

Inequalities and the environment: A review of applied policy research

Lucas Chancel, Damien Demailly, Felix Sieker (IDDRI)

ENVIRONMENTAL INEQUALITIES: A GROWING INTEREST FOR POLICY RESEARCH

The rise in economic inequalities and the continued pressure of human activities on the environment constitute two major challenges to policy makers in the decades to come. The definition of environmental inequalities, referring to different interactions between environment-related topics and inequality, brings both policy objectives in immediate conjunction. Environmental inequalities relate to a great variety of policy challenges, encompassing unequal access to environmental goods, different degrees of exposure to natural hazards and the question of the way in which environmental policies have diverse affects on different segments of society.

THE POSITION OF THINK TANKS REGARDING ENVIRONMENTAL INEQUALITIES

This study assesses the positions held by think tanks in respect of environmental inequalities and stresses the major policy challenges identified by think tanks with regard to this issue. Two types of policy challenges are particularly prominent. Think tanks focus to a great extent on how environmental stress—natural hazards or diminished access to environmental goods—affect individuals differently. Moreover, they are concerned with the unequal impact of environmental policies such as carbon taxes or fossil fuel subsidies on different parts of society.

DIFFERENCES BETWEEN ACADEMIC AND APPLIED POLICY RESEARCH

The work of think tanks on environmental inequalities differs in some cases from the academic literature. Exposure and access inequalities are, for instance, almost never assessed with regard to developed countries, in contrast with published academic literature. Furthermore, policy recommendations focus too heavily on pure price mechanisms and short-term measures. In the context of environmental policies, think tanks primarily propose direct monetary compensations to target potential inequality, instead of looking at the underlying causes of why certain segments of the population are more affected by such policy measures in the first place.

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Citation: Chancel, L., Demailly, D., Sieker, F. (2015). Inequalities and the environment: A review of applied policy research, *Studies* n°06/15, IDDRI, Paris, France, 40 p.



This article has received financial support from the French government in the framework of the programme "Investissements d'avenir", managed by ANR (the French National Research Agency) under the reference ANR-10-LABX-01.



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ISSN 2258-7535

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EXECUTIVE SUMMARY	5
1. INTRODUCTION	7
2. METHODOLOGY	8
3. GENERAL RESULTS	10
3.1. What is the general distribution and what are the main policy challenges highlighted by think tanks?	10
3.2. Who says what on each challenge?	11
3.3. What is the geographical focus of think tanks?	12
4. SPECIFIC FOCUS	12
4.1. Exposure and access inequalities	12
4.2. Policy effect inequalities	16
4.3. Impact inequalities and policy-making inequalities	19
5. DISCUSSION	21
5.1. In developing countries a poverty-environment discussion prevails	21
5.2. Policy recommendations essentially focus on price mechanisms and short-term measures	22
5.3. Growing concern on unsustainable consumption patterns of different income groups	23
5.4. Limited ability of think tanks to propose integrated policy options	25
6. CONCLUSION	26
REFERENCES	27
APPENDIX: SPECIFIC THINK TANKS BIBLIOGRAPHIES	30

EXECUTIVE SUMMARY

The rise in economic inequalities (Piketty, 2014) and the continued pressure of human activities on the environment constitute two major challenges to policy makers in the decades to come. Both challenges have been widely discussed among scholars, civil society and policy makers, leading to a wide consensus that reducing inequalities and protecting the environment are among the most pressing policy objectives (UN, 2013). The definition of environmental inequalities, referring to different interactions between environment-related topics and inequalities brings both policy objectives in immediate conjunction. In the academic literature, environmental inequalities are generally broken down into four categories (Laurent, 2011): (1) exposure and access inequalities, which encompass unequal access to environmental goods, as well as different degrees of exposure and vulnerability to environmental risks, represented for example by natural hazards or droughts; (2) policy effect inequalities, which refer to the unequal effects of environmental policies such as carbon taxes or energy subsidies; (3) impact inequalities, which relate to the unequal environmental impacts of individuals and groups, such as the unequal amounts of pollution produced by different segments of the population; and (4) policy-making inequalities, which refer to the unequal access of individuals and groups to environmental policy-making.

While environmental inequalities have already been extensively covered in the academic literature, little attention has been focused on the ways in which think tanks address environmental inequalities in their publications.

This paper assesses the position of think tanks on environmental inequalities based on a qualitative content analysis of their publications. Relying on the top think tanks in the domains of international development and the environment, we assigned their publications to one of the four categories and highlighted the major policy challenges emphasized by think tanks in the context of environmental inequalities. In a second step, we examined the specific lines of argumentation surrounding each of the major policy challenges.

We show that exposure and access inequalities, along with policy effect inequalities, are sufficiently addressed by think tanks, whereas impact and policy-making inequalities do not feature highly in their research. This finding is reflected in the major policy challenges identified by think tanks, which are only subject of these two categories of environmental inequalities. In particular, we identify the following policy challenges: vulnerability to environmental stress, fossil fuel subsidies, carbon tax, access to energy, and dependence on ecosystem services, access to water and ecosystem services management.

In addition, this research shows that the work of think tanks on environmental inequalities differs in some cases from the academic literature. In this context, two observations stand out. Firstly, exposure and access inequalities are almost never assessed with regard to developed countries, even though such forms of inequality are of great importance in these countries. Thus, exposure and access inequalities in developed countries, which are already the subject of research in academia, deserve more attention from think tanks. The importance of this issue was demonstrated by the impacts of environmental stress events such as

hurricane Katrina, the 2009 heat wave in France or the repeated Californian droughts. Secondly, policy recommendations are overly focused on pure price mechanisms and short-term measures. For instance, in the case of fossil fuel subsidies or carbon taxes, think tanks focus primarily on direct financial compensation to target any inequality that potentially results, rather than addressing the underlying reasons why certain segments of the population are more affected by such policy measures. Think tanks should therefore conduct

more research into policy recommendations that go beyond price mechanisms and short-term measures. For a longer-term solution to the underlying causes of vulnerability, policy interventions must place an increased focus on the dynamics of consumption patterns and on natural resource dependencies. This should not be limited to carbon taxes or energy subsidies, but rather expanded to include all types of regulatory measures, such as biodiversity conservation policies.

1. INTRODUCTION

In the last decades, rising economic inequalities and increasing impacts resulting from climate change have become one of the most pressing policy challenges. Already widely covered in academia and discussed among scholars, civil society and policy makers, the alleviation of inequality and enhanced protection of the environment are major policy objectives (UN, 2013). The way in which

While inequality is often discussed in its economic (income) or social (gender, ethnicity, power) dimensions, it is also inherently related to the environment. As German sociologist Ulrich Beck said, social and economic inequalities can be exacerbated and globalized by environmental degradation. The exposure of certain communities to environmental risks is largely shaped by unequal resource distribution and different vulnerabilities. According to the Centre for Climate Change Economics and Policy, environmental degradation triggered by climate change has asymmetric effects, impacting the poor more than the rich, and uncover, as well as reinforce existing patterns of socio-economic inequality (Bowen *et al.*, 2015).

These forms of inequalities apply to a broad range of environment-related topics. Among them are unequal access to environmental goods, as well as different degrees of exposure and vulnerability to environmental risks, represented for example by natural hazards or droughts. Of similar importance is the question of the unequal effects of environmental policies, such as carbon taxes. Other forms of environmental inequalities refer to unequal pollution levels of different segments of the population and to the

unequal access to environmental policy-making. Therefore, environmental inequalities cannot be reduced to a single area, but rather cover—as a multidimensional concept—the wide range of ways that humans interact with the environment (Laurent, 2011).

Putting an emphasis on the conjunction between inequality and the environment helps us to comprehend ecological transition as a political issue with a scope that expands into the social justice debate (Boyce, 2007). It enables the winners and losers of environmental policies to be identified, which is necessary for the implementation of such policies. Conversely, looking at the interactions between social justice and environmental inequality helps various sustainable development and social policy actors to understand social justice debates in a new light. This notion or appreciation of environmental justice is already strongly represented in the academic literature (Martinez-Allier, 2002), however, it is questionable to what extent environmental justice concerns are adequately translated into the policy arena.

Apart from the broader debate on environmental justice, closer insights into how inequality and the environment interact can provide useful information for policymakers and other actors involved in sustainable development and social policies in general. If sustainable solutions are to be found for environmental inequalities, more information is required on where the key policy challenges lie.

One way to address this question is to examine whether, and in what ways, applied policy research institutions, or think tanks, have contributed to the inequality and environment debate. Therefore, we have looked at the following questions:

- (1) What are the policy challenges identified by think tanks?
- (2) How do think tanks analyse these issues?
- (3) What policy recommendations and suggestions are proposed by think tanks?
- (4) What are the strengths and limitations of the analyses of think tanks on these issues?

2. METHODOLOGY

Taking into consideration that inequality and the environment are already present in the academic debate, the question remains how is this debate translated into the policy arena? A rational starting point to address this question is to look at the way think tanks discuss this issue.

Think tanks are defined “as public-policy research analysis and engagement organizations that generate policy-oriented research, analysis, and advice on domestic and international issues, thereby enabling policymakers and the public to make informed decisions about public policy” (McGann, 2015: p.8). As independent institutions or university-affiliated bodies, their role is to mediate between academia and the policy arena. Therefore, research is translated to make it accessible for actors of the policy arena and the public sphere (McGann, 2015).

Think tanks can also contribute to the shaping of policy discourses. They have the ability to deploy a discourse coalition, which according to Hajer is an “ensemble of a set of story lines, the actors that utter these story lines, and the practices that conform to these story lines, all organized around a discourse” (Hajer, 1993: p.47). Therefore, they assemble along coalitions and determine political realities through their story lines.

