of proper valuations of controversial investments. In the Bergama (Turkey) gold mine-field case, the presence of a proper prior evaluation of preventive costs (technological changes) could have turned a supposedly sensible (in narrow economic terms) project into an unacceptable one. Why were such costs not correctly evaluated? Whose priorities and benefits were serviced by silencing such costs and pushing forth with such a project? Political decisions can go ahead not only in the absence of evaluations (either proper or incomplete ones) but also in the presence of evaluations that challenge the reasoning of socially and environmentally controversial investment decisions. This is illustrated by the EJOLT case of Slovenia, where cost-benefit analyses failed to “speak truth to power”, or perhaps better said, speak *reason* to power. The influence of powerful lobbies may be such that tools – such as CBA – that appeal to reason may prove unsuccessful in the pursuit of environmental justice.

EJOLT experience points out that power can – *inter alia* – operate through the maintenance and reproduction of colonialist relations by turning the environment into an instrument for capital accumulation. The relevance of **colonialism** is illustrated in the case of Nigeria, where environmental justice activists regularly experience state action as the action of a state controlled by oil extracting corporations (e.g., Shell), and where an extremely low percentage of the population benefits from the use of oil resources. In such a context, violence and conflicts are bound to exist, and valuations that lead to compensation claims run the risk of overlooking the power of colonialism in determining public decisions or the influence of evaluation tools.

The Bergama (Turkey) case reveals how corporations and states may attempt to turn local environments into mere objects of capital accumulation and economic growth by emphasising economic benefits of allegedly ‘environmentally-friendly’ gold extraction and mining activities. In this case, the monetary language of valuation – also employed by some evaluation tools – has been used to both push such transformations (e.g., by the state and corporations) but also to try and limit them through court action as evidenced in the monetary nature of fines imposed to the Turkish State by the ECHR.

Activist experience in pursuing environmental justice in Nigeria suggests that **agenda setting** is another way in which power relations may constrain the relevance of evaluation tools for pursuing environmental justice. The weight of large economic profits from oil extraction creates a situation in which Nigeria is severely restricted in making a genuinely independent decision as to whether or not they want to produce oil.

Environmental justice activist experience points out that some options and alternatives are never fully considered in public policy. This dimension of the reality of environmental decision-making is difficult to quantify with evaluation tools, although in theory this could be considered by multi-criteria tools (e.g. in the



form of a scenario). Similarly, EJO experience in India of a strong nexus between government and large corporations poses doubts as to the extent to which governments or corporations would try to institutionalise processes that may cater for the interest of communities but go against the grain of generating profit and economic growth. Such aspects of procedural power, i.e. the power to decide what processes are relevant for making decisions (Martinez-Alier, 2002), may both constrain the use of valuation tools, e.g., by deeming them irrelevant, or turn them into foes for environmental justice struggles by narrowing the criterion of public decision making to those of economic viability, hence sidelining concerns unable to be expressed in monetary terms.

This relates to the relevance of the **knowledge-power nexus**, which is also apparent in the use of evaluation tools for pursuing environmental justice. A key challenge with using evaluation tools lies in that they require communities to bring their issue and make it fit into an already designed scheme of assessment that may be alien to them. Communities are required to translate their language into cost-benefit analysis terms, instead of getting cost-benefit analysis to understand and change its language towards the language of the community. Community language has to transform itself to somehow fit into the framework, be it CBA, EV or MCA. This also runs the risk of transforming the objectives of environmental justice struggles into a long-term objective of securing rents.

Instead, EJOLT activists have tried using local languages as starting points for environmental justice interventions. For example, in the case of Yasuni in Ecuador, the EJOs Acción Ecológica and Clínica Ambiental have followed an approach in which the notion of 'health' has not been reduced to indicators measuring deaths or disease, but has been expanded to include dignity. In this light, health is the way of living in community. Rather than seeking to quantify concepts such as death or disease then, in some environmental justice struggles it may make more sense to promote reflection upon the meaning of health and health indicators in everyday life and visions of the future.

The knowledge-power nexus also points to a fear that a lack, or removal of politics, or **depoliticisation**, may be an undesirable outcome of using MCA tools. EJOLT activists for instance expressed the fear that the use of evaluation tools may imply that key community demands such as maintaining control over resources, which is a political demand, can be further marginalized by suggestions to address demands through a series of technical recommendations. Furthermore, the employment of evaluation tools forces communities to negotiate their environmental justice claims at a negotiating table that is regularly shaped by unequal power relations that offer little space for hope.

As pointed out by the Nigeria experience, sometimes communities do not want to negotiate because they do not feel they have the power to do so. Instead, some EJOs have experimented with techniques of attempting to de-legitimise such pernicious negotiating processes. Some EJOLT organisations have abandoned and denounced processes such as the Clean Development Mechanism (CDM) Review Board, which they do not consider a technically neutral terrain but a terrain where the balance of forces needs to change. Instead of negotiating 'proper'

**EJOLT activists
have used using
local languages of
valuation as
starting points for
environmental
justice
interventions**



amounts of compensation for maintaining a system of unequal ecological exchange through the CDM, EJOs opt to try to shift unequal balances of forces through such strategies.

4.1.2 How to use tools: three tips from EJOLT experience and expertise

Three key concerns should guide the way in which EJOs use valuation tools in environmental justice struggles:

1. Use tools in ways that advance the purposes of environmental justice struggles
2. Be strategic in the use of tools
3. Use tools to pursue a more level playing field

First of all, tools should be **subservient to the purposes** of the struggle for environmental justice, and not *vice versa*, i.e. tools and their results should not themselves determine how the struggle for environmental justice is to unfold. This applies both to cases where EJOs or communities pursue reparations for damage done and when they seek to prevent future controversial projects. This point highlights the importance of *purpose* as a key determinant for both the decision whether or not to use an evaluation tool and the decision which tool to use. It also highlights the importance of being strategic in the choice of tools and their use. Finally, and related to that, given the above-mentioned context of power within which tools operate, a beneficial use of tools necessarily involves employing them to achieve a more level playing field of struggle for environmental justice.

Before deciding whether to use evaluation tools in environmental justice struggles, it is important to consider the social process within which the tool will be employed: is the objective to build up resistance, challenge, dialogue, or confrontation? Can those processes be carried forward by the type of results (e.g., monetary values of environmental damage for valuation) that will be provided by the tool?

A key for judging pertinence is the vision of the social process that EJOs want to engage in. In a context like EJOLT this usually involves action aimed at building, trying to re-build or oppose social processes. This is important because it is not the tool that determines the social process – although it may pervert the social process – and the tool itself cannot be a substitute for the social process. Importantly, evaluation tools are better perceived as structuring comparison and not as providing single, optimal solutions. This implies that when opting for evaluation tools, it is important to consider what types of futures we wish to compare and make them visible for comparison.

With this in mind, it makes little sense to evaluate a single project, and much more sense to compare more comprehensive visions of the future, e.g. a future with oil in the ground and a future without oil in the ground. In short, **purpose**, or rather, what an EJO aims to achieve through the use of the tool in the context of environmental justice struggles should come first. Only then can an assessment (perhaps with the assistance of academics, practitioners or experts in the use of

Evaluation tools are better perceived as structuring comparison and not as providing single, optimal solutions



tools) be carried out of the capacity of the tool to contribute to this purpose and help engage society in the kind of discussions we need to have about our futures.

Purpose however, also relates to another crucial point which involves the way evaluation tools can be developed and how their results can be used. Evaluation tools have been devised (and are frequently used) to generate optimal or ‘best’ options when comparing alternative uses of environmental resources. However, they can also be used to provide more in-depth information about each alternative, e.g., by **shedding light** upon the complex interrelations between different alternatives, the possibility of having several ‘best choices’ instead of a single one, and the dependence of such choices upon specific analytical assumptions and values.

