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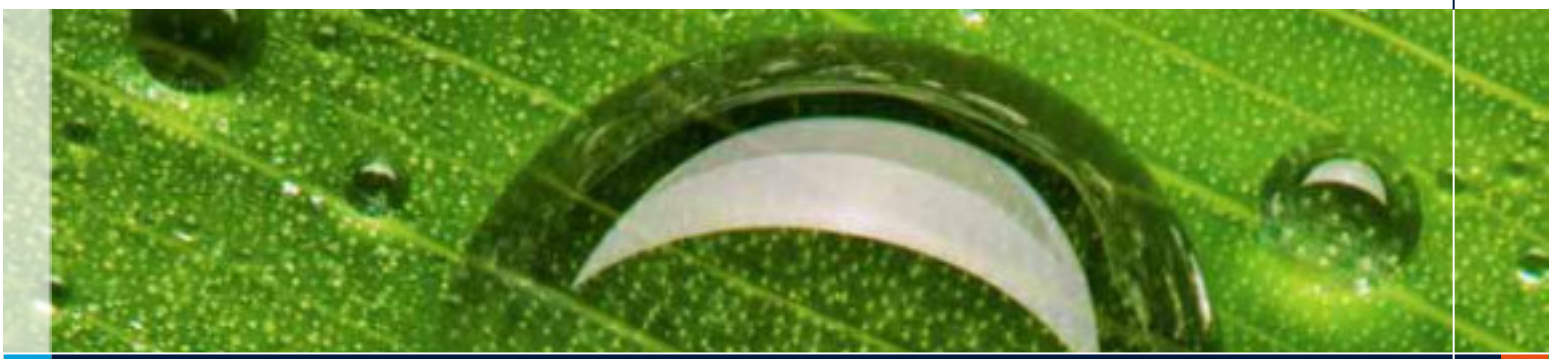
Green Office



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**Selection Process:** 12 papers were submitted, 6 passed the initial review and 3 papers from 2015 selection were included, 8 were selected for the final publication.

## Editorial Board:



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|---|---|---|---|
| UMGO: | Maastricht University Green Office | UCM: | University College Maastricht |
| FASoS: | Faculty of Arts & Social Sciences | MSP: | Maastricht Science Program |
| SBE: | School of Business & Economics | FdR: | Faculty of Law |
| FPN: | Faculty of Psychology & Neuroscience | FHS: | Faculty of Humanities & Sciences |
| FHML: | Faculty of Health, Medicine, & Life Sciences | ICIS: | International Center for Integrated assessment & Sustainable development |

# Table of Contents

# Resilience assessment of Maastricht as a social-ecological system

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**Abstract**

*The aim of this report is to assess the resilience of Maastricht as a multi-level, dynamic, social-ecological system by following the 'Workbook for Practitioners' by the Resilience Alliance (2010). A description of the system outlines historical events that had impacts on the landscape, such as urban expansion and the mining of limestone. The evaluation concludes that Maastricht finds itself at a point in a dynamic adaptive cycle of events where citizens' awareness of nature and global environmental issues led to reconsiderations of ecological values and the reorganisation of the city according to these values. The assessment applauds the adaptive governance approach of the city and the current implementation of various 'greening projects'. However, issues regarding possible lack of system resilience are criticised. Among others, recommendations are given related to increasing species diversity within and surrounding the urban area of Maastricht.*

This report aims to assess the resilience of the urban area of Maastricht as a social-ecological system. The resilience is defined as the capacity of a system to maintain or return to its identity, including its function, feedbacks, and structure, after a major disturbance (Walker & Salt, 2012). Maastricht's general resilience to disturbances will be looked at, as well as some elaboration on its resilience towards biodiversity threats. Maastricht's social-ecological system involves multiple scales, which interact with each other and the focal scale, resulting in changes in the landscape. This report adopts a 'resilience thinking' approach. Additional attention will be drawn to the St. Pietersberg area within the urban landscape and assess the impacts of changes within this area on the whole system's resilience. It will further identify and describe the system's dynamics, interactions between different scales, assess the governance, and finally

suggest actions to improve the resilience of Maastricht's urban landscape.