To assess the positions of think tanks regarding inequality and the environment we followed the general outline of a qualitative content analysis, which was adapted to the scope of this research.¹ Qualitative content analysis can be defined as a “research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns” (Hsieh &

Shannon, 2005: p.1278).² It therefore requires the definition of the material to be analysed and the application of a systemic approach.³

Thus, we first defined the object of research and identified the material to be analysed. In a second step we categorized this material to identify policy challenges and to search for similarities and general patterns. In particular, we looked for common patterns that encompassed the policy challenges that we set out to explore. We then examined any patterns identified in greater detail, discussing the main line of argumentation used in relation to the interaction between inequality and the environment.

Definition of the research question and material

Selection of think tanks

Many thousands of think tanks exist throughout the world, with varying scopes, sizes and influence. Indeed, certain think tanks may even act like “shadow” environmental ministries, while others have much more limited resources and access to the policy-making sphere. To select a number of think tanks for analysis and to determine what was representative of the policy discourses of think tanks, we used a think tank assessment report published by the University of Pennsylvania: the *Go to think tank report*.

In this survey, think tanks were assessed according to expert panels and a think tank impact assessment tool. This tool was composed of a resource, utilization, output and impact indicator that aimed to evaluate the impact of think tanks. In summary, 6,618 think tanks were evaluated and ranked according to their research focus (McGann, 2015). Although this survey attracted some criticism in relation to the choice of think tanks, it has been widely seen as an “excellent resource to understand which think tanks are most widely recognized” (Trevisan, 2012: p.7).

To reduce the scope and enhance the feasibility of the project, the top 20 think tanks in categories relating to the environment and inequality were chosen. The identified categories include *Energy*

1. Initially, content analysis has been a quantitative methodology aimed at analyzing text material by looking at the distribution or frequency of words. Faced with criticism, which argued that quantitative content analysis is too superficial and does not permit closer insights into the significance or line of argumentation of a given material, content analysis became also important for qualitative methodologies (Mayring, 2000).

2. However, comparable with a discourse analysis, the exact research procedure varies according to the aim of the study, as several authors stressed (Mayring, 2000).

3. Because of the amount of publications covered, we could not analyze single texts in depth. Indeed, the interest is rather driven by attempts to gain a deeper understanding of what think tanks reveal as a policy challenge in the context of inequalities and the environment and how the line of argumentation is structured. For a similar approach of a qualitative content analysis applied to think tanks (see e.g. Klinkforth, 2006).

and Resources, the Environment and International Development. Undoubtedly, there is a clear possibility of omitting a key think tank that conducts research at the interface between the environment and inequalities. However, as our objective is to obtain an understanding of the overall discourse, our approach of analyzing the top 20 think tanks in the relevant category is appropriate. The core of this paper does not primarily concern the question of what has been said, but rather focuses on what has been said by whom, and what justifications have been advanced. Furthermore, this project aims to highlight any research gaps that exist between academic literature and applied policy research.

The studied material is representative of think tank publications and was accessed through think tank websites or scientific journals. Therefore, the material includes publications, issued solely by members of a given think tank, as well as collaborative publications encompassing different actors. Whenever a publication could be accessed through a think tank's website, thereby indicating its involvement, the publication was assigned to that think tank. We focused on studies and articles published by think tanks or journals, we did not take interviews or op-eds into consideration. If the same publication was issued by two different think tanks, it was assigned to both.

Focus of the research

The focus of our research was the way in which interactions between domestic inequalities and the environment enter into policy debates. Hence, this project focuses solely on papers that address inequality and the environment or poverty and environmental interactions on a domestic level. We did not include international environmental justice concerns, such as the unequal impacts of climate change across countries, but did include comparisons of two or more country case studies.

Inequality and poverty are inherently related in the way that the latter could result from severe inequality (Chakravarty, 2010). Furthermore, poverty is often described as a multidimensional concept that goes beyond income factors and includes issues such as the accessibility to public goods, environmental resources or social exclusion. Consequently, a whole range of social inequalities—which are studied in this research project—are both impacting upon and impacted by poverty (Bourguignon & Chakravarty, 2003).

Poverty is indeed different to inequality and cannot be perceived as the same concept. Although both are similar in their nature and often mutually dependent, an inevitably causal relationship is hard to verify for every case. This problem is best illustrated by the development of China

and of several Latin American countries, where substantial reductions in poverty have coincided with sharp rises in inequality over recent decades (Dollar, 2007). We included papers dealing with poverty and the environment, and not explicitly with inequality and the environment, when we considered that poverty reduction could be linked to economic and/or environmental inequality debates.

Classification of the material

To classify the material it was necessary to define social and environmental inequalities more precisely. Social inequalities are defined as “differences in income, resources, power and status within and between societies [...] [and] maintained by those in powerful positions via social processes” (Naidoo & Willis cited in Warwick-Booth, 2013: p.2). Translated to the environment, they foster outcomes that consolidate what has often been termed as environmental injustices (Martinez-Alier, 2002). Environmental injustices refer particularly to the unequal treatment, exposure and involvement of different segments of the population in the environmental domain. Primarily emerging in the United States in the context of racial inequalities, concerns about environmental justice have now entered into the policy arena in many countries (Laurent, 2011).

For the purpose of assigning publications into categories relating to the interaction between the environment and inequality, we applied a typology provided by Laurent, who highlighted the close relationship between the two issues. Guided by the work of the OECD and the Environmental Protection Agency and inspired by the rising environmental justice debate, Laurent suggested four categories of environmental inequalities:

(1) Exposure and access inequalities: the “unequal distribution of environmental quality between individuals and groups” (Laurent, 2011: p.1849). This category particularly focuses on the way in which individuals and groups are affected differently by the environment, either in a negative or in a positive way. This includes exposure or vulnerability to climate change related risks and unequal access to environmental assets such as land. Exposure and access inequalities are of particular concern in the context of climate change events, which have increased significantly in recent years and constitute one of the greatest policy challenges in general, not only in the context of environmental policies.

(2) Policy effect inequalities: the unequal effect of environmental policies on individuals or groups. The most prominent issues in this category are carbon taxes and energy subsidies and

the ways in which they affect individuals differently. A particularly interesting question concerns the regressive or progressive impacts of taxes and how different income groups benefit from subsidies. This category also includes poverty alleviation programs that emphasize the inclusion of the environment and environment-related factors.

(3) Impact inequalities: the unequal environmental impact of different individuals and groups, which often manifests in different pollution levels. Unlike the other categories, this group shifts the focus onto differing responsibilities by placing an emphasis on unequal environmental impacts.

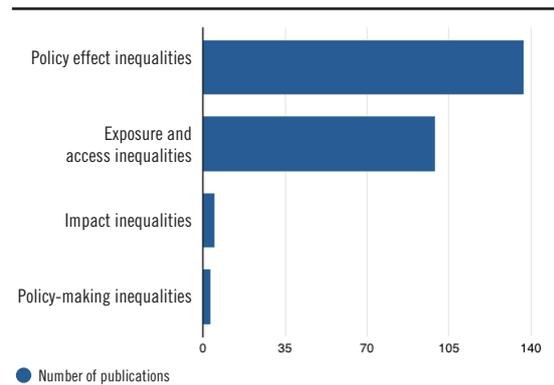
(4) Policy-making inequalities: this category concerns the issue of unequal access to policy-making. In other words how individuals or groups have an unequal influence on environmental decision-making and the consequences that arise from this unequal involvement. Slightly contrary to the aforementioned categories, the emphasis on groups is more distinct. When assessing policy-making inequalities it is often important to understand how inequality can reduce the ability of a particular group to influence environmental policy-making (Laurent, 2011).

Laurent's definitions are used for the categorization of the material analysed in this paper. All publications were assigned to one of the four categories. The categorization serves as a basis from which we identified and described the policy challenges, addressed by think tanks, in the realm of inequality and the environment.

3. GENERAL RESULTS

3.1. What is the general distribution and what are the main policy challenges highlighted by think tanks?

Figure 1. General distribution of the publications according to the four categories of environmental inequalities



In our research we analysed 244 papers and assigned them to the different categories of environmental inequalities.⁴

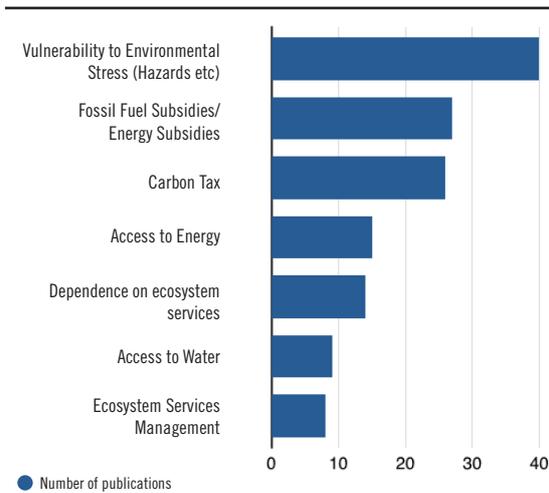
Figure 1 shows the general distribution of the publications of think tanks according to the four environmental inequalities categories. Publications on policy effect and exposure and access inequalities are clearly dominant compared to those in the impact and policy-making inequalities categories.

Among the policy effect inequalities category the discussion of carbon taxes and fossil fuel subsidies was particularly dominant. Whereas exposure and access inequalities, on the other hand, included a wider range of topics, encompassing different forms of accessibility to vulnerability and exposure to environmental stress.

The poor representation of impact and policy-making inequalities is due to the lack of debate on the unequal environmental impact of individuals and the barely acknowledged inequality of access to environmental policy-making.

4. Due to the fact that some think tanks have been assigned to more than one category in the *Go to think tank* report, we covered a total number of 53 think tanks. However, the United Nations Environment Program had to be excluded, as it constitutes an intergovernmental agency rather than a think tank. We found in 31 think tanks, out of a total number of 53, relevant publications for this research.