Such information can be then be input back into the decision-making process to further discuss the pros and cons of alternative visions and for making decisions through transparent and participative processes. The information may help understand and advance discussions of what the dilemmas involved in each choice are, and what the deeper arguments are that go together with each choice. In this way, evaluation tools can underpin the understanding of collective dilemmas and then feed into political decision-making processes, building more explicit debate about the purposes of collective actions, i.e. as means for supporting action. EJOLT expertise and deliberations around this topic suggest that the use of evaluation tools for advancing the cause of environmental justice is more fruitful than using them to directly determine optimal social choices and ‘figures’.

Even so, analysts must be aware that every technique used to shed light on a question is simultaneously an act of obscuring many other factors, by the simple fact of simplifying complex issues. In this respect, there are those who argue that the use of evaluation tools such as CBA and EV risks mistranslating EJO and community objectives, as they are forced to express their priorities in a language and processes within which they have no control. Similarly, one has to consider that there are cases where EJOs or communities may wish to follow more active strategies to pursue environmental justice, e.g., the route of protest, and not participate in formally organised decision-making processes, because they consider them flawed, or because of an imbalance of power with interlocutors, etc. In such cases, participation in the development of evaluation tools may not be helpful.

EJOLT experience in Kenya points out how important it is to consider how EJOs will use a CBA before doing it, i.e. it is important to ask “what do we hope to achieve from this cost-benefit analysis?” and to answer the question before investing scarce resources in carrying out such an analysis. Similarly, EJOLT experience from Ecuador suggests that before making such a decision it is important that EJOs need to decide what they want to achieve as organisations regarding the case at hand. Is it to change society? To move towards a post-oil state of things?

Every technique used to shed light into a question is simultaneously an act of obscuring many other factors, by the simple fact of simplifying complex issues



It is important to assume a strategic attitude with regards to the purpose one tries to achieve when it comes to deciding the use of evaluation tools

Along the same lines, communities need to engage in discussions as to what type of futures they aspire to. They also need to consider whether the debates likely to open up from the type of information (e.g. monetary values of nature) that will emerge as a result of employing the tool, could contribute to that end.

Hence, it is important to assume a **strategic** attitude with regards to the objectives of using evaluation tools. Three key strategic aspects have been identified through the EJOLT experience with the use of CBA in the Tana Delta in Kenya. First, the tool *improved the EJO's capacity to convey messages*, as the monetary value message was taken up by national and international media and helped position the issue in the public sphere. Second, conducting the study helped *advance alliances with other stakeholders* themselves concerned about the project, which is in itself important as regards the specific but also broader purposes of the EJO. Finally, the monetary value language did not only allow the EJO to speak the same language as politicians, which is the value of money, but more importantly it *brought out the fact that the project lacked economic sense*. This last aspect is very important, as it signals ways in which evaluation tools can be used to 'deconstruct alibis' for perpetrating environmental injustice, specifically the alibi of 'sound economic sense' that is regularly put forth by promoters of projects harmful to the environment and communities.

Evaluation tools can also be used to create a more **level playing field** for environmental justice struggles. A major way to pursue this is through expanding the debate about what is valuable. Evaluation tools have this potential when used to show that different 'best solutions' may result when you insert into them different assumptions or give different weight to some impacts or criteria of assessment. This means that using evaluation tools simply to choose the best alternative can close down, rather than open up crucial debates about what to value (e.g., nature before profit or economic development?), why to value (e.g., to preserve or consume nature?), how to value (e.g., through money or cultural importance?), and who values (e.g. industry or communities?).

Both CBA and MCA approaches may be developed to provide either one or several 'solutions' to a natural resource use problem. EJOLT experience points out that little trust should be put in the use of single solution approaches, and more in the use multiple, or more dynamic solutions, as it has shown that tools can provide many different 'best choices', depending on assumptions and circumstances. They can also empower EJOs in their debates and take power away from the tools themselves as arbitrators of conflict. When tools create this type of knowledge as regards the desirability of many possible, alternative results based on what is prioritised by society, while maintaining the resolution of conflict on the political realm, they can help achieve more level playing fields.



4.2 Enabling and impeding aspects of the tools

4.2.1 Enabling aspects

A clearly enabling aspect of evaluation tools involves their capacity to convey messages that can be taken up by **the media**, i.e. their communicative capacity. This has that has been pointed out by partners who have used them in the context of environmental struggles, for instance, in the case of Kenya. There, a CBA conducted by Nature Kenya and RSPB was widely published by Kenyan and leading global media including the BBC, Reuters and The Economist. These organisations used CBA results to vitalise an ongoing media campaign against the biofuel project in the Tana Delta, conveying the message that it was not economically viable. Although the project was approved, conservation groups obtained court orders against it and the EJOs managed to create much-needed awareness both of its negative impacts and of the ecological and social importance of the Delta. Evaluation results were presented in a press conference and the issue made it to prime time news, attracting the attention of ministers and government officials as well as international media.

For Nature Kenya, the media attention gained as a result of the valuation study has been helpful as it provided new information and gained the attention of a wider audience for their message. This was due in part to the fact that the media are attracted to controversial stories, something that the CBA was able to provide. Another important reason is that the valuation study was combined with intense campaigning both nationally and internationally (in the UK and Brussels). Overall, the experience of Nature Kenya has been that CBA served as a useful tool, but one not to be used not in isolation. It was best used in combination with other activities such as lobbying decision-makers in face to face meetings, and pressing for the Delta to become a Ramsar site.

Beyond media, messages generated by tools can be used in conjunction with **alternative communication** strategies. The case of Colombia suggests that activists may sometimes find it useful to use monetary values to illustrate environmental impacts, communicating their message through public speeches, instead of pressing for compensation per se. Similarly, CBA figures were used by EJOLT partners in Bulgaria to formulate an alternative information strategy in a situation where access to mainstream, traditional media was not available. There, EJOs distributed 30,000 hard copies of a Christmas card called “Your Christmas Electricity Bill”, which included the CBA results of the Belene Nuclear Power Plant. They also distributed this via the internet.

Another enabling aspect of the tools concerns their **pedagogical dimension**, i.e. their utility as a means to educate, teach and foment learning about the environmental justice implications of proposed projects. EJO reflections from Nigeria suggest that evaluation tools could be used as a kind of counter-surveillance tool that registers impacts and liabilities, or as a teaching aid for EJOs on the variety and magnitude of damages, to approach for example oil companies.

The use of valuation tools also provides opportunities for EJO learning. Such was the case in Kenya where although valuation results did not stop the sugar project,

Evaluation tools can be used to educate, teach and foment learning about the environmental justice implications of proposed projects



EJOs learned how to use these differently for future campaigns. Evaluation tools can also lead to learning about one's own rights. In Bulgaria, for example, CBA results were used to inform Bulgarian citizens about the cost of the nuclear power plant project in the light of a referendum held in the country on the future of the plant. The tool proved a useful resource for deconstructing the price of nuclear energy. It did so by supplying a more comprehensive evaluation of nuclear capacities than the one provided by the investor, and by informing citizens that the cost of the plant had significantly risen over the years without any debate on the real costs of nuclear energy.

Another aspect of the pedagogical dimension concerns the capacity that evaluation tools have for building understanding of dilemmas involved in decision-making situations. EVs for example, can produce divergent figures of environmental costs and benefits of alternatives, which can nonetheless be consistent with economic theory. Instead of using monetary figures to resolve such dilemmas between alternatives, figures can be used to reveal the different underlying justifications of each alternative course of action. This information should be then channelled for discussion into transparent and inclusive political debates about which costs and which benefits are justifiable for society.