## I. Methods

This resilience assessment closely follows the 'Workbook for Practitioners' by the Resilience Alliance (2010). It observes Maastricht as a dynamic, self-organising system with emergent behaviour and affected by cross-scale interactions. Its general resilience to cope with various future social and ecological change and disturbances, such as temperature change, floods, or urban expansion, depends on its diversity, social capital, and openness (Walker & Salt, 2012). Identified interactions between different scales, thresholds, and adaptive governance will be used to evaluate social and ecological resilience.

## II. Area

Maastricht is the capital city of the province of Limburg in The Netherlands. As the focal scale, it covers a total area of 6007 ha (Gemeente in Cijfers, 2014). The city itself is home to about 122 000 inhabitants (Gemeente in Cijfers, 2014). Even though the city experienced some significant urban expansions within the last 200 years, it is only increasing at a slight rate (Gemeente in Cijfers, 2014). Important features of the landscape include the river Maas, which runs directly through Maastricht, the side-river Jeker, which connects the Maas to the Albert Canal, the proximity of the Belgian border, and the excess of agricultural area around the city. The municipality of Maastricht is currently implementing a number of projects with the intention of drawing green spaces into the city and thereby increasing the connectivity between these areas. They realised that, because the land around Maastricht is mostly devoted to agriculture, the city and its trees are becoming a refuge for certain species. Due to the scope of this report, some focus shall go to the St. Pietersberg area and will later be related to the 'Groene Loper'. These two areas are part of two major greening projects within the city that are currently in motion.

## III. The St. Pietersberg Area

The St. Pietersberg area comprises a total area of 350 ha in the south of Maastricht between the Maas and the Jeker, including a limestone quarry of 125 ha (Gemeente Maastricht, 2014). The St. Pieters 'mountain' itself has been protected since 1974 and has been established as a Natura-2000 area (Gemeente Maastricht, 2014). Natura-2000 is a policy set up by the European Union to protect significant areas to Europe's biodiversity (European Commission, 2014). Due to the limestone formation, unique limestone grassland species occur in this area that are normally found in Southern Europe (Gemeente Maastricht, 2012; Stichting Ontwikkelings-maatschappij ENCI-Gebied, 2014, a).

Miners started using the limestone in the 12th Century to build houses, creating an intricate tunnel system that is now a touristic attraction (Peters & van Winden, 2002). The ENCI ("Eerste Nederlandse Cement Industrie" – First Dutch Cement Industry) got permission to extract limestone for cement production since 1926 (Groen Maastricht, 2014, a). They are now part of the 'Transformation Plan', established in 2009, in which the decision was made to convert the quarry into a nature reserve for biodiversity and recreational purposes (Groen Maastricht, 2014, a). Natuurmonumenten, a Dutch nature conservation organization, will manage the area from 2018 onwards (Peters & van Winden, 2002). The 'Oehoevallei', which is the area of the quarry furthest away from the factory and closest to the city, is already dedicated to Natuurmonumenten (Stichting Ontwikkelingsmaatschappij ENCI-gebied, 2014, b).

## IV. Results

**Ecosystem Services**

The entire focal scale provides the citizens of Maastricht with the following ecosystem services, table 1.

Throughout history, this landscape has had to cope with urbanisation, the conversion of forested land to agricultural areas, and limestone mining practices. The ecosystem services have contributed a lot to the development of the city, but the biodiversity has been compensated to the extent where conservation policies need to be strictly implemented to avoid extinction. For example, the Buba Buba owl, which is the largest owl in Europe and has its habitat in limestone grasslands, is nearing extinction in this area. By increasing its habitat by enhancing green areas and hunting grounds, their numbers might grow. The costs include the termination of the ENCI in the quarry and costs involved in executing greening projects, such as the 'Groene Loper', of which the contract budget amounts up to €515 million (Projectbureau A2 Maastricht, 2009, b).