Figure 2. Main policy challenges identified by think tanks



The main policy challenges in the context of inequality and the environment are represented in Figure 2. As the major policy challenges are all assigned to policy effect and exposure and access inequalities, this figure shows the pattern derived from the distribution of these two most popular forms of environmental inequalities.

Among exposure and access inequalities, vulnerability to environmental stress, which generally refers to natural phenomena, such as natural hazards, droughts or floods, represents the dominant policy challenge, which is followed by access to energy, dependence on ecosystem services and access to water.

There is a relationship between the categories of vulnerability to environmental stress and dependence on ecosystem services. Vulnerability to environmental stress relates explicitly to environmental risk; a risk that increases due to climate change and has unequal affects on different segments of the population. Without doubt, a greater environmental risk can have a major impact on those that depend on ecosystem services, which therefore cannot be seen as a totally autonomous domain. But as the focus of both challenges differs with regards to vulnerability and dependence, they have to be treated differently.

Fossil fuel or energy subsidies on different forms of energy, which are subsidized by governments to enhance their accessibility, are the most pressing challenge for policy effect inequalities. Carbon taxes, which are an energy pricing mechanism, represent the second most important policy challenge. The third most pressing challenge for policy effect inequalities are ecosystem service management programs, which aim at poverty alleviation by enhancing

accessibility and the distribution of ecosystem services primarily among the poor. Similarly to vulnerability to environmental stress, a dependence on ecosystem services is mutually dependent on ecosystem service management. In fact, the latter encompasses policy responses for the former category based on a variable dependency on environmental goods and the corresponding vulnerability. However, both categories can be distinguished by the fact that one has an assessment approach and the other a solution approach.

3.2. Who says what on each challenge?

Figure 3. Think tanks with the highest contribution and their distribution according to the different environmental inequalities

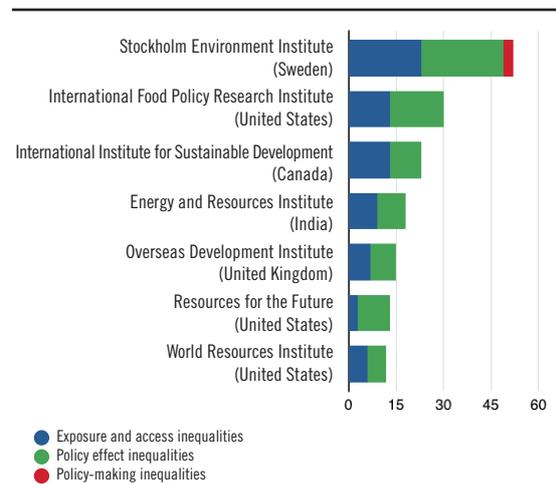


Figure 3 shows the think tanks that make the greatest contributions to the study of environmental inequalities, in terms of the number of publications. It is striking to see that publications are distributed almost entirely across the issues of exposure and access inequalities, as well as policy effect inequalities, whereas impact and policy-making inequalities are hardly ever considered.

With the exception of Resources for the Future and TERI, who conduct their research on environmental inequalities mainly in the United States and India, respectively, all other think tanks follow a particularly international perspective without having a specific focus on any one country. A consequence of their international outlook is that these think tanks do not have thematic priorities, but rather cover a variety of topics and case studies from several countries. Resources for the Future and TERI are again exceptions because their environmental inequalities publications tend to focus, respectively, on carbon tax revenues and energy-related inequalities.

3.3. What is the geographical focus of think tanks?

Figure 4. Distribution of publications focusing on developed and developing countries in percentage terms

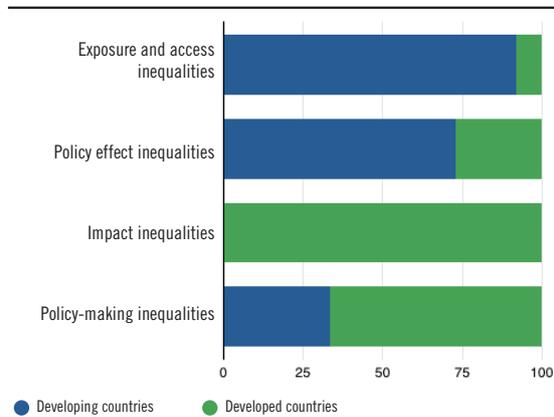


Figure 4 shows how the 244 papers included in our study are distributed between developed and developing countries, according to their scope of research. Exposure and access inequalities are represented more often in the context of developing countries, which is due to the large amount of research on environmental stress that to a large extent focuses on developing countries. The result on policy effect inequalities, however, differs with regard to its distribution between developed and developing countries, due to the fact that carbon tax research is much more common in relation to developed countries. Moreover, it is interesting to note that impact inequalities are not discussed in developing countries, but rather assessed in developed ones, reflecting the different nature of the policy debate between developing and developed countries.

Regarding policy-making inequalities the results have to be assessed differently, as only three papers could be identified. Two dealt with case studies on developing and developed countries, while the other was based on an analysis with particular focus on the United Kingdom.

4. SPECIFIC FOCUS

4.1. Exposure and access inequalities

In the context of exposure and access inequalities, which encompass unequal vulnerability and accessibility to the environment and its goods, two dominant topics were found: unequal vulnerability to climate change events and access inequalities

regarding environmental services. Climate change increases the probability of events such as droughts, hurricanes or floods, which disproportionately affect the most vulnerable segments of the population and hence, increase poverty and inequality (2.1).

In the majority of the papers, a direct linkage between environmental stress and poverty is made, whereas inequality is only peripherally mentioned as a byproduct of poverty reduction or increase. Environmental degradation can have a negative impact on accessibility to water and energy, which in turn has significant effects on poverty and inequality, as increased accessibility is a key factor for the reduction of both. A high dependence on ecosystem services, on the other hand, often leads to higher rates of poverty, as environmental degradation can have a particularly harmful impact on those who depend on ecosystem services (2.2).

However, fundamental differences exist between the individual issues and the general line of argumentation of think tanks. A closer insight into these results, which is provided for every single policy challenge in the following figures, aims at clarifying the different lines of discourse.

Figure 5. Environmental degradation and inequalities

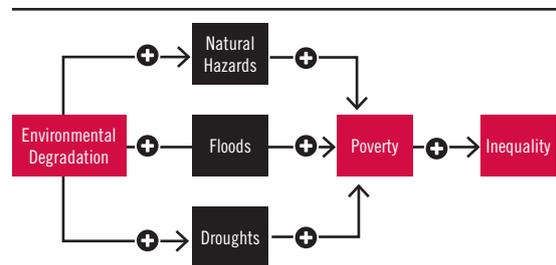
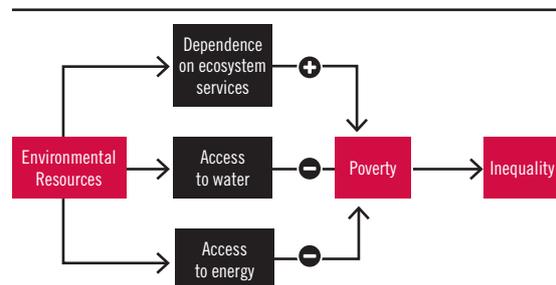


Figure 6. Accessibility and inequalities



4.1.1. Vulnerability to environmental stress

The think tank literature places a strong emphasis on inequalities in terms of vulnerability to environmental stress such as floods, hazards or droughts triggered by climate change. In fact it is the most pressing policy challenge, as illustrated in Figure 1.

Two key messages stand out in this category. Firstly, poor segments of the population are

more exposed to climate events, because they live in areas more prone to risk (UFZ, 2013; SEI, 2008). Furthermore, they are also more sensitive to climate events because of lesser capacities to adapt, such as poor infrastructure and limited financial means. Such events can, therefore, exacerbate existing inequality and poverty levels in a given country (PIK, 2014). Underlying both lines of argumentation is the conviction that the poor are more at risk in the face of environmental stress, because they are initially more vulnerable. In other words, the poor are more vulnerable initially and are most likely to be strongly affected by environmental stress in the future (ODI, 2013).

This echoes the academic literature, which is relatively well furnished with studies on these forms of vulnerabilities (Thiede, 2014; Fielding & Burningham, 2005).

Regarding policy recommendations, there are two lines of argumentation. Some publications recommend the improvement of the coping mechanisms of the poor by investing in infrastructure and the enhancement of their living environment to foster resilience towards environmental stress, which is in line with the adaptation literature in academia (ADBI, 2010). Publications on flood vulnerability and natural hazards in particular are an example of these kinds of policy recommendations. Characterized by clear connotations of risk management, think tanks deal primarily with the question of how the poor can be helped in the immediate situation, when facing a hazard. Think tanks dealing with this issue are particularly concerned about the lack of studies and data to enable the identification of specific groups that should be targeted with policies to limit such vulnerabilities (ODI, 2013). There is demand for more detailed data to identify the most vulnerable groups to “establish quantitative evidence based on the disaster-poverty link” (ODI, 2013: p.68).

However, other publications contest and criticize the pure notion of coping mechanisms as being too shortsighted (PIK, 2007; IISD, 2009). Instead, think tanks call for the scope to be expanded to include the underlying causes of vulnerability to environmental stress. At the heart of the matter is the question of what causes certain segments of the population to be particularly vulnerable to environmental stress in the first place. In this context, think tanks distinguish between the symptom and the cause of vulnerability. Enhancing the coping mechanisms of the poor in the immediate situation of environmental stress, which is an essential constituent of the risk management literature, is perceived as a measure that only fights the symptoms of vulnerability.

Fighting the causes would, in turn, focus more attention on “factors contributing to vulnerability [...] (demography, poverty and marginalization) [...] and involves challenging the existing structures and power relationships of today’s societies” (SEI, 2008: p.4). Clearly, this second line of argumentation gives more attention to socio-economic inequalities, seen as an underlying cause of environmental inequities (IISD, 2009).