Another enabling aspect of evaluation tools is that the process of developing them with the engagement of EJOs, the broader public, policy stakeholders, local communities and expert-academics in a participatory manner, provides space for **creating alliances** in the struggle for environmental justice. Experience from Slovenia suggests that evaluation tools helped EJOs move beyond a sense of being alone in their struggle and not being heard of by allowing them to get in touch with other organisations working on the same or related issues (e.g. financial crisis, etc.), i.e. they helped obtain a common focus. When developed closely with communities as in the EJOLT Kenya case, such alliances may emerge from an improved understanding between different priorities and visions that emerges through the process. Also, when properly shared, the richness of information generated during the process of developing the tool increases the capacity of local communities to participate in the debate. The Kenyan example indicates that the local community was thankful to have received help and that farmers appreciated having access to information they had lacked, which helped increase their participation in the debate.

A more straightforward aspect involves the **legal relevance** of those tools, and in particular EV tools, i.e. the use of the information they produce in situations where those generating environmental liabilities are taken into court by EJOs. EJOLT participants acknowledged that having some monetisation of externalities can be helpful when taking companies to court. Also because when looking at all externalities, oil companies for example could potentially be driven out of business (see the Nigeria case). However, EJOLT partners also acknowledge the danger of nature commodification. The Kenya experience suggests that monetisation may work where communities only seek monetary compensation, but it may not work for species conservation. This state of affairs underlines the need to insist on the



intrinsic value of biodiversity and ecosystems and to use CBA only as supporting evidence.

Finally, the tools can be fine-tuned to illuminate injustices. Although some tools (e.g., CBA) have rightly been the target of EJO criticism for doing exactly the opposite, i.e. obscuring **distributional issues**, they could be potentially used to reveal distributional issues related with controversial projects. This is what some EJOLT participants characterised as a strategy for “turning the tool on its head”. Regularly, evaluation analysts are faced with a comparison between options, all of which can be good but for different stakeholders. In those cases, and although currently hardly ever used in such a way, CBA could be used to obtain an insight into the choices of different stakeholders, illuminating what is at stake (i.e. which interests are sustained by different valuations), and which values are most important and why.

It is important to develop evaluation tools that produce analyses of costs and benefits in terms of how benefits are distributed, i.e. in terms of showing where the money goes and who wins from specific options. The importance of communities reclaiming fair distributions of benefits from resource use (a critical dimension for example in the Nigeria case), suggests that economic analysis should consider the whole chain of production and consumption to identify how costs and benefits are distributed along these. Indeed, economic analyses that try to answer the question of who benefits and who pays the costs (of extraction activities for example) could be very useful in environmental justice struggles. Cost and benefit assessments that look at who is affected, how and why, help better describe and understand corruption, how revenues are guaranteed for elites, the reasons underpinning high extraction rates, how populations locked into poverty, and the range of phenomena that relate to the distribution of poverty and vulnerability. Doing such an analysis offers a promising start.

Another way of illuminating injustices involves the integration of corruption as a criterion in economic and liability assessments. The costs of corruption for instance could be included in the calculation of discount rates and project costs. Alternatively, in MCA evaluations, corruption indices could be included alongside monetary dimensions of different alternative courses of action, with corruption being part of the criteria used for assessment. Nevertheless, it is important to keep in mind that corruption can be an intrinsic piece of the broader system of financing natural resource exploitation, used as a means by project promoters. This implies that there could be significant challenges for integrating corruption into evaluations.

4.2.2 Impeding aspects

In considering features of evaluation tools that may impede EJO struggles, the EJOLT experience has identified some specific limitations of their use, as well as potential dangers and risks in employing them. As regards limitations, particular instruments such as CBA cannot always deliver what is needed in environmental justice struggles. The degradation of the Niger Delta suggests that using this instrument to obtain compensation misses the point, as what is needed are

Economic analysis should consider the whole chain of production and consumption to identify how costs and benefits are distributed



CBA has a limited effect in helping communities take control of their matters and resources, at the same time reducing alternative possibilities by framing choice in monetary terms

mechanisms for **preventing** risk and damage that are certain to occur with activities oil extraction.

It is unclear how CBA could contribute knowledge that would help avoid risk and prevent damage. Instead, ERA activists in Nigeria opt for approaches that do not trade-off environmental justice claims for profit by supporting the “Leave the Oil In the Soil” (LOIS) approach, which proposes a ban on new oil fields in view of their devastating impacts on communities and ecologies. This is explained by their experience that speaking truth to power and asking authorities to address environmental injustice achieves little. The implication here is that CBA has a limited effect in helping communities take control of their matters and resources, at the same time reducing alternative possibilities by framing choice in monetary terms. Even in cases where compensation is achieved and production is reduced due to ecosystem destruction, new oil discoveries can soon make it profitable to carry on exploiting with considerable profit.

Contrary to using evaluation tools, LOIS-type approaches emphasise that communities do not want to negotiate the potential loss of resource ownership and control and the adverse socio-environmental implications this may bring about. This priority is something that engagement with evaluation tools cannot *a priori* ensure. Nevertheless, when communities opt to pursue their case in court, some level of monetisation can be helpful. In all cases, and as pointed out in the CBA section of this report, compensation in money is an end-of-the-pipe intervention that does not change the conditions that lead to unequal distributions of benefits and damage.

A related impeding aspect of tools – particularly EV and CBA – involves the difficulty of integrating **issues that are central to environmental justice** into the analysis. For example, EJOLT practitioners found it challenging to understand how monetary value could meaningfully quantify violations of human rights and the rights of nature¹⁰, dispossession of land and resources, and the accompanying impoverishment that characterises oil exploitation in the Niger Delta. Of far more significance they found the lost opportunities arising from such displacements and the inability to recover from such setbacks. Quantifying the lost opportunities of the people forced into poorly-paid labour *in situ* and beyond, as well as of those who immigrate because of the problems they face in their country working under appalling conditions would involve a considerable challenge. Similarly, aspects that pertain to the domain of politics are probably impossible to quantify and monetise. For example, the political dependence upon, and control by corporations, that usually comes together with the exploitation of resources such as oil, is hardly possible to consider through tools such as CBA. Nevertheless, all of these aspects are of major relevance to situations of intense environmental conflict, as in the case of Nigerian oil exploitation.

Beyond these limitations, the employment of evaluation tools to pursue environmental justice may present risks or even potential dangers. To begin with,

¹⁰ For instance, the Ecuador Constitution formally establishes the Rights of Nature.



EV tools can be helpful in the case of pursuing environmental justice through the justice system. Nevertheless, it is useful to combine compensation claims with demands for improved future protection and preventive action. For example, ERA/FoEN from Nigeria are supporting an international court case against Shell in the Hague. In this case, the plaintiffs, four Nigerian fishermen, are seeking compensation for destroyed fishponds, livelihoods and income sources, and requesting the clean-up of oil spills, while also demanding protective measures to prevent reoccurrence. At the same time, the ERA is petitioning the Nigerian government to implement a LOIS policy, i.e. an initiative unrelated to using evaluation tools to pursue environmental justice.

Although combinations of evaluation tools and strategies that go beyond valuation are possible as the Nigerian case shows, sometimes the emphasis put upon valuation, and in particular EV, by either EJOs or the media can ultimately crowd out the use of other, potentially more effective alternatives. For example, the political costs of nuisance and protest can be instrumental in convincing corporations and governments to make changes and address environmental justice concerns. This is shown by the Bergama case where protests forced the company to make a number of salient technological changes before operations began to reduce the likelihood of any future environmental damage – an example of *ex-ante* increased care and compliance by the company in order to avoid future penalties.