**Description of the System**

Maastricht's urban history goes back to the time before the Roman occupation around Christ. Due to its strategic location, Maastricht became an important city for cultural, political, and economic purposes (Panhuysen, 1996). In 1867, Maastricht was no longer a fortressed city, meaning that from then on property was allowed to be build outside the city walls (Stedentrip, 2010). This opened the doors to urban expansion. The population dramatically increased after World War II, resulting in an increase in construction activities as there was a lack of housing (Stouthart, Jenniskens, & Baeten, 1985). The University of Maastricht was set up in the 1970s as a compensation for the economic loss to the province due to the closing of the coalmines (Stouthart, Jenniskens, & Baeten, 1985). This attracted an international population and more urban development. Maastricht's history as sa

fortressed city is the reason for its relatively compact urban state today.

Maastricht's landscape was formed through the influence of multiple systems over time at larger and smaller scales than the focal scale (figure 1). Cross-scale interactions and anthropogenic activities in the past have led to some threats to the resilience of the social-economic system. The main threat was the gradual decline in biodiversity. The increase in limestone extracting operations by the ENCI had a significant impact at this scale. In contrast to the centuries-long underground mining operations in the past (which created habitats for at least twelve bat species (Stichting Ontwikkelingsmaatschappij ENCI-Gebied, 2014, a)), the ENCI dug away half of the tunnel system at the St. Pietersberg, thereby disturbing grassland habitats and removing forests. In the 1950s, some parts to the western side of the quarry were reforested (Peters & van Winden, 2002). Diseases and pests will be a continual threat that affects the diversity of the whole system, also within the city itself. In 2012, 384 of the 1397 Horse Chestnut trees had to be cut due to the rapidly spreading, fatal bleeding canker disease that was spreading throughout The Netherlands at the time (Dichtbij, 2012).

Despite the threat to biodiversity within the quarry, some species found recovery when the ENCI stopped digging in the northern part of the quarry (the 'Oehoevallei'). The area was covered with soil, allowing for loam soil formation, which retained water and attracted various dragonfly species and toads, specifically the Natterjack toad and Midwife toad (Peters & van Winden, 2002). This area has also become the preferred breeding ground for the Buba Buba. Additionally, as limestone extraction occurred below the water table, this lead to the formation of natural pools and seepages, which have formed valuable habitats to different species (Peters & van Winden, 2002). The variety in the quarry's landscape and the old city walls around Maastricht have a similar effect in that they form species habitats (Gemeente Maastricht, 2012). The old city walls, for example, have many cracks between which plants can grow. The walls have become a refuge where species can rest, feed, and nest.

One of the future threats to the whole system is climate change, which causes temperature increases that can be exacerbated by the urban heat island effect. A study done on surface temperatures in Maastricht shows lower temperatures for more green spaces than for more urbanised spaces, such as the city centre (Duyzer, Verhagen, & Klok, 2012). Increasing heat can be detrimental to the health of the citizens, especially people who are physically more sensitive, such as the elderly. As Maastricht has a relatively high percentage of elderly people (Duyzer, Verhagen, & Klok, 2012), maintaining valuable ecosystem services is vital. Climate change also promises more precipitation in the winter, which can lead to an increase in flooding frequencies of the Maas (Gemeente Maastricht, 2012).

Another future threat is the tendency of agriculture to increase in scale,

posing not only another threat to biodiversity by monoculture, but also to the local economy, cultural landscape, and burgundian image of the city (Gemeente Maastricht, 2012).

Furthermore, the population expansion in Maastricht right after WWII and the fact that people generally live longer are leading to a significant increase in the number of people aged 65 and older (de Jong & van Duin, 2009). Limburg is one of the provinces that will have to cope most with an aging population, as younger (more international) generations tend to move out of the area (de Jong & van Duin, 2009). The government might be forced to economise, which poses a threat to future investment in green infrastructure.

Additionally, as Maastricht is already a compact city, management decisions lean towards species that are most resistant to compaction, such as Linden trees. This creates a monoculture, decreasing the system's resistance to pests and other disturbances, thereby decreasing the general resilience. For example, the 'Groene Loper' (i.e. 'green belt') involves planting 2000 Linden trees for reasons such as their tolerance for compaction, ability to grow rapidly and healthily in shallow soils, and high resistance to most pests and diseases (Arbor Day Foundation, 2014). However, Linden trees lack resistance against road salt (Arbor Day Foundation, 2014). This characteristic questions the resilience of the system in the face of climate change effects, which includes more precipitation and colder temperatures in winter.