However, these analyses do not go beyond general calls for a better understanding of the underlying drivers of vulnerability (PIK, 2007; IISD, 2009). One reason for this shortcoming is the lack of quantitative data on vulnerability and its drivers, which is emphasized by the majority of think tanks (PIK 2007, WRI: 2009). Nevertheless, the different dimensions of vulnerability and its underlying causes are constantly attracting more attention, resulting in a shift of focus in recent research on vulnerability to environmental stress (CSIS, 2015).

Interestingly, there is little focus on how such events could also impact groups that are not already in extreme poverty. Vulnerability to environmental stress is mainly seen as an echo of wider forms of vulnerabilities or deprivations, which are not really affecting developed economies. However, certain events such as California’s drought between 2007 and 2009 have shown that developed countries are not exempt from climate change-related vulnerability issues (Pannu, 2012).

CASE STUDY. INEQUALITIES AND COASTAL HAZARDS IN SOUTH EAST ASIA

Stockholm Environment Institute

In the context of vulnerability to environmental stress, the Stockholm Environment Institute’s report, entitled *The causes of social vulnerability to coastal hazards in Southeast Asia*, is exemplary. This report aimed to show the causes and factors of vulnerability and assessed the related policy recommendations proposed in the scientific literature.

Among factors such as poverty and a lack of access to resources, inequality constituted one of the main drivers of vulnerability triggering and reinforcing “other causes of vulnerability, such as migration and population growth in high-risk coastal areas” (SEI, 2008: p.79).

Identified as underlying causes or drivers of vulnerability, policy responses should have been directly targeting them to efficiently face the problem of vulnerability to natural hazards.

However, as the author stressed, the analysis of the causes is not congruent with the policy

recommendations brought forward in scientific literature. Instead, “most recommendations are concerned with measures that enhance coping and responses to the hazard itself, thus they identify proximate rather than underlying causes” (SEI, 2008: p.79). Although contributing to alleviate the impacts of coastal hazards, they are dismissing the underlying causes of vulnerability and, therefore, only address the symptom and not the cause. The authors highlight the example of increased hazard knowledge, which could help people currently facing hazards, but “does not address the reasons why these people have no choice but to live in such areas in the first place” (SEI, 2008: p.79).

Source: Zou, Lele & Thomalla, Frank (2008). *The causes of social vulnerability to coastal hazards in Southeast Asia*, in: SEI, Working Paper 2008

4.1.2. Access to energy

The policy challenge of access to energy is generally referred to under two different concepts: (1) Energy poverty and (2) fuel poverty. Energy poverty relates to developing countries (TERI, 2014) and fuel poverty to developed ones (CEPE, 2013). Think tanks have been looking at the two phenomena and have defined poor and unequal access to energy as a public policy challenge.

In both developed and developing countries, two general assertions can be highlighted: i) Low-income households spend a higher share of their income on energy than richer households (E3G, 2012). ii) Think tanks acknowledge the importance of income support or compensation, in cases where subsidies are abolished, in the short run (E3G, 2012) and of investments in energy efficient appliances and dwellings to structurally resolve the issue in the long run (OIES, 2011).

While energy poverty is seen as a brake to development in low-income countries, reducing development capabilities and causing persistent poverty (CEEPR, 2008), fuel poverty is perceived as a dimension of poverty and not as a cause hindering a country from developing (E3G, 2012).

Instead, poverty traps are clearly a greater concern in the context of energy poverty (CEEPR, 2008). Whereas energy poverty assessments look primarily at the marginalized and poorest income groups of the population, studies on fuel poverty have a broader scope. Two reasons can explain this diverging scope. Fuel poverty is less related to income than energy poverty and, according to think tanks, there is a serious threat of falling into fuel poverty. An example would be an individual moving into an energy inefficient house or changing jobs to one much further away from his or her home. This diverging scope explains why

assessments of fuel poverty are not limited to the poorest segments of the population, but also look at inequalities of access to energy at all levels of the income distribution.

According to think tanks, energy poverty is, instead, mainly driven by income. Low-income households depend on biomass and face high upfront costs to switch to modern energy sources (TERI, 2012). Assumed causes of fuel poverty are the lack of energy efficiency, overly costly energy bills and insufficient income.

Regarding the policy recommendations, solutions to energy poverty generally include finance mechanisms to overcome the barrier of the upfront costs of modern energy sources (TERI, 2014). Think tanks therefore recommend income support, more investment in energy efficiency in vulnerable households and refurbishment measures, for instance, carried out through government interventions (E3G, 2012). The policy recommendations for fuel and energy poverty show that the policy challenges of fuel and energy poverty are closely intertwined with subsidies. Several publications indicated that subsidies had been unable to reduce energy poverty, due to a failure to improve energy access and diverting resources away from other sectors, which could have reduced energy poverty more efficiently (OIES, 2012).

CASE STUDY. INEQUALITY IN ACCESS TO ENERGY

The Energy and Resource Institute

The Energy and Resource Institute (TERI) examined how access to energy is related to gender, inequalities, rural-urban disparities and different socio-economic levels in India, which it summarizes as diverging identities. Focusing on these factors, the authors concluded that different levels of energy access are first and foremost determined by these manifestations of inequality. The use of biomass as primary energy source by the poor is a clear reflection of how inequalities, defined as diverging identities, affect access to energy. Equity and its role in development is, therefore, an urgent concern for policymakers when improving access to energy, which in turn “will reduce poverty, inequality and injustice” (TERI, 2014: p.101).

The link between inequality and access to energy is, however, double-edged. Inequality has a negative effect on sufficient access to energy, whereas accessibility to energy is a driver in itself: “It perpetuates inequality and for those without access to dependable, fast and cheap energy resources, it perpetuates their poverty” (TERI, 2014: p.98).

Source: Kumar, A. (2014). *Identities and access to energy: the Indian case*, in: Foeken, D. et al. (2014). *Development and equity: an interdisciplinary exploration by ten scholars from Africa, Asia and Latin America*. Leiden: Brill Publishing

4.1.3. Dependence on ecosystem services

Dependence on ecosystem services refers to the benefits, which individuals or groups derive from ecosystems. It encompasses biodiversity, referring to the variety of organisms existing in a given territory, provision of food or energy, the supply of water and livestock (IISD, 2005). Taking into account climate change and increased environmental degradation, it is argued that ecosystem services are in danger. Think tanks stress the importance of ecosystem services for certain segments of the population, showing that this issue constitutes a major policy challenge. The poor in particular depend on the provision of ecosystem services and are therefore most affected by deterioration of these ecosystems.

Publications focus on how ecosystem services contribute to different dimensions of human well-being, which are characterized as sufficient nourishment, supply of clean water, provision of energy and the assurance of a livelihood (IISD: 2005a). The poor and marginalized are similarly perceived as being most affected by deteriorated ecosystem services (Ecologic Institute, 2011).

The policy challenge in relation to the dependence on ecosystem services is comparable to access to water or energy. But since it is less explicit in terms of accessibility and concerns the establishment of more general linkages between the wide variety of ecosystems and human development, it must be regarded as a distinct category.

However, few papers discuss such inequalities per se, lacking precise policy recommendations except for general calls for the enhancement of land access for the poor. Those that did focus on access to assets dealt with gender inequality and land tenure rights. In comparison to vulnerability inequalities, the focus lies on marginalized groups or the poorest sections of the population.

Concerning policy recommendations, there is no clear approach shared by all think tanks that can be identified. Some think tanks stress the importance of accessibility to ecosystem services and, therefore, recommend the enforcement of private property rights to challenge asset inequality. In certain cases they are perceived as critical for the successful reduction of poverty and consequently the level of inequality (IISD, 2005; Ecologic Institute, 2011).

Other think tanks acknowledge that gender inequality is echoed in access to assets and,

therefore, exacerbates preexisting patterns of inequality (IFPRI, 2010). Similarly, it is stressed that asset inequality reproduces prevailing forms of inequality and contributes to persistent poverty patterns (IDS, 2006). Policy recommendations in this context rarely go beyond general demands to secure property and land tenure rights. This is arguably because of the complexity of the issue. However, it must be kept in mind that access to environmental services and assets is a broad topic, inherently related to other topics such as vulnerability to environmental stress and, therefore, difficult to examine in isolation.

CASE STUDY. INEQUALITIES IN ACCESS TO AGRICULTURAL ASSETS

Institute for Development Studies

Within the scope of a World Development Report, the Institute for Development Studies (IDS) published a background paper in 2006 on the link between asset inequality and agricultural growth. In particular, the paper aimed to examine the way that unequal access to assets “effects inequalities in agricultural outcomes in terms of productivity and poverty” (IDS, 2006: p.1).

With reference to Ethiopia, the author illustrated the complex relationship between asset inequality and growth: “Rather than unidirectional causalities, what we observe is a complex system whereby inequality affects growth which in turn reinforces processes that exacerbate and reproduce inequalities” (IDS, 2006: p.1).

Source: Sabates-Wheeler, R. (2006). *Asset inequality and agricultural growth: how are patterns of asset inequality established and reproduced?*, Available at: <http://www.rrojasdatabank.info/wir2006/sabates.pdf>

4.1.4. Access to water

Access to water is discussed by several think tanks and seen as a requisite for human well-being, good health and productivity, particularly relating to the time taken to obtain water. The importance of access to water is often highlighted by making reference to the Millennium Development and Sustainable Development Goals, which emphasize that water is a major concern for human development. Hence, access to water is seen as a fundamental condition for development. Even though ranked in the lowest group of policy challenges, water access inequalities are recognized as a pressing public policy challenge, which can potentially exacerbate existing levels of socio-economic inequality. However, in relation to inequality per se, only a weak outline is made of the links

between access to water and existing or future income, power or gender inequalities.