Protests can convey the message that if controversial projects that fail to consider local priorities go ahead, the nuisance costs can be higher than benefits. In this way environmental justice activists try to stress a system by making it more expensive to continue with injustice. The main issue here is that sometimes nuisance and protest pressure-putting strategies are incompatible with evaluation exercises that aim at commonly (i.e. with companies and the state) establishing an ‘objective’ measure of a single, best policy choice. In such cases, and when opting for the latter, there is a risk in **crowding out** more effective practices, such as nuisance strategies.

EJOLT activists have also identified the danger of creating a ‘boomerang’ effect when using EV tools to pursue environmental justice. In the Belene case (Bulgaria), monetising nuclear energy impacts proved useful for deconstructing the price of nuclear energy at a moment of public debate on the desirability of this energy generating option. Nevertheless, the language and decision-making criterion of monetary value can also be used by the nuclear lobby, which defines the price of nuclear energy in a narrow fashion (e.g. excluding externalities) in order to favourably compare the ‘cheap nuclear energy’ versus ‘expensive energy from renewable energy sources’. In that sense, defining the terms of the debate in monetary terms risks moving environmental justice claims into a terrain where polluting industries are well prepared to contest and co-opt arguments. Finally, the experience from Turkey suggests that although EVs of liabilities may in the first instance provide victories, e.g. through compensations obtained via court cases, the money that then goes into communities can produce new conflicts in terms of inter-personal relationships or community dynamics that are changed by money.

The emphasis put upon valuation, and in particular EV, by either EJOs or the media can end up crowding out the use of other, potentially more effective alternatives



So, while on the one hand there can be a victory at the level of the local economy as a result of avoiding polluting economic activities, on the other hand, a corruption of social communitarian values may also occur.

4.3 Facilitating and hindering conditions

EJOLT project activity has identified several conditions that can help or hinder the beneficial employment of evaluation tools in the course of environmental justice struggles. Apart from those, EJOLT has identified a general condition which when in place can help the beneficial deployment of evaluation tools, as well as a series of actions that EJOs can take to interfere and shape conditions.

4.3.1 A general condition

The first important condition for the beneficial use of evaluation tools in the context of environmental justice is that when used, they are seen and used as **complementary** instruments in environmental struggles, and not as a conflict 'resolution' tool on their own. The information provided by the tools should then be introduced into the broader decision-making process as a means to advance environmental justice-related arguments.

EJOLT experience from Colombia for example, suggests that communities can use CBA when negotiate the costs of community relocation with a company. Similarly, the use of CBA in Kenya, even with the use of very conservative data from government sources allowed a recalculation showing a significantly eroded value of the sugar and biofuels project. In this way, CBA provided crucial additional information with supporting evidence that reinforced already documented social and ecological data. The CBA thus served a complementary role to the environmental justice arguments advanced by the EJO. This experience suggests that evaluation tools can be important and powerful advocacy tools and should be used as part of evidence supporting other pressure or advocacy tools, i.e. as a strategy within a broader strategy.

4.3.2 Hindering conditions

Several broader contextual conditions can complicate matters when using evaluation tools, notably, conditions of economic and political **crisis**. EJO experience with environmental justice struggles in Slovenia suggests that in the current moment of economic crisis, the use of rational¹¹ arguments – such as those supported by evaluation tools – in debates on individual projects are largely neglected, and this makes the use of such analyses challenging.

Another condition that could reduce the capacity of evaluation tools to provide useful input involves situations where precious commodities are involved. This is particularly the case with vast gold or oil deposits discovered under a forest or a

Evaluation tools should be seen as complementary instruments in environmental struggles and not as conflict 'resolution' mechanisms on their own

¹¹ Here we refer to rationality in the sense of the consequential reasoning of utility maximisation underlying e.g. CBA and EV (see e.g. Zografos and Paavola, 2008) – although used in such a way rationality can be exclusive and excluding of other priorities, values and forms of reasoning.



wetland for example, as EJO experience from Africa suggests. In Turkey, EJOLT experience suggests that in such cases (e.g. gold mines) there is a huge emphasis in public debate on the economic benefits of gold extraction and mining, and on the importance of transforming the local environment into an object for economic growth, which shuts other (e.g. environmental) concerns.

This situation can become compounded in cases where local communities themselves are **less concerned** about negative socio-environmental impacts, and more with the potential economic benefits of polluting projects, or in situations where there is a long tradition of installed polluting industries. Regularly, in such cases concern involves a limited number of issues such as health, employment and income, which could imply that evaluation tools may end up significantly narrowing the scope of their evaluation. Nevertheless, evaluation tools can be used in these cases to highlight the implications of projects on a broader scale, mobilising support for environmental justice from populations living in the vicinity of those sites (the 'second and third ring' of impact) and putting pressure on policy-makers to consider such broader implications.

Other challenging conditions, particularly for EVs and CBA, involve situations where **policy-makers** are unfamiliar with, or do not necessarily fully understand the figures and their implications. In such situations, evaluation tools risk being seen as too technical, and risking that their message is ultimately diluted. Another key challenge involves conditions related to **data availability**. In many cases, and as experienced by EJOLT practitioners in Colombia, economic or more technical data can be the property of private corporations that may be reticent (e.g. for reasons related to competition) to release such data. Still, in other cases (also pointed out by the study in Colombia), the process of developing evaluation tools may empower communities to request their administrations the release of data (e.g. water quality data) they realise it is their right to have access to.

A final, yet key condition involves the issue of whether evaluation tools are used out of choice or due to a lack of other alternatives for conducting environmental justice struggles. EJOLT partners have reflected that when working with communities that experience environmental injustice, using evaluation tools as the only means to contest injustice could create community dependence upon a tool whose operation and outcomes are out of the control of the community. Having the freedom to choose among different evaluation tools as well as different strategies for contesting environmental injustice is a crucial condition. This is because it helps to keep the process as political and plural as possible, avoiding situations where tools are imposed as 'black boxes' for decision-making.

Finally, another problem with evaluation tools is that they put alternatives that are seen very differently from an environmental justice perspective at the same level. Not only does the situation prior to the arrival of the assessed project become 'an alternative', but the elicitation of other further options brings uninvited choices in to the debate, towards which the community needs to position itself (such as payment of ecosystem services, eco-tourism development, etc.).



4.3.3 Facilitating conditions

In some situations **environmental conditions** themselves justify questioning the wisdom of putting more stress upon environmental resources. For example, in both Bulgaria and Slovenia, EJOLT organisations found fertile ground for questioning the soundness of further developing nuclear capacities due to the exhausted state of natural resources and environmental pollution. This, combined with the high environmental and health risks associated with nuclear power and the high costs of constructing a nuclear power plant, posed obstacles for future nuclear developments. The situation encouraged EJOs to employ evaluation tools in order to challenge plans for investing in nuclear power by comparing them with future investments in renewables.

Also, the particular **economic conditions** of the area within which controversial developments are proposed can facilitate the use of an economic language in order to question the importance of such developments. For example, in the Bergama gold mine case (Turkey), the local mayor suggested that the annual production of cotton, tobacco, tomatoes and olive oil in the district reached a value that by far (USD 7 million) exceeded the proposed gold mine investment.

Moreover, broader **socio-political conditions** can also provide a sound basis for using evaluation tools in a helpful way. Such has been the case with EJOLT partners in Turkey, where there is a broader **debate** about what the acceptable trade-offs between environmental and development should be in the face of a rapidly growing economy. Used properly, i.e. as a means to unpack the implications of different visions of development, evaluation tools can help EJOs tap into such debates. The state of debate can indeed be of crucial importance for mobilising the information generated by evaluation tools. For example, in the Belene case (Bulgaria), the nuclear power plant CBA has been useful for EJOs to deconstruct the price of nuclear energy, identify its hidden costs and use this as an argument in a decisive moment when a country-wide referendum was being held on the future of nuclear power. EJOs there used study findings to open a debate about the 'real' costs of nuclear energy, which was absent at the time.