The termination of mining practices allows for opportunities in the future to maintain and enhance the variety in the landscape of the St. Pietersberg area that it has created, such as bare limestone cliffs, rough slopes, shallow waters, grasslands, recovering patches of vegetation, seepage waters, and swamps (Peters & van Winden, 2002). This allows for a diverse species community. For example, birds like the Buba Buba owl or the Kestrel can nest in the rough slopes, unique butterflies and salamanders benefit from the grasslands, toads and dragonflies can live around the lakes and swamps, and orchids and other species dependent on soil rich in limestone can thrive in the open areas (Peters & van Winden, 2002).

A benefit of using native tree species within the city is that they can become very old, allowing for tree hollows to form and providing more habitats.

**System Dynamics**

The adaptive cycle illustrates the dynamic nature of a system characterized by a rapid growth followed by a conservation phase, which is disrupted by an event, which leads to a release within the system that results in the reorganization phase (Gunderson & Holling, 2002). Based on the research of this report, the adaptive cycle, as illustrated in figure 2, is applied to Maastricht as a social-ecological system.

After WWII, Maastricht experienced a rapid population increase coupled with urban expansion (rapid growth phase). In the 1970s, the citizens of Maastricht started to appreciate the cultural values of the

century old tunnel systems that were being destroyed by the ENCI and realized what kind of impacts the factory and urbanization had on the environment (conservation). Population growth was simultaneously gradually decreasing, relieving urban expansion pressures (de Jong & van Duin, 2009). The system gradually entered the release phase, as citizens' concern for the environment began to reflect in the municipality's decisions, which included a number of greening initiatives, such as the 'Groene Loper', to increase the wellbeing of the citizens and mitigate climate change effects (reorganization).

Maastricht's current state includes a combination of forests, agriculture, grasslands, and urban area (figure 3). Individual areas within the focal scale have been converted to different states over the years according to the influence of cross-scale interactions. The main social threshold is population growth or strong decline, which affects the local economy and demand for agricultural or urban area. The conversion to urban area is a sudden, often irreversible threshold, due to a complete alteration of the landscape's identity. Agriculture involves the use of fertilizers, pesticides, and the disruption to soil horizons, decreasing its reversibility to native vegetation. The system, however, has quite a high resilience in the sense that, if left untouched, the system will gradually return to its 'forest state' (Peters & van Winden, 2002). For example, the 'Oehoevallei' within the quarry naturally regenerated to a native 'grassland state'. As the aim is to enhance the biodiversity of species dependent on limestone grasslands, sheep have been put on grazing patches to naturally avoid the regrowth of the forest (Peters & van Winden, 2002). Presently, management is efficient at avoiding overgrazing. The area directly around the quarry was agricultural area that has been re-forested in the 1950s. The rest of the quarry is going to be subject to natural regeneration; some areas will be allowed to reforest, others will be managed to stay in the 'grassland' state (Peters & van Winden, 2002).

**Interactions Between Scales**

Whether Maastricht will re-enter the same adaptive cycle depends on the change in other scales (figure 4). The St. Pietersberg area has gone through the following cycle:

- Rapid growth: after WWI, the ENCI got concession to extract limestone at the quarry site and was able to extend its exploitation throughout the 20th century. This had negative impacts on the biodiversity in the area
- Conservation/accumulation: ENCI experienced challenges extending mining operations due to increasing community appreciation of biodiversity and conservation.
- Release: Increase in friction until 2004, when, instead of ending ENCI's concession in 2010, the province of Limburg and the municipality of Maastricht decided to extend their concession until

2020, because resource demand had increased as well as its price (Soete, 2008). This lead to protests by Maastricht's citizens, for example, by the 'ENCI-Stop' foundation (Smeets, n.d.).

- The area is now starting its reorganisation phase: The decision was made to terminate the concession by 2018 and let the area regenerate for biodiversity conservation and recreation purposes.