Contrary to the academic literature, where the links between water availability and gender or power relationships have been discussed more rigorously (Andajani-Sutjahjo, 2015), there are only a few instances where political power inequalities are assessed as a driver of water access (SEI, 2014). Instead, poverty rates are seen as a crucial factor determining water access. Consequently, it is argued that the poor are more at risk of water poverty than other segments of the population (WRI, 2009; IFPRI, 2011).

However, the difficulty in defining a water-poverty nexus may be responsible for a lack of clear policy recommendations on this topic. Instead, think tanks cover a wide range of issues from the demand for enhanced institutions, better water governance to the investment in natural capital (SEI, 2015; IFPRI, 2011). Contrary to publications on access to energy, think tanks focus exclusively on developing countries.

CASE STUDY. INEQUALITIES AND WATER ACCESS

International Food Policy Research Institute (IFPRI)

In 2011, IFPRI issued a publication on water access and inequality in rural Nicaragua. Through this case study, the importance of power inequalities in terms of access to water was stressed. The cases examined highlighted a high number of water conflicts that were having an impact on people’s lives, and that power inequalities were part of this problem.

According to the authors, inequalities “tend to forge asymmetric dependency relations between the elite and the majority of community inhabitants” (Gomez & Ravnborg, 2011: p.20). Asymmetric power relations between communities and their local elites were preventing the poorest in particular from “call[ing] upon external third parties in cases where they have their access to water denied” (Gomez & Ravnborg, 2011: p.20). In this context, external third party involvement encompassed actions taken by NGOs, lawyers or district authorities that aimed to ensure sufficient access to water.

Therefore, power inequalities are a major factor that affects the ability of external third parties to mediate within communities when faced with water conflicts and limited water accessibility.

Source: Gomez, L. & Ravnborg, H.M. (2011). *Power, inequality and water governance: The role of third party involvement in water-related conflict and cooperation*, in: CAPRI Working Paper No. 101

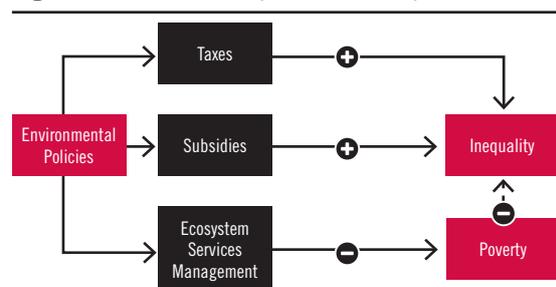
4.2. Policy effect inequalities

Regarding policy effect inequalities, which relate to the unequal impact of environmental policies on individuals or groups, the dominant policy challenges are identified as fossil fuel or energy subsidies, carbon taxes and ecosystem services management.

The relationship between environmental policies and inequalities is presented in Figure 7. Fossil fuel subsidies withdrawal and carbon taxes are generally seen as measures, which can increase inequalities if their regressive impacts are not offset by revenue recycling or other social measures. The withdrawal of fossil fuel subsidies can reduce inequalities because wealthy households in developing countries tend to benefit more from such subsidies at the aggregate level. However, low-income households generally face greater rises in budget constraints than wealthier households. The situation is similar for carbon taxes, which place a higher strain on the budget of low-income households proportionally to that of better-off households.

Ecosystem services management is not discussed with regard to its ability to reduce inequality, but rather concerning its potential to improve environment and development at the same time. However, it also contributes implicitly to lower inequality, even though the impact on inequality is rarely directly mentioned in the literature.

Figure 7. Environmental policies and inequalities



4.2.1. Fossil fuel or energy subsidies

Think tanks make strong relationships between inequality and fossil fuel or other forms of energy subsidies. Identified as a pressing policy challenge, think tanks have two main messages on this issue.

Firstly, it is generally acknowledged that the richest households benefit the most from energy subsidies, due to their higher consumption of fuel than low-income households (IISD, 2014). These subsidies exacerbate unsustainable consumption patterns, thus harming the environment and constituting a strain on a country’s budget. In addition, it is recognized that low-income households will face a higher burden as a

proportion of their budget, when fossil fuels subsidies are reduced and, therefore, have to be compensated adequately (OIES, 2012).

In the great majority of papers, inequality is discussed in terms of income, along with a certain amount of research on gender inequality. Regarding the latter, the impact of fossil fuel subsidies was examined with regards to rural women in India. It is argued that fuel switching is not primarily driven by price, but also by empowerment and social position. Therefore, rural women benefit little from fossil fuel subsidies, as the majority still uses biomass and do not manage to switch fuels to more sustainable and cost efficient sources (IISD, 2014). Relationships between the suppression of fossil fuel subsidies and inequalities are therefore complex: suppression can increase economic inequalities without compensation measures, while reducing gender inequalities.

In terms of policy recommendations, think tanks agree on the need to change the current system of subsidies. Thus, in almost all papers direct cash transfers are recommended to abolish subsidies and alleviate inequality driven by the fact that proportionally the rich tend to benefit the most from these subsidies.

The difficulties involved in trying to reach the poor, who living in the informal sector of societies, are generally acknowledged, especially in Middle East countries, as state stability here differs significantly from European counterparts (OIES, 2011). However, few papers proposed precise policy recommendations on how to address inequalities when phasing out subsidies. There is an awareness of more comprehensive reforms that complement cash transfer programs with social assistance programs or general welfare reforms. However, such policy recommendations are not examined in depth, but only mentioned briefly (IISD, 2014).

In a few cases it is argued that improvements in education, healthcare and the transport sector can limit the regressive impacts of the phasing out of fossil fuel subsidies (OIES, 2011). These demands are triggered by the conviction that, in the case of Yemen for example, any direct cash transfers schemes have proven to be inefficient because of the state's institutional weakness. Therefore, the money invested could have been spent more efficient by delivering improvements in other areas (OIES, 2011).

The geographical focus of fossil fuel or energy subsidies is mainly on developing countries. The major difference between developed and developing countries is that the feasibility of potential reforms is a major concern particularly in developing countries because their administrations often lack stability and sufficient financial means

(OIES, 2011). This perspective is accompanied by the fact that subsidies have a higher impact in the national budgets in developing countries.

CASE STUDY. FOSSIL FUEL SUBSIDY REFORMS AND THEIR SOCIAL IMPLICATIONS

International Institute for Sustainable Development (IISD)

The International Institute for Sustainable Development (IISD) established in 2005 the Global Subsidies Initiative (GSI), which analyzes the impact of subsidies on different segments of the population and provides policy propositions on how to phase them out without harming economic or social goals. In 2014, IISD issued a paper on Indonesia's attempts to reduce energy subsidies.

Particularly interesting is the conclusion that subsidies benefit the rich far more than the poor due to their higher consumption patterns. In turn, as subsidies are an expensive strain on the national budget, they take expenditure away from other programs, which target the poor more effectively. The authors recommend, therefore, a reform of the energy sector aimed at narrowing "the gap between domestic and international fuel prices, and to make prices more efficiently reflect scarcity" (Perdana, 2014: p.12).

The revenues derived from phasing out subsidies should then be "reallocated to three broad areas: infrastructure development, public transport facilities and further improvement of social welfare programs" (Perdana, 2014: p.12).

Source: Perdana, Ari A. (2014); *The future of social welfare programs in Indonesia: From fossil-fuel subsidies to better social protection*, in: IISD Briefing Note March 2014

4.2.2. Carbon taxes

Carbon taxes and inequalities have been the subject of many think tank publications, especially in developed countries, reflecting the fact that policy debates on green taxation, until recently, essentially happened in developed economies. Contrary to the issue of subsidies, almost all publications target developed countries with a strong focus on the United States. In fact, whenever revenue-recycling options for carbon taxes have been examined, it was done in almost all cases by a US think tank on a potential tax in the United States (RFF, 2014; RFF, 2013).

All think tanks agree that carbon taxes can improve environmental outcomes and increase economic efficiency, depending, however, on how the tax revenues are recycled. It is acknowledged that carbon taxes are regressive.

Low-income households spend proportionally a larger share of their budget on energy than wealthier households. Thus, carbon taxes have a proportionally greater impact on the resources of the poor than those of the rich. The public policy challenge is, therefore, to prevent the poor from being disproportionately harmed by a carbon tax (RFF, 2014).

Think tanks argue that the regressive effects of a given carbon tax can be offset with smart policies, which echoes the academic literature (Combet *et al.*, 2012). The crucial question in the context of carbon taxes is how the revenues are recycled to make the tax economically efficient without harming certain segments of the population more than others. When assessing the revenue recycling options, think tanks identify an equity-efficiency dilemma.

Using the revenues for cuts in capital taxes is often seen as the most efficient option from an economic point of view, but one which can increase the regressivity, as lower income groups spend a higher share of their budget on energy (RFF, 2014). Lump sum rebates are generally presented as the best option with regards to equity, because low-income households benefit—in proportion to their income—the most from these rebates (RFF, 2013). However, lump sum rebates are made at the expense of tax efficiency in terms of reducing the amount of carbon.

Think tanks conclude that a certain tradeoff between efficiency and equity exists and cannot be entirely offset. Taking into account this tradeoff, the great majority of think tanks recommend a reduction of payroll taxes to provide the best option in terms of equity and efficiency. Policy recommendations that go beyond the above-mentioned revenue schemes are almost entirely omitted from consideration.

CASE STUDY. REGRESSIVE IMPACTS OF CARBON TAXES IN THE USA

Resources for the Future

In 2014 Resources for the Future (RFF) issued a publication on how a possible carbon tax would impact different income groups in the United States. For this purpose, the authors simulated three policy cases that differed in the way that carbon tax revenues were recycled, and then compared its outcomes with income groups in the United States.