As regards EV tools, a similar opportunity for using these arises in cases where the debate is conducted in a 'monetary' language. For example in Kenya, EJOs found it empowering to be able to speak the **same language**, the language of money, as politicians. Notwithstanding this, tools are more likely to have an impact when employed within decision-making process characterised by **openness**, where different sides are willing to negotiate on the basis of new information generated by the tools. In short, the tools themselves do not have the capacity to speak to actors that are not prepared to listen.

Furthermore, EJOLT experience in Kenya suggests that employing the tools **early** on in the process can be beneficial. EJOs decided to go down the line of arguing their case in money terms partly also because they conducted a CBA at the beginning of the project – in time to provide an input to the project's environmental impact assessment. It is very likely that it would have been more difficult to benefit from the evaluation tool if the project were already being implemented, since more



factors such as job losses and lost revenues would then come into play and possibly downplay the importance of environmental factors. The study received widespread media coverage, and conducting it early on was also helpful because it takes time to organise and conduct a successful information diffusion strategy.

4.3.4 EJO action to shape conditions

EJO action itself can shape or exploit conditions so that results from evaluation tools are useful. This is mainly in the case of actions that can shape the landscape upon which evaluation tools will be used in the future. An initial step EJOs can take is to be prepared for the evaluation tool and its results to be contested and criticised. It is important to put oneself in the position of those who oppose the views of environmental justice activists and consider on what grounds they may oppose study results. The Kenya experience suggests that ensuring **credibility** is important in that aspect, specifically the EJO's use of senior academics (also seen as independent sources) instead of private consultants to develop the CBA tool. Here the use of unquestionable data from government sources helped minimise the risk of questioning the study. Collaboration with academics can help build a more 'competitive' case based upon reputation and competence with regard to the use of tools, but **academics** themselves should be careful to try to avoid committing any of the 'ten sins' listed below, when working with activists (**Box 3**).

Box 4	Ten potential researcher sins in relation to civil society movements Source: Patrick Bond, Centre for Civil Society, South Africa
1.	Gatekeeping (or worse, hijacking): in which a researcher takes ownership of a movement, its interpretation and even access to it
2.	Substitutionism : replacing (not augmenting) the local understanding with the researcher's understanding or vision
3.	Ventriloquism : replacing local phrasing with a researcher's own words (in press releases, articles, statements of demands, etc)
4.	Careerism through parasitism: exploiting information gained, without reporting back or turning benefits back to the base
5.	Technicism or legalism: sometimes necessary to contest an enemy's technicism, but sometimes incapable of comprehending realities, usually causing premature deradicalisation
6.	Divisiveness : favouring or profiling certain factions or individuals, often in a sectarian way
7.	Hucksterism : romanticising and overstating the importance of the movement/struggle
8.	Score-settling : importing researchers' petty internecine rivalries, causing degeneracy in movement politics as ego-clashing replaces open, honest debate
9.	Failure of analytical nerve: inability (often due to fear) to draw out the fully liberatory potentials of the movement and its struggles
10.	Betrayal : turning against a movement, giving information to its enemies, or accepting the enemy's arguments

Building resistance to environmental injustice takes time, usually more time than government needs for planning, or corporations need for setting off a project, and it is common for EJOs to find themselves at the peak of struggle at a point when it is too late to change the course of things. EJOLT experience in Kenya suggests that this risk can be reduced by EJOs engaging with developments and decision-making processes also during '**times of peace**', i.e. at moments when disputes are not on the agenda.

This involves making use of Freedom of Information Acts, access to environmental data, public participation, etc. in order to be aware from the earliest



stages what is being planned, to monitor processes and keep the public informed, and to demonstrate that there are disputed options. These elements can keep the pace of decision-making processes in line with the development of EJO capacities. Their use is thus relevant in determining the effectiveness that evaluation tools can have, as EJOs can take advantage of opportunities to engage with policy-makers in times of low or no controversy, familiarising them with the tools and how they can contribute to the decision-making process. In this way EJOs can improve the chances that the use of such tools can have a positive impact in the future.

4.4 Critical concerns

EJOLT experience and expertise with evaluation tools has identified a series of questions that are critical when engaging with evaluation tools. Some of them are more applicable to specific tools (e.g. CBA), while other question apply more widely.

1. Who commissions the study?

The first question pertains to who is commissioning the study. Whether it is EJOLT, a government, a corporation, a community, or an EJO, it is crucial to understand who would want to initiate such a study and why they would they want to do so. Although evaluation tools are technical tools, they are used in a political contexts. So while the tool has to be used as part of a robust 'technical exercise', it is important to appreciate that will be applied to a political decision-making process. Being strategic in the use of a tool involves considering how it will relate to the political context at hand, and how it may validate the political context or not.

2. Who sets the criteria and how?

In particular, has there been an input by local communities in setting the criteria that are used for assessing alternative uses of resources¹², or for identifying and valuing impacts? Who sets the standards by which options are evaluated? Criteria need to be able to evaluate broader priorities (e.g. a move towards a post-oil Ecuador; a goal of sustaining peasant ways of life; etc.) and to avoid reducing social objectives into narrow indicators (e.g. ecological health as the capacity of one specific species to maintain and reproduce its habitat). For multi-criteria assessments in particular, this relates to the definition of alternatives (or 'scenarios') which should concern community visions for the future ('what we want to be'). When setting up evaluation processes, it is important that community concerns do not dissolve during the process of determining priorities, and that community demands do not get subsumed under other priorities.

3. Are we oversimplifying the issues at hand?

It is certainly important to produce resources that are easy to communicate to target audiences. Tools such as CBA can provide powerful and concise

¹² Including the option of not using resources for a specific development.



messages, particularly when it comes to communicating harm by means of a single monetary figure. This however runs the risk of oversimplifying the issues at hand and goes against the requirement of making visible different visions on environmental issues and offering responses that are not simplistic. For example, EJOLT experience from Turkey shows that narrow disputes over costs and benefits that hinge solely on monetary gains and losses can be counterproductive when faced with governments that emphasise economic benefits to local and national development from the increased rents of polluting activities. Monetary reductionism may harm the social legitimacy of other values expressed, such as territorial rights and access to resources. Getting the right trade-off between communicative power and complexity is challenging and must be kept in mind whatever the tool or approach being used.

A series of questions that are critical when engaging with evaluation tools

4. What timescales and lifetimes are considered?

One objective of environmental justice struggles that is key is to ensure that communities get their fair share of participation in benefits over the entire course of the resource exploitation process. As a result, evaluation tools should analyse the whole of a project's life-cycle and chain of production, to ensure that the costs and benefits incurred during all those stages are identified. EJOLT engagement with those tools suggests that this kind of analysis might be very useful as a component of CBAs and MCAs. Also, the time scales considered by polluters can be short, while contamination (for example of water resources or soil) may involve longer scales. Similarly, as regards health issues, when considering the impact of radiation on health for example, the International Commission for Radiological Protection only takes into consideration cancer, yet, when exposed to radiation all bodily functions can be affected in the long run. So, the criteria used by the tools should consider such timescale differences.

5. The compensation issue: supporting a harmful paradigmatic shift?

EJOLT engagement with evaluation tools for environmental liabilities has identified a crucial concern as regards the operation of EV in particular. Specifically, there is a danger that valuations may serve as a Trojan horse to bring about a paradigmatic shift in how environmental legislation is applied, notably, encouraging a move away from the requirement of compliance with environmental standards towards compensation for damage. The danger is that we could be moving into a system where polluters would be required to compensate those who bear the negative effects of resource exploitation (e.g. contamination) on the basis of calculations made through EVs, instead of complying with environmental standards that require them not to pollute above certain levels.