Subsystems, like the St. Pietersberg area and other 'greening' projects in the city, influence the stability of Maastricht's resilience to biodiversity threats. Enhancing biodiversity within the St. Pietersberg area will enhance that of the entire focal system, because it will attract species that can more easily increase their habitat area through the connectivity between green spaces (Manning, Gibbons, & Lindenmayer, 2009).

At a larger scale, the population composition of Limburg has gone through the following cycle:

- Rapid growth: after WWII, The Netherlands experienced a 'babyboom'.
- Conservation/accumulation: the population increased and a shift is occurring towards a larger proportion of elderly citizens born in the 'babyboom', while younger generations tend to leave the province. This is putting strains on governmental economic decisions.
- The release phase has not occurred yet, but it might entail reaching a certain proportion of elderly people that significantly affects the economy and thus decisions related towards maintaining a 'green' city. Moreover, a strained economy is unattractive for companies and people seeking employment.

This is a system that might destabilise the resilience of Maastricht. However, climate change is also in its accumulation phase, which might shift future priorities more towards green technology and green spaces to mitigate its effects. Likewise, people's values, which are influenced by education, are slowly changing towards conservation and more sustainable options. This is often reflected in policies, such as Natura-2000 of the EU and development plans of Limburg that protect ecological values of certain areas (Gemeente Maastricht, 2012).

Besides climate change, population growth, and values, another slow variable is the aging of trees. Trees planted in one period will die in approximately the same time-frame. It is therefore important that there is a diversity of age among the trees to avoid high maintenance costs in the future.

A fast variable to take into consideration is the economy. For example, in 2004 the demand and price for cement suddenly increased, initiating a cascade of change that changed the quarry's future. A threshold among the community had been

reached, causing protests that lead to a change in decisions of land use (Soete, 2008). More exposure to nature influences education and further contributes to conservation.

## V. Governance

Decision-making processes and formal power lie mainly with the province of Limburg and the municipality of Maastricht at the scale of the province and city, respectively. These are influenced by other stakeholders, such as the community and the EU. Maastricht's community has the largest informal power through votes, norms, and local initiatives. The EU provides a flexible policy framework within which the municipality can make further decisions. For example, Natura-2000 areas do not exclude human interaction with the specified environment, allowing for more flexibility when issues arise (European Commission, 2014).

Through its implementation of 'greening' projects throughout the city, the municipality adopts an adaptive governance approach. It includes citizens in enhancing recreational, cultural, economic, and ecological opportunities, thereby involving various scales and organizational levels, such as corporations. This allows for flexible approaches to solve future issues. By increasing the green space in the city, the municipality is preparing for the uncertainty of effects that climate change might have on the city. Even though the municipality has a fixed aim to unify urban areas with nature, it learns from past impacts of policies and implements new understandings into new policies.

Natuurmonumenten has an increasingly important role at the sub-system scale, as it will be managing the whole St. Pietersberg area by 2018. This allows for more flexibility and diversity among the system it can manage. It will ensure recreational opportunities within the area, as well as provide a diverse ecological system. This allows for experimentation of effective implementations to enhance the system's resilience towards disturbances, including those by humans.

The ENCI restrained flexibility; no matter how well they complied with environmental policies regarding emissions and operations, extracting the limestone still required digging away at ecological systems. When the protests against the extraction operations began, they had no way of creating cooperation amongst the stakeholders involved. It is, however, flexible in its own survival, as it will only process imported limestone from Belgium after 2019 instead of extracting it at the site (Peters & van Winden, 2002).

Even though Maastricht is a tight network in itself, stakeholders are linked in a centralized network where the municipality is the main stakeholder holding the network together. This allows the municipality to unite various stakeholders in the goal to conserve and enhance nature within the city. Maastricht has the advantage that it is small in scale and

decisions are therefore more likely to impact the whole network, instead of isolated stakeholders.

Its centrality allowed the municipality to resolve the conflict between the interests of the community and the ENCI. However, the resilience of the central system might be affected in the future by differing interests and lobbying activities. For example, for community and ecological purposes, the municipality decided to let some urban spaces temporarily be used for community initiatives, such as urban gardening, until the space can be included in a permanent plan (Gemeente Maastricht, 2012). Yet, to apply innovation and receive long-term benefits, the community demands a long-term solution, which the municipality cannot give due to economic obligations.