Recycling revenues through reduced capital taxes constituted the most efficient solution, while exacerbating the regressive effects of a carbon tax and harming low-income households

disproportionally. Lump sum rebates on the other side, appeared to create “a double dividend for the bottom three quintiles of the US population” (RFF, 2014: p.19) and are, consequently, the most promising solution for policy makers interested in reduced inequality. The benefits of this policy are derived, however, at the expense of tax efficiency and arguably a failure to reduce carbon emissions at large. Using the revenues to reduce payroll taxes is nearly as efficient as a cut in capital taxes, while it offsets some of the natural regressivity of a carbon tax” (RFF, 2014: p.19).

In summary, RFF stressed in its publication that carbon taxes are always inherently related to a tradeoff between equity and efficiency, depending on the preferences of policy makers.

Source: Williams III, R.C. *et al.* (2014). *The initial incidence of a carbon tax across income groups*, Available at: <http://www.rff.org/RFF/Documents/RFF-DP-14-24.pdf>

4.2.3. Ecosystem Services Management

Ecosystem services management is closely related to the policy challenge of dependence on ecosystem services (see 5.1.2). Whereas in the latter category it is assessed to what extent people depend on ecosystem services, ecosystem services management provides policy solutions on how they can be maintained. In fact, ecosystem services management is perceived to address both objectives: to protect the environment and lead to poverty alleviation. Objects of research are primarily the very poor with a lesser emphasis on other segments of society. Similarly to the category of dependence on ecosystem services, inequality is not assessed explicitly. However, because the marginalized poor are targeted, a reduction of poverty would consequently lead to lower rates of inequality. Therefore, inequality is implicitly present in the work of think tanks, making ecosystem services management a relevant policy challenge in the realm of inequality and the environment.

It is generally argued that because the poor depend most on ecosystem services, they must be particularly targeted with policy interventions aimed at securing their livelihoods. However, in many cases policy instruments are not clearly defined and encompass a wider range of measures that protect the environment and help the poor in particular (SEI, 2010). For example, calls for guarantees to protect ecosystem services and biodiversity often benefit vulnerable poor communities, as they greatly depend on these resources. Most papers emphasize bottom up approaches or at least a better inclusion of the poor, even though recommendations do not go beyond specific case study dependent practices. Instead,

particular emphasis is placed on how different government programs can support the better provision of ecosystem services, on whether the poor are reached effectively, and on how ecosystem services programs can be better incorporated into a broader development strategy. Based on the observation that the poor in particular depend on a wide range of ecosystem services, such as water, food or livestock, the Stockholm Environment Institute assessed ecosystem services management in China (SEI, 2010a).

The fact that inequality is not explicitly assessed and is overshadowed by concerns on poverty contrasts with the academic literature. A good example of an attempt to link inequalities directly with ecosystem services management is the work of Martinez-Alier, entitled *Environmentalism of the poor*, which focuses on environmental justice, with an emphasis on local management and inequalities (Martinez-Alier, 2002).

Similarly to the dependence on ecosystem services, the geographical scope of think tanks is primarily concerned with developing countries. This is probably due to a major focus on the poorest segments of the population, which constitute a higher concern in developing countries.

4.3. Impact inequalities and policy-making inequalities

The other direction of the relationship between individuals and their impact on the environment, as determined by unequal economic, power or social inequalities, is almost never addressed by think tanks.

In addition, the unequal access to decision-making or, more broadly speaking, the question of how inequality affects environmental policy-making is widely ignored. The limited emphasis on these two topics is best illustrated by the fact that they do not constitute major policy challenges, as illustrated in Figure 1.

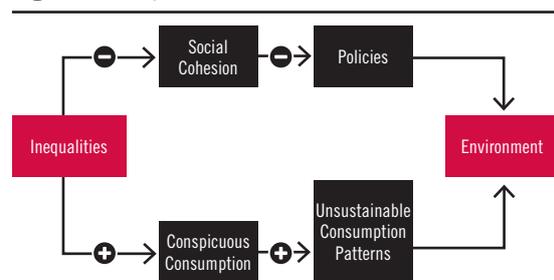
Another reason for the poor coverage of think tanks on these forms of environmental inequalities is possibly that these types of relationships are more complex and difficult to measure, while it is also harder to draw political messages out of them. Nevertheless, publications on these issues are relevant, as they tackle inequality directly and echo existing trends in academia.

Two major policy challenges have been identified by think tanks, which are examined below. (1) Inequalities are a factor leading to lower social trust and declining social cohesion in a society. This in turn means that policies requiring collective action that contribute towards reducing environmental degradation are less likely (SEI,

2013). (2) Inequalities can also contribute to conspicuous consumption. Hereby, establishing unsustainable consumption patterns which harm the environment (CGD, 2014).

An important distinction must be made between the different policy challenges categories: In the majority of the above-assessed subcategories it is examined how the environment or environment-related policies impact poverty and inequality. The policy challenges of the likelihood of environmental policies being implemented and impact inequalities are, however, analysed with regard to the question of how poverty and inequality affect the environment or with environment-related policies, thus changing the direction of the relationship between both issues. Furthermore, the scope of the issue encompasses all parts of the population, which is another striking difference to the aforementioned categories.

Figure 8. Inequalities and environment



4.3.1. Consumption inequalities

Regarding impact inequalities, the main focus is on the assessment of different pollution levels derived from different households. The results, however, vary according to the regions and consumption baskets studied. Whereas the research discourse on pollution levels is dominantly shaped by comparing pollution patterns on the country level, comparisons of these patterns within a given country among households is a relatively new concern. This explains why a single research approach could not be identified. Instead, the approaches differ significantly with regards to the component of consumption inequality examined, which prevents a comparison of the results.

In some cases greater pollution inequality is identified for a broad range of consumption types such as electricity, food or apparel (CGD, 2014). The approaches and emphasis of think tanks particularly relate to CO₂ energy consumption patterns (CGD, 2014) or transport GHG emission inventories (CREATE, 2012).

Hence, the issue appears to be underrepresented compared to the other categories. Contrary to many previous relationships, the scope is broader as it is not only low-income households that are

considered. It is precisely because consumption patterns of the entire population are assessed, that inequality is a more decisive concern. Clear policy recommendations are not raised. When assessing consumption inequalities, think tanks generally focus on developed countries.

It is worth noting that the measurement of impact inequalities according to different social or income groups is a comparatively recent concern for think tanks. Interestingly, the rise in interest shown by think tanks on this issue coincides with an increase in academic literature publications on this topic. The possible reasons behind these observations are addressed in the discussion section.

CASE STUDY. CARBON IMPACT INEQUALITIES

Center for Global Development (CGD)

The Center for Global Development (CGD) examined in 2014 whether greenhouse gas footprints differ among households.

For this purpose, a database on estimated greenhouse gas footprints of households in the United States was designed. The database accounted for “52 spending categories across 23,552 unique households” (CGD, 2014: p.2) encompassing gasoline, electricity or miscellaneous household equipment.

When assessing consumption inequality, the author found huge differences among US households and raised awareness about different responsibilities and contributions to carbon emissions: “The top 10% of U.S. polluters are responsible for nearly 25% of the national GHG footprint, while the lowest-emitting 40% of the population are responsible for just 20% of the total burden” (CGD, 2014: p.16).

Source: Ummel, K. (2014). *Who pollutes?: A household-level database of America’s greenhouse gas footprint*, Available at: <http://www.cgdev.org/sites/default/files/who-pollutes-database-greenhouse-gas-footprint.pdf>

4.3.2. Environmental policies

Some papers support the view that inequality significantly influences the likelihood of environmental policies being implemented (SEI, 2011).

Central to this argument is the relationship between inequality and social trust. It is argued that income inequality is, in conjunction with growth, responsible for the deterioration of social trust, which in turn means that policies aiming to protect the environmental are less likely to be implemented. This line of reasoning is also covered in academia, most prominently by Richard Wilkinson and Kate Pickett (Wilkinson & Pickett, 2011).

Publications on this issue highlight the importance of social capital as a prerequisite for collective action and empowerment, to strengthen community resilience for climate change. Although reducing inequality is not the sole factor for the enhancement of empowerment, it is doubtlessly an important one (SEI, 2013).

Nevertheless, the relationship between inequality and the environment, represented by the likelihood of environmental policies being implemented or enhanced empowerment, is more contested than in the previous categories. Primarily this is due to the fact that the research has only focused on this issue very recently. Only a few authors so far have conducted research into the direct impact of inequality on the environment in the context of empowerment and policy-making. Thus, considerably more research is required on this issue to enable a clear assessment of the link between inequality and the likelihood of environmental policies being implemented. This concern is directly coupled with the difficulties associated with the definition of the concept of social trust, which is generally assumed to be the determining factor behind the impact of inequality on the environment, in the context of this policy-making inequalities challenge. Social trust also encompasses other dimensions, going beyond income distribution. Some authors highlighted that inequality, represented by unequal income distribution, is only one factor among others that influences social cohesion and consequently the likelihood of environmental policies being implemented.

Due to these difficulties, no clear policy recommendations are raised beyond general calls to enhance social cohesion and to consider its impacts.

However, it is important to note that think tanks often call for improvement in policy-making involvement for the poor and marginalized populations when addressing exposure and access inequalities. Although they do not assess inequalities in regard to access to environmental policy-making inequalities per se, except for the aforementioned link with social trust.

As only a few publications dealing with this issue could be identified, a geographical trend is hard to determine. In general, the explicit link between inequality and likelihood of environmental policies being implemented is an under-represented topic in the research of think tanks, with a focus on both developing and developed countries.

5. DISCUSSION

5.1. In developing countries a poverty-environment discussion prevails

In developing countries, it is clear that environmental inequalities are essentially framed as a poverty issue, rather than one of inequality per se. Inequality is often seen as a consequence of growing poverty and in this sense seen as inherently related to poverty. But environmental inequalities amongst more affluent populations (i.e. good environmental quality and services for privileged socio-economic groups) are almost never discussed. Institutions have only recently recognized the importance of reducing economic inequalities as well as reducing poverty.