In this case, compensation would essentially provide a back door for turning nature into a commodity, or perhaps more precisely, for expanding upon this already existing trend. Such commodification could have four negative implications: first, reducing, or even wiping out the role of prevention as a principle for ensuring environmental quality; second, allowing situations where it will be legally acceptable to continue with damages that may be environmentally



unsustainable as long as they are accounted for monetarily; third, allowing polluters to buy themselves out of environmental justice, i.e. creating a situation where the unequal burdens of natural resource exploitation are bought out by polluters, thus annulling any claims for justice and prevention; and fourth, an enclosure and privatisation of environmental standards, whereby a public good, i.e. something expected to be equally enjoyed and respected by all, could become the private property of some, so that standards can be bought and sold at more or less expendable prices.

Although nature commodification certainly predates the use of EV tools, tools can be instrumental to such a shift due to the fact that valuation can be used to claim that the full cost of resource use is reflected in the calculated value, i.e. that the monetary valuation provides a 'true' reflection of costs incurred. The suggestion here is that there is a risk that valuation can be counter-productive if impacted communities prefer to use monetary values to try to get compensation instead of using them as a tool to create pressure to stop environmental degradation. This is especially so for campaigns that try to convince governments to take proactive decisions or re-consider decisions in favour of environmental protection and conservation.

Moreover, polluters can turn around and calculate the damage, or the cost of damage resulting from their operations (e.g. an oil spill), and even perhaps deal with the situation through contracting insurance. In such situations, valuation would help set a 'value' for certain damages in advance, making the risk calculable and thus insurable. This could allow polluters to continue with damage, pretending that compensation represents the cost of environmental damage and injustice. In those cases, evaluations can be seen as a tool to calculate a 'fee', the payment of which gives the right to produce damage, instead of calculating a fine to act as a deterrent against damage. The practice also makes nature open to the highest bidders, those who are able to raise the necessary capital to deal with damages, vis-à-vis returns on investment. Used in such a way, valuation could become a tool that facilitates resource dispossession.

6. Does the evaluation leave room for an apology?

Although environmental justice can be implemented through a process of compensation liability that can be facilitated by some evaluation tools, this should not crowd out a public apology. The idea of an apology is very important, because once someone apologises, this implies a commitment that they will try to avoid repeating the same action. An apology comprises recognition of having committed a wrongful action and the willingness to change the process and one's behaviour in the future (O'Neil 2012). It is an indication of responsibility not only in economic terms (e.g. via compensation) but also in political terms.

An apology also implies that decision-makers are held responsible, and that they will be held responsible for future acts. The case of Bergama points out that sometimes court decisions to pay compensation for damages amount to a symbolic gesture of public recognition that the state is responsible and that it would be held responsible for any such future acts. The use of evaluation tools



neither sideline the value and political implications of a public apology, nor make EJOs stop short of pursuing apology as a strategy¹³, either on its own right or as complementary to compensation.

7. Will a tool that appeals to reason work well when reason is irrelevant?

Evaluation tools are based on rational premises in the sense that they appeal to facts or reason for making a decision as regards the use of natural resources. In particular, they draw upon facts or information such as levels of contamination, profits, costs, etc. in order to make sense of the effects, and then evaluate the relative impact of several natural resource uses.

In principle, such evaluations are meant to provide a relatively 'impartial' reading of social reality, specifically of the impacts of alternative courses of action and the assumptions upon which they are based. These alternatives and assumptions can then be used to inform discussions and reach a decision regarding the best course of action, and the best use of resources. Nevertheless, decisions are regularly taken as a result of pressures from lobbies or other macro or micro-political priorities that sideline and render irrelevant the weight of reason in public decisions. EJOLT experience with the use of conventional economic tools to analyse coal plants in Slovenia highlighted that reasonable arguments regarding the lack of economic viability of one such plant failed to convince the government, even when these arguments were not only held by experts (e.g. academics) but also accepted by the industry itself. Such instruments do not work automatically to convince policy-makers to change their decisions, and may have little effect in a context of political struggle that does not prize reason.

¹³ Similarly for other strategies such as seeking restoration, the obligation not to repeat and to stop the source of damage.



5 Conclusions and recommendations

The key question that this report embarked upon answering is “when and how is it best to use evaluation tools in environmental justice struggles?” On the basis of experience gathered through EJO application of evaluation tools within the EJOLT project and through exchange of experience and expertise on evaluation tools between EJOLT partners, we have endeavoured to answer this question.

As a starting point, the EJOLT experience and collaboration recognises that, similarly to injustice, evaluation tools operate within a context of power relations that cannot be ignored when judging the desirability of their use in environmental justice struggles. Within this context, purpose is key when deciding whether or not to employ those tools. By purpose we mean two things: first, that the tools are more helpful to environmental justice struggles when their aim is to reveal the assumptions underlying the different solutions that are suggested by different interests as ‘optimal’ in environmental conflicts. Second, purpose also refers to what an EJO tries to achieve through the use of the tool in the context of environmental justice struggles. This should come first, and then be followed by an assessment (perhaps with the assistance of experts in the use of tools) of the capacity of the tool to contribute to this purpose and to engage society in necessary discussions about futures. The implication is that the use of evaluation tools by EJOs should be strategic, and seek to achieve a more level playing field of struggle for environmental justice.

EJOs engagement and expertise with evaluation tools has identified a series of critical questions and concerns that are relevant for deciding whether and when to use those tools and how

Beyond those findings, we also learned that several aspects of the tool and broader contextual conditions may be enabling in some cases, and in others hindering, in environmental justice struggles. Some enabling aspects include the capacity of the tools to attract media attention and create alliances in the struggle for environmental justice as well as to add a pedagogical dimension in terms of conveying knowledge about environmental damage and injustice. Some hindering aspects include the risk of crowding out either regulation to prevent damage and injustice (particularly relevant for EV and CBA) by promoting compensation as a



means to mediate injustice, or other effective strategies such as seeking a public apology by those who generate or tolerate environmental injustice. This relates to a general condition as regards the use of evaluation tools: when used, those tools should be used as complementary instruments in the quest for environmental justice and not as conflict resolution tools. Delegating the decision of how to resolve environmental conflicts to a technical tool is undesirable because such conflicts need to be resolved politically through engaging parties in negotiations between equals, and through addressing the root causes of conflict.

The responsibility of making public decisions about the use of resources lies in processes of dialogue and citizen engagement (through, among other things, social mobilisation, civil disobedience, etc.) and cannot be displaced to a technical tool. Nevertheless, evaluation tools can be crucial in supporting democratic decision-making processes both by signalling the contingency of any suggested 'best option' and by revealing key issues that need to be considered and discussed.

The socio-economic conditions of a crisis as well as the political conditions in which policy-makers may be unfamiliar with tools, and where communities lack the freedom to choose between different instruments to make their case, may make it challenging to beneficially use the tools. Conversely, environmental conditions of excessive pollution and resource depletion, economic conditions in which strong alternatives in the local economy are already in place, and socio-political conditions in which broader debates exist about the importance and effects of development, as well as openness in decision-making can facilitate a beneficial use of the tools. Importantly, tools should be used early on in the process of an environmental struggle. EJOs should also vie for developing highly credible evaluation studies and engage with policy-making in times of peace if the results of such studies are to stand a chance of being accepted.