## VI. Actions

Transformation to a greener city is already taking place. The question is whether this increase in nature also makes the system resilient. Ecologically, the system shows remarkable resilience. Seed banks and dispersion of native vegetation guarantee natural regeneration of nature if left unmaintained (Peters & van Winden, 2002). For example, after 100 years of mining, grazing sheep need to suppress the growth of forest in the quarry. Old buildings and nature even unify, which makes the city, its inhabitants, and species more adaptable to effects of climate change (Manning, Gibbons, & Lindenmayer, 2009).

The landscape's diversity promotes a range of ecological, cultural, and recreational opportunities that enhance interaction of people with nature and absorbance of different shocks. Especially the increasing connectivity between green areas facilitates movement. Increasing biodiversity of target areas, such as the quarry, will have biodiversity "spillover" effects, even to non-targeted areas (Brudvig, Damschen, Tewksbury, Haddad, & Levey, 2009). Studies have even shown that the Buba Buba owl has started hunting within the city (figure 5) (Houben, 2011).

Using diversity for lower maintenance costs and resilience is a strategy that is not sufficiently used in the approach for the 'Groene Loper', which will consist out of 2000 Linden trees to connect other existing green spaces (A2 Maastricht, 2013; Groen Maastricht, 2014, b). Even though the Linden tree is resistant to compaction and pests, the monoculture and similar age of trees can become a problem in the future if too much road salt is used, a new disease emerges, or the trees need to be replaced at once.

The political support and 'learning by doing' approach of the municipality make institutions and the community quite resilient. The municipality continually seeks ways to facilitate communication and public participation, such as setting up an information platform (www.groen-maastricht.nl). Maastricht is a small and tight system that enhances social cohesion, communication, and interactions among different stakeholders. Recreational opportunities and increasing exposure to

nature enhances social ties (Tzoulas, et al., 2007).

To pursue a more resilient socio-economic system, new projects should implement greater diversity with regards to species, structure, and tree age. The contribution to the system's resilience by the 'Groene Loper', for example, would augment if it had greater diversity, allowing greater shock absorbance and more dynamic habitats. It should also be understood that focusing on resilience against a specific disturbance, such as compact soils, might affect the general resilience, such as susceptibility to diseases due to monoculture.

In case of economic collapse, the system would be more resilient if there was a trust fund for the maintenance of green spaces. Additionally, keeping the economy diversified enhances social resilience. Diverse agricultural land would therefore create social cohesion and keep the community in touch with their natural surroundings.

To build a stronger bridge between science, education, and policy, research and experiments in greening projects for students should be promoted to enhance collaborative learning and innovation. Advancement in quantifying and understanding ecological values can improve resilient decision-making and cost-benefit analyses.

Institutions need to be transparent to gain mutual and community trust. Continuous assessment of social and ecological resilience is important for decision-makers to maintain alignment in interests among stakeholders, maintain sufficient amounts of flexibility within the system, and anticipate threshold-crossings across different scales.

# References


A2 Maastricht (a). (2014). De Groene Loper. Retrieved June 9, 2014, from A2 Maastricht: http://www.a2maastricht.nl/nl/plan/groeneloper.aspx

A2 Maastricht (b). (2014). Natuurcompensatie. Retrieved June 9, 2014, from A2 Maastricht: http://www.a2maastricht.nl/nl/themas/natuurcompensatie-.aspx

A2 Maastricht. (2013, November 2013). Natuurcompensatie Bij Milleniumbos Van Start. Retrieved June 9, 2014, from A2 Maastricht: http://www.a2maastricht.nl/nl/nieuwsberichten/nieuws-op-homepage/2013/natuurcompensatie-bij-millenniumbos-van-start.aspx

Arbor Day Foundation. (2014). Linden, Littleleaf. Retrieved June 12, 2014, from Arbor Day Foundation: http://www.arborday.org/treeguide/treeDetail.cfm?ID=119

Brudvig, L. A., Damschen