The prevailing poverty-environment discussion appears clearly in publications on energy poverty, access to water or other forms of environmental services. Think tanks examine the way in which these issues relate to socio-economic poverty and contribute to the exacerbation of the situation for marginalized segments of the population. Poor environment quality is almost never presented as the cause, but as another dimension of poverty. This focus echoes policy debates of the 1990s with Amartya Sen's or Jeffrey Sachs' enlargement of the definition of poverty, including non-market assets such as environmental quality or environmental services (UNDP, 2010; Sachs, 2006).

One of the most frequently articulated policy recommendations is the enhancement of the adaptation mechanisms of the poor. However, there is no clear definition of improved adaptation abilities: it can refer to better education or the development of enhanced risk management institutions and infrastructures for instance. In that respect, one can wonder whether proposed adaptation measures really target the cause of environmental vulnerability and not only its symptoms. Some think tanks like the World Resource Institute (WRI, 2009) claimed that there was too much focus on addressing the symptoms and that greater efforts should be made to understand and reduce the ultimate drivers of vulnerability. This means addressing questions such as: why are certain groups unable to move away from high-risk areas? Consequently, it calls for a change in the way questions related to environmental inequalities are framed in the policy debate.

There could be several beneficial outcomes associated to the reframing of the debate as an inequality issue, rather than only a poverty one.

It can be argued that a focus on the extreme poor limits the debate to a poverty alleviation issue and the role of (or the constraint posed by) the environment in alleviating poverty in developing countries. Poverty alleviation is indeed a priority for developing countries. But a stronger focus on how social groups beyond the extreme poor can be affected by environmental stress, or benefit from environmental services, raises new questions: what is a sustainable lifestyle?; what is the role of environmental services in securing certain lifestyles for all?; and how does environmental degradation asymmetrically affect the middle or upper classes? This would also require a better understanding of asymmetric contributions to environmental degradation.

In developed countries, inequalities are almost never discussed with regards to exposure and access inequalities, but rather in the context of energy policies. The dominant subject in the publications of think tanks on environmental justice in developed economies is the question of how environmental policies unequally affect households. The policy challenge of carbon taxes is popular in this context, which is largely analyzed in developed countries, whether by European or North American think tanks. The issue is also discussed in developing countries, with publications looking at the phasing out of fossil fuel subsidies, however, to a lesser extent.

There is a clear absence of discussion on vulnerability to environmental stress and its unequal impacts in developed countries, whereas the representation of this discourse is considerably greater in relation to developing countries. It should be noted that the academic literature differs in this regard. For instance, Hurricane Katrina in 2004 and the French heatwave in 2009 were the subjects of several publications, which looked at their impacts on different segments of the population. The policy challenges caused by droughts in California were addressed in a similar way: during a severe drought between 2007 and 2009, research stressed the importance of targeting water inequalities, which were a threat to human development and health (Pannu, 2012). Another severe drought in 2015 put the water inequality issue back onto the top of the agenda. Besides impacts on human health, it is emphasized that droughts can exacerbate economic inequality due to rising water bills, constituting significantly different challenges for different segments of the population (Nagourney & Healy, 2015). The above-mentioned examples show that vulnerability to environmental stress, as well as accessibility to environment-related services are also important concerns in developed countries, but with only a

low number of analyses so far among think tanks. The case study below—published by a government agency and not a think tank—shows that there are a few exceptions. It stresses the relevance of focusing on pollution and health-related inequalities in developed countries.

CASE STUDY. ENVIRONMENTAL STRESS AND INEQUALITIES IN INDUSTRIALIZED COUNTRIES

Environment Agency UK

Within developed countries, vulnerability and exposure to environmental stress, as components of the environmental justice debate, are issues of minor importance.

Very few studies have emphasized environmental inequalities as a component of social deprivation. Fuel poverty, the unequal distribution of environmental goods and the poorest segments of the population being exposed to more pollution are issues that have been targeted by researchers in this context (Chalmers, 2006). However, research into these issues is not really something in which think tanks have invested their efforts.

An exceptional case is the Environment Agency UK, a non-departmental public body set up by the Department for Environment, Food and Rural Affairs in 1996, which serves as a key advisor for the government on environment-related issues.

Under the guidance of Gordon Walker, between 2005 and 2007 the Environment Agency published five reports aimed at addressing environmental inequalities. In these reports, environmental inequalities have been perceived as being tightly coupled to sustainable development and closely linked to social deprivation.

The Environment Agency focused on flood risk areas, water quality and waste management. In these areas the Environment Agency analyzed the relationship between environmental quality to social deprivation. For example, in the case of flood risks, the level of deprivation of the population living in risk areas was assessed (Walker *et al.*, 2006).

The Environment Agency showed that improvements in environmental quality were not beneficial for the whole of society, as the poorest parts of the population have an unequal access to environmental goods and suffer from the worst environments, manifested in bad water quality, strong air pollution or high exposure to floods (Chalmers, 2006).

A focus on environmental inequalities and the relationship to social deprivation in developed countries was a particularly new approach. Especially because the Environment Agency expanded

its scope to include all forms of vulnerability and not only fuel poverty, a subject that has been examined more often in the UK. Another virtue of the agency’s approach was that it looked beyond particular households types and also beyond only the very poorest segments of the population. This approach of treating environmental inequalities as a problem concerning the society as a whole helped to raise awareness for environmental justice as an urgent policy challenge. In this context, environmental justice as a policy challenge combines environmental and social challenges facing societies, while offering a comprehensive approach to tackle both at the same time. In general the Environment Agency called for more attention on the “interactions between processes of environmental, social and economic change and how these may increase vulnerability for particular parts of the society” (Walker *et al.*, 2006: p.7). This includes a need for more data on vulnerable groups to enable targeted interventions that can have an affect on their livelihoods.

Source: Chalmers, H. (2006). *Developing the environment agency’s position on addressing environmental inequalities*, Available at: http://eprints.mdx.ac.uk/6463/1/Chalmers-Developing_the_environmental_agencys_policy.phd.pdf

Walker, G. *et al.* (2006). *Addressing environmental inequalities: flood risk*, Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/291063/schoo905bjok-e-e.pdf

5.2. Policy recommendations essentially focus on price mechanisms and short-term measures

Concrete policy recommendations are discussed most comprehensively in the context of policy effect inequalities. Although the policy recommendations for developed and developing countries share certain similarities, they differ in some instances significantly.

Policy recommendations on carbon taxes are particularly popular in the category of policy impact inequalities. In this context, it is striking that the focus is only on the unequal impacts of energy price mechanisms. Proposed policy options generally include the recycling of revenues through lump sum rebates or lower payroll taxes. This helps vulnerable sectors of the population, easing their short-term dependence on energy, but does not make them more resilient or independent from energy prices in the long run. Instead, focusing on energy efficiency measures or improvements to the public transport sector more efficiently targets

the underlying causes, which are shown to be unsustainable consumption patterns and living beyond ones means. Targeting these underlying causes makes households less vulnerable in the long run and consequently, structurally reduces inequality. In other words, studies in developed countries fail to give enough attention to the roots of unequal policy effects, i.e. the unsustainable consumption patterns of the richest, but also of poor segments of the population. Apart from carbon taxes, only a few think tank publications address policy recommendations on subsidies in developed countries, and these policy recommendations were fairly general: publications do not propose options beyond cash compensations.

In developed countries, the policy discussion essentially focuses on fossil fuel or energy subsidies. All think tanks recommend the phasing out of subsidies, but similarly to carbon taxes, they do not go beyond price mechanisms. Instead, the major focus is on direct cash compensation to strengthen the resilience of the poor. But as it has already been argued in the context of carbon taxes, think tanks fail to target the underlying causes of vulnerability to price changes and do not provide sufficient policy recommendations, which could help vulnerable parts of the population in the long term. Think tanks should widen the debate on subsidies and propose policy solutions beyond price mechanisms to shift the debate on subsidies from economic feasibility concerns to one of a broader understanding of dynamics and the underlying causes of vulnerability.

Apart from publications on subsidies, think tanks tackle different poverty alleviation programs in the context of developing countries that encompass the provision of ecosystem services, payment for environmental services or sustainable land and water management among others. However, in all of these programs a strong focus on poverty prevails, whereas inequality is only implicitly targeted. More research is required on the explicit role of inequality in these poverty alleviation programs.

The academic literature has already outlined the way poverty alleviation programs can impact and reproduce social inequalities when aimed at enforcing participation and the involvement of the poor, when pursuing, for example, conservation interventions in protected areas.

For instance, Naya Paudel argued that the costs and benefits of interventions in protected areas such as National Parks are disproportionately distributed and exacerbate inequality, because “demands for development displaces the demand for access to natural resources” (Paudel, 2006: p.167). At the center of this argument is the

observation that power inequalities in targeted communities are often not considered. In fact, local elites benefit disproportionately from such development policy intervention. Paudel illustrates her argument using the example of Royal Chitwan National Park in Nepal and argues that the problem here is that “local elites’ support to the park is often confused with “local support”, and it has resulted in continuation of the park’s protective regime, undermining poor people’s livelihoods” (Paudel, 2006: p.155).

To sustainably implement poverty alleviation programs without exacerbating inequality, more attention must be given to the micro-politics and power inequalities in targeted communities.

These three areas of research are, however, not a complete reflection of the academic literature on the unequal impacts of environmental policies. For instance, biodiversity conservation policies such as regulatory mechanisms for national parks constitute an area of growing research and apply to developing as well as developed countries (Chabason *et al.*, 2015).

In the context of developing countries, special attention is given to the question of how local communities are affected by conservation policies, which can potentially exacerbate access to land and increase inequality.