Finally, EJOLT, through its engagement and expertise with evaluation tools has identified a series of critical questions and concerns that are relevant for deciding whether and when to use those tools and how. Some of those questions include who commissions an evaluation study and who sets the criteria of the assessment and how, as well as how long are the timescales and lifetimes considered in those studies. Concerns involve the need to avoid oversimplifying environmental injustice issues through the use of the tools, to determine whether tools that essentially appeal to reason for pursuing justice may make sense in a context where reason is side-lined by political motives and power haggles, and the worry that through monetising environmental and health damage (e.g., via CBA and EV) one may end up jeopardise environmental justice by adding to a shift in environmental regulation from damage prevention to damage commodification through compensation.

The EJOLT experience also suggests that the conditions and context of environmental struggles are different in different cases and that this in turn may significantly influence the decision as to whether or not to use those tools and how to do so. Instead of elaborating a blueprint for answering this question, we acknowledge that the answer will depend on the particular circumstances of



environmental injustice and struggle. As an alternative, what we offer in terms of recommendations is a 'Decalogue' of issues upon which EJOs should reflect before engaging in the development of evaluation tools and which they should consider while and after developing them. It is hoped that through engaging with those issues or with some of them that will be considered relevant in each case, EJOs will themselves be able to answer the question of 'when and how to use evaluation tools' in the context of their environmental justice struggles. Again, this list of issues does not pretend to be exhaustive but to simply reflect and convey the main insights identified through EJOLT's experience and expertise with those tools.

DECALOGUE: When to use evaluation tools and how. 10 issues to consider

1. First and above all: purpose, purpose, purpose! Do not forget that the tool should be subservient to your purpose, i.e. it should be an instrument to achieve your purposes in environmental justice struggles and not vice versa. Purpose also refers to the reason and way of using tools, that is to open up debate by revealing the different assumptions behind different articulations of 'best use' of resources.

Before engaging with the tool

2. Is reason relevant for taking decisions in your case of environmental struggle? Are policy-makers, communities, and other relevant actors and stakeholders likely to listen to the voice of reason that the evaluation tool will base its results and arguments?
3. Be strategic: ask yourself if the tool can help you move towards a more level playing field or if dedicating effort and resources to more conventional activity (e.g. organise a conference with experts, disseminate material, etc.) could serve this purpose better.
4. Engage in less conflictive interaction with policy-makers during 'peace times'. Use the opportunity not only to learn about future, potentially harmful developments but to also familiarise policy-makers with the tools and their contribution.
5. Consider the background conditions identified in this report: are they mostly hindering (e.g. is there data availability) or facilitating (e.g. is it early in the process)?
6. Consider the compensation issue (relevant mostly for CBA and EV). Is there a danger that by developing the tool you help remove prevention of risk and damage and encourage damage compensation that weakens the role of environmental regulation? In short, could you be helping polluters to buy themselves out of environmental justice?

The list of issues raised is exhaustive but conveys main insights identified through EJOLT's experience and expertise with evaluation tools

**During** the development of the tool

7. Be ready to be questioned: ensure the credibility of results by collaborating with professionals whose expertise and independence is not questionable and by using data whose validity is well established.
8. Develop the tool in such a way that it reveals the trade-offs and dilemmas of public decisions. Avoid using the tool to provide a single, optimal choice. Do not use the tool to oversimplify reality.

After developing the tool

9. Use the tool to engage with the media but also for building alliances with other groups active in broader justice struggles as well as possibly concerned policy-makers. Think of how you can make good use of the tool's pedagogical potential, e.g. as a means to spread knowledge about environmental damage, risk and injustice.
10. Use tool results as a complementary instrument (e.g. pursue also public apology for liabilities) to put pressure for addressing environmental injustice. Do not use the tool as a single, all-encompassing pressure strategy, but maintain a number of 'battlefronts' open, a portfolio of strategies to contest environmental injustice.



Acknowledgments

The authors of the report thank all the organisers and participants in the EJOLT workshop on economic evaluation of liabilities (Rome, November 2013), and in particular Patrick Bond, Lucie Greyl, Jutta Kill and Joachim Spangenberg for their insightful interventions. The assistance of Daniela Del Bene and Amanda Blank as minute takers greatly facilitated the preparation of the manuscript.

The authors also would like to acknowledge and thank Mariana Walter for the preparation of a box for the manuscript and the contribution of Mireri Caleb, Onjala Joseph, Oguge Nicholas, Odhengo Peter, Nyangena John, Waweru Patrick, Ouma Zephania, Onyango Benard, Mnyamwezi Eugene and Nelson Peter in producing the chapter on the Kenya case.

Special thanks are given to Ivonne Yanez, for the review of contents, to Larry Lohmann, for comments on the contents, and to Hali Healy for his supportive assistance in proofreading several sections of the report.



References

- Aldred, J. 2006. Incommensurability and monetary valuation. *Land Economics*, 822, 141-161.
- Arsel M. 2012. "Opposition to Gold Mining at Bergama, Turkey, EJOLT Factsheet.
- Avcı, D., Adaman, F., Ozkaynak. B. 2010. Valuation Languages in Environmental Conflicts: How Stakeholders Oppose or Support Gold Mining at Mount Ida, Turkey, *Ecological Economics* 70, 228-238.
- Bennun, L., Njoroge, P. 1999. Important Bird Areas in Kenya. East Africa Natural History Society. Available at Nature Kenya.
- Bullard, R. 2001. Environmental Justice, in: Smelser, N.J. (Ed.), *International Encyclopedia of the Social & Behavioral Sciences*. Pergamon, Oxford, pp. 4627–4633.
- Colopy, C., 2012. *Dirty, sacred rivers. Confronting South Asia's water crisis*. Oxford University Press, New York.
- De Groot, R.S., Stuij, M.A.M., Finlayson, C.M. & Davidson, N. 2006. Valuing wetlands: guidance for valuing the benefits derived from wetland ecosystem services, Ramsar Technical Report No. 3/CBD Technical Series No. 27. Ramsar Convention Secretariat, Gland, Switzerland & Secretariat of the Convention on Biological Diversity, Montreal, Canada.
- DeSimone, P. 2012. Investor risks Looming in the Niger Delta. Si2 Special Report 2012. Washington D.C: Sustainable Investments Institute.
- Econometría Consultores. 2010. Diseño y validación del marco conceptual y metodológico para caracterizar, priorizar y valorar económicamente los pasivos ambientales mineros en Colombia. Ministerio de Minas y Energía. República de Colombia.
- Farrow, S. 1998. Environmental equity and sustainability: rejecting the Kaldor-Hicks criteria. *Ecological Economics*, 272, 183-188.
- Garmendia, E., Gamboa, G., Franco, J., Garmendia, J.M., Liria, P., Olazabal, M. 2010. Social multi-criteria evaluation as a decision support tool for integrated coastal zone management. *Ocean Coast. Manag.*
- Gerber, J.-F., Rodríguez-Labajos, B., Yáñez, I., Branco, V., Roman, P., Rosales, L., Johnson, P. 2012. Guide to Multicriteria Evaluation for Environmental Justice Organisations.
- Gerber, J.-F., Adaman, F., Avcı, D., Aydın, C.I., Ojo, G.U., Özkaynak, B., Rodríguez-Labajos, B., Roman, P.



- and Yáñez, I. 2014. Socio-Environmental Valuation and Liabilities: What Strategies for EJOs. EJOLT Report No. 13, 108 p.
- Getzner, M., Spash, C.L., Stagl, S. 2005. *Alternatives for Environmental Valuation*. London: Routledge.
- Gómez-Baggethun, E., Ruiz-Perez, M. 2011. Economic valuation and the commodification of ecosystem services. *Progress in Physical Geography* 35: 613 – 628.
- Greyl, L., Ojo, G. U., Williams, C., Certoma, C., Greco, L., Ogbara, N. Ohwojeheri, A. 2013. Digging deep corporate liability. Environmental Justice strategies in the world of oil. EJOLT Report No. 9, 73 p.
- Hanley, N. 2000, “Cost-benefit analysis”, in *Principles of environmental and resource economics: a guide for students and decision-makers*, H. Folmer, H.L. Gabel eds, Edward Elgar Publishing.
- Hanley, N., Barbier, E. 2009. *Pricing nature: Cost-benefit analysis and environmental policy*. Edward Elgar Publishing.
- Hilson, G., 2002. An overview of land use conflicts in mining communities. *Land Use Policy*, 191, 65-73.
- Kallis, G., Gómez-Baggethun, E., Zografos, C. 2013. To value or not to value? That is not the question. *Ecological Economics* 94, pp. 97–105.
- Knetsch, J. L. 1994. Environmental valuation: some problems of wrong questions and misleading answers. *Environmental Values*, 351-368.
- Larrea, C., Latorre, S., Walter, M., 2014. Íntag, un territorio en disputa. *Evaluación de escenarios territoriales extractivos y no extractivos*. Abya-Yala/Universidad Andina Simón Bolívar: Quito. Maldonado, A. 2013. *Pueblos Indígenas y petroleras. Tres Miradas*. Clínica Ambiental, Quito, 152 p.
- Martínez-Alier, J. 2002. *The environmentalism of the poor*. Edward Elgar Publishing Northampton, MA.
- Martínez-Alier, J. 2008. *Conflictos ecológicos y justicia ambiental*. *Revista Papeles de sostenibilidad* N. 103. p: 11-27.
- Martínez-Alier, J., Anguelovski, I., Bond, P., Del Bene, D., Demaria, F., Gerber, J.F., Greyl, L., Haas, W., Healy, H., Marín-Burgos, V., Ojo, G., Porto, M., Rijnhout, L., Rodríguez-Labajos, B., Spangenberg, J., Temper, L., Warlenius, R., Yáñez, I., 2014. Between activism and science: Grassroots concepts for sustainability coined by environmental justice organizations. *J. Polit. Ecol.* 21, 19–60.
- Martínez-Alier, J., Munda G., O'Neill J., 1998. Weak comparability of values as a foundation for ecological economics. *Ecological Economics*, 26:277-286.
- Martínez-Alier, J., O'Connor, M., 2002. Distributional issues: an overview. In: van den Bergh, J. Ed., *Handbook of Environmental and Resource Economics*. Edward Elgar, UK. Paperback edition.
- Martínez-Alier, J., Roca, J. 2013. *Economía Ecológica y Política Ambiental*. 3ª ed. Fondo de Cultura Económica de México.



- 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. *Operation Springer, Research and Decision Theory Series*, Heidelberg, New York.
- Nature Kenya, 2008a. Brief on Tana River biodiversity. <http://www.tanariverdelta.org/1076-DSY/version/default/part/AttachmentData/data/Tana%20Delta%20Biodiversity.pdf>.
- Nature Kenya, 2008b. The economic valuation of the proposed Tana Integrated Sugar Project TISP, Kenya. http://www.rspb.org.uk/Images/tana_tcm9-188706.pdf.
- Niemeyer, S., Spash, C. L. 2001. "Environmental valuation analysis, public deliberation, and their pragmatic syntheses: a critical appraisal" *Environment and Planning C*, 19(4), 567-586.
- O'Neill, J. 1993. *Ecology, policy and politics: human well-being and the natural world*. Routledge.
- O'Neill, J. 2012. *EJOLT and Ethics: Preliminary Draft Report*.
- Odhengo, P., Matiku P., Nyangena J., Wahome, K., Opa, B., Munguti, S., Koyier, G., Nelson, P., Mnyamwezi, E., Misati, P. 2012. *Tana River Delta Strategic Environmental Assessment Scoping Report*. Published by the Ministry of Lands, Physical Planning Department.
- Odhengo, P., Matiku P., Nyangena J., Wahome, K., Opa, B., Munguti, S., Koyier, G., Nelson, P., Mnyamwezi, E., Misati, P. in press. *Tana River Delta Land Use Plan Baseline Report*. Published by the Ministry of Lands, Physical Planning Department.
- Official Journal of the European Union (OJEU). 2004. 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.
- Ozkaynak, B., Rodriguez-Labajos, B., Arsel, M., Avci, D., Carbonell, M.H., Chareyron, B., Chicaiza, G., Conde, M., Demaria, F., Finamore, R., Kohrs, B., Krishna, V.V., Mahongnao, M., Raeva, D., Singh, A.A., Slavov, T., Tkalec, T., Yáñez, I., Walter, M., Živčič, L. 2012. *Mining Conflicts around the World: Common Grounds from Environmental Justice Perspective*, EJOLT Report No. 7.
- Paredis, E., Goeminne, G., Vanhove, W., Maes, F., Lambrecht, J., 2009. *The concept of ecological debt. Its meaning and applicability in international policy*. Academia Press, Ghent (Belgium).
- Paulson, S., Gezon, L.L., Watts, M., 2003. *Locating the Political in Political Ecology: An Introduction*. *Human organization*, 62:205-217.
- Raeva, D., Slavov, T., Stoyanova, D., Živčič, L., Tkalec, T., Rode, Š. 2013. *Expanded nuclear power capacity in Europe, alternatives and impact of uranium mining*. EJOLT Report No. 14, 103 p.

- Rodriguez Labajos, B., Martinez-Alier, J. 2013b. The Economics of Ecosystem and Biodiversity. When is money valuation appropriate? In H. Healy, J. Martinez-Alier, L. Temper, M. Walter & J. Gerber Eds., *Ecological Economics from the Ground up* pp. 488-512. London and New York: Routledge.
- Rodríguez-Labajos, B., Martínez-Alier, J. 2013a. The economics of ecosystems and biodiversity: Recent instances for debate. *Conserv. Soc.* 11, 326–342.
- Samuels, W. J., Schmid, A. A., 1981. *Law and economics: an institutional perspective*, M. Nijhoff Pub., Boston, 268 p.
- Schlosberg, D. 2013. Theorising environmental justice: the expanding sphere of a discourse. *Env. Polit.* 22, 37–55.
- Segerson, K. 2001 (ed.) *Economics and Liability for Environmental Problems*, Ashgate Publishing Co., Aldershot, UK and Burlington, VT.
- Smith, S. M., Shepherd, D. D., Dorward, P. T. 2012. Perspectives on community representation within the Extractive Industries Transparency Initiative: Experiences from south-east Madagascar. *Resources Policy* 37 2, 241-250.
- 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*, 348, 1433-1438.
- Spash, C. L. 2001. “Deliberative Monetary Valuation” 5th Nordic Environmental Research Conference, University of Aarhus, Denmark.
- Spash, C. L. 2002. *Greenhouse economics: values and ethics* Routledge Explorations in Environmental Economics, Taylor & Francis, London.
- Spash, C. L., Carter, C. 2001 *Environmental Valuation in Europe: Findings from the Concerted Action*, Cambridge Research for the Environment.
- Taşkın, S. 1998 *Siyanürcü Ahtapot Octopus that Employs Cyanide*, Istanbul: Sel Yayıncılık.
- United Nations Environment Program (UNEP). 2011. *Environmental Assessment of Ogoniland*. Nairobi: UNEP.
- Vatn, A. 2004. Environmental valuation and rationality. *Land Economics*, 80 1, 1-18.
- Vatn, A. 2005. Rationality, institutions and environmental policy *Ecological Economics* 55 2005 203–217.
- Water Resources Management Authority. 2009. *Tana Water Catchment Area Management Strategy*.
- Zografos, C., Paavola, J. 2008. Critical perspectives on human action and deliberative ecological economics. In: Zografos, C., Howarth, R.B. 2012. *Deliberative Ecological Economics*. New Delhi: Oxford University Press. pp. 146-166.