Studies in developed countries, on the other hand, have shown that policy interventions aimed at protecting biodiversity, for example by the imposition of building restrictions, lead to higher land prices and therefore disproportionately benefit high-income households, whereas poorer parts of the population suffer from diminished land access (Chabason *et al.*, 2015).

This example shows the variety of environmental policies that can have an impact on inequality, while also protecting the environment.

5.3. Growing concern on unsustainable consumption patterns of different income groups

A growing number of publications, essentially focused on developed countries, deal with the unequal pollution impacts of different socio-economic groups. These publications look at how socio-economic groups differ in their consumption patterns and lifestyles to enable a better understanding and to deal with the underlying causes of policy effect inequalities or inequalities in the face of environmental stress. In that respect, they constitute a new field of interest in public policy research.

These publications have contributed to a shift in the debates on pollution impacts from countries

and regions to individuals and socio-economic groups. Hence, they offer a way to reframe policy debates, providing new perspectives. Some of these publications are shaped by a clear ethical perspective, often aiming to show the respective impacts of different groups of the population and highlighting the different responsibilities associated with environmental pollution. In developing countries, such a focus on unequal pollution impacts has been presented as call for tougher climate mitigation policies. In 2007, Greenpeace India published a report entitled *Hiding behind the poor*, where the authors stressed the fact that different segments of the population had different impacts on the environment, claiming that India is a nation that already has high emitters. It stated that India should implement climate mitigation policies and not use the poor as an excuse to reject demands to lower the emission level (Greenpeace India, 2007).

In addition, such publications can help us to better understand how to move away from short term solutions to unequal policy-effects and to develop longer term, more structural solutions targeting unsustainable consumption patterns of the poor and the rich. A stronger emphasis on unsustainable consumption patterns helps particularly to link pollution to access to environmental services. By revealing asymmetries of accessibility to environmental services, think tanks can provide a better understanding of the dynamics of inequality. This information on the polluters within countries, and on the drivers of pollution—whether due to technological constraints or a result of a chosen way of life etc.—and on recent evolutions is essential to develop novel policy solutions. In this regard, the focus on consumption patterns can help to find synergies between environmental transition and social policies.

CASE STUDY. LINKING CONSUMPTION, INEQUALITY AND ENVIRONMENTAL DEGRADATION

Economic Commission for Latin America and the Caribbean

Whereas consumption is generally seen solely from a macroeconomic point of view, linked with national income and other economic indicators, the Economic Commission of Latin America and the Caribbean (ECLAC) emphasized a different approach: consumption constitutes a crucial factor affecting social cohesion, demanding the “incorporat[ion of] consumption exclusion and deprivations, as well as patterns differentiated by socio-economic level and possible copycat effects

between groups” (ECLAC, 2014: p.191).

Consumption is linked to inequality by stressing the importance of a fair access to goods that guarantee human well-being. In Latin America and the Caribbean ECLAC observed huge divergences of consumption patterns between socio-economic groups affecting the social cohesion of countries. According to ECLAC “spending by the upper income deciles is proportionally higher in categories such as transport, education and health care—precisely those in which there is a clear shortfall in public service delivery” (ECLAC, 2014: p.228).

Looking at the evolution of consumption patterns helps therefore to understand how inequality has evolved over time and what its repercussions on society are. Namely the observation that different consumption patterns, particularly in public services that are poorly managed, should be a major concern for corresponding states.

But ECLAC goes even beyond the linkage of consumption to inequality by expanding the scope towards environmental degradation. Particularly in the context of transport, the higher consumption patterns of the upper income deciles or quintiles contribute also to greater environmental degradation. The consequences of higher air pollution or traffic jams have an impact on the whole of society, but are caused mainly by a small segment of the population. Given the very unequal income distribution of Latin America, ECLAC calls for higher taxes on fuel: such measures will essentially affect the rich and leave middle and lower classes unaffected.

This can be compared to the fact that low-income households spend a proportionally much higher share of their income on energy than high-income households. Simultaneously, when controlling for total spending on energy for domestic use, the highest income quintile is responsible for the majority of the energy spend in a given country:

On the one hand, ECLAC highlighted the dependency on energy of economies in Latin America and the Caribbean, while stressing inequality in energy consumption patterns and the connected vulnerability of low-income households for changes in energy prices.

The virtue of ECLAC’s approach towards consumption is therefore that they have been able to show how diverging consumption patterns not only affect inequality and social cohesion but also have strong ramifications in the environmental debate. Source: ECLAC (2014). *Compacts for equality: Towards a sustainable future*, Available at: http://repositorio.cepal.org/bitstream/handle/11362/36693/LCG2586SES353e_en.pdf?sequence=6

5.4. Limited ability of think tanks to propose integrated policy options

The main question asked by this study was: do think tanks address environmental inequalities in their publications? We looked at think tanks because of their supposed ability to translate between the academic world and the policy arena. Looking at the publications of think tanks allows us to draw conclusions about what is being debated in the policy arena. The study shows that environment and inequality-related topics are numerous in publications produced by leading international think tanks.

Environmental justice concerns, raised by academic literature in the 1970s, became, therefore, an important issue for think tanks. It is now widely recognized that the interactions between the environment and society are asymmetrical. The environment affects or benefits populations unequally, in societies that are already unequal. Hence, the environmental dimension can highlight existing inequalities, reinforce them and even create new forms of inequalities. Conversely, individuals and groups do not all have the same impact on the environment. It is increasingly recognized that unequal social contexts complicate the implementation of environmental policies. In this respect, the synergies between the reduction of social inequalities and the transition to ecological ways of life are emphasized.

However, as this study has shown, differences prevail between what has been published in academia and what think tanks contribute to the environmental justice debate. Applied to developing countries, environmental justice is primarily seen from a poverty or development perspective, whereas inequality is often only implicitly targeted. Think tanks perceive reduced (environmental) inequality, for instance, often as a natural consequence of (environmental) poverty reduction.

Even though inequality is discussed more explicitly in publications on developed countries, think tanks exhibit other shortcomings in this area. Exposure and access inequalities, contrary to the academic literature, are almost never assessed in developed countries, while policy recommendations focus strongly on price mechanisms without challenging the reasons why certain segments of the population are more vulnerable in the first place. Taking these shortcomings into consideration, the ability of think tanks to translate environmental justice concerns from academia into the policy arena is somewhat limited.

The fact that few countries have implemented legislation to tackle certain aspects of the environmental justice debate supports this view.

The United States, for instance, was one of the first countries to explicitly recognize environmental justice as a concern of public policy. The issue emerged in the mid-1980s when it was shown that minorities faced a higher exposure to waste landfills or environmental hazards, compared to other social groups. To address the problem, an environmental justice strategy was formulated in 1995, which aimed at taking environmental inequalities into consideration when implementing environmental laws, policies or regulations. However, twenty years later, several commentators have noted that significant improvements for vulnerable groups were not achieved when dealing with environmental stress (Laurent, 2011).

Think tanks must provide more information on the different categories of environmental inequalities. As this study has shown, two domains for research are particularly important: (1) Exposure and access inequalities in developed countries, which are already the object of research in academia, should gain more attention from think tanks. The importance of this issue was demonstrated by the impacts of environmental stress events such as hurricane Katrina, the French heatwave in 2009 or the repeated droughts in California. (2) Think tanks should conduct more research into policy recommendations that go beyond price mechanisms. To solve the underlying causes of vulnerability sustainably, policy interventions must have a greater focus on the dynamics of consumption patterns and dependencies on natural resources. This should not be limited to carbon taxes or energy subsidies, but rather expanded to include all kinds of regulatory measures such as biodiversity conservation policies.

Apart from providing more information on the direct interactions between environment-related challenges and inequality, think tanks could help raise awareness of environmental justice in the policy arena. Shifting away from single isolated or loosely coupled policy interventions towards more comprehensive and efficient policy solutions for the challenge of environmental inequalities, environmental justice must become more visible in the policy arena, either as an issue for legislation or as a guideline that has an impact on future policy output.

6. CONCLUSION

The aim of this study was to review the publications of influential national and international think tanks on the topic of the links between the environment and inequalities. Several key points arising from the discussion section are summarized below, setting out the basis for future applied policy-research on these areas:

- The issue of environmental justice, or the relationships between inequality and the environment is not a new area of focus for research or applied policy research, or even for policy-making. There is a relatively significant—and growing—number of publications addressing these issues and some countries have even implemented legislation. However, a proper understanding of the different types of interactions between inequalities and the environment remains limited, especially when it comes to policy solutions for identified policy challenges.
- In developing countries, the discussion on environmental inequalities is largely dominated by a focus on poverty and development. This is indeed understandable given the social context. However, it is interesting to note that the development discussion is slowly evolving and the need to reduce economic inequalities, along with extreme poverty is now also being advanced. The discussion on environmental inequalities in developing countries could also be enlarged in scope to go beyond poverty to explicitly take into account environmental inequalities.
- Environmental inequalities in developed countries are essentially treated in the context of carbon taxes, fuel poverty or fossil fuel subsidy reforms. The focus is thus on environmental policy-effects. What is more, these effects are looked at from a pecuniary perspective. Broadening the scope of analysis to other forms of environmental inequalities (i.e. access to non-energy goods and pollution impacts including health impacts) would be relevant as the few existing publications by think tanks and relatively large amount of academic publications on this issue show the extent of unequal exposure to environmental hazards and unequal access to other forms of environmental services. Furthermore, a greater focus should be devoted to policy recommendations that go beyond price mechanisms, but rather target the question of the underlying causes of vulnerability.
- The issue of unequal pollution impacts, their associated consumption patterns and how these interact in different social contexts is a nascent field of interest. A better understanding of how social inequalities interact with different types of consumption patterns and the environmental outcomes will help find synergies between environmental and social policies. Today, little is known about the positive interactions between these two dimensions, in both the global north and in the global south. ■

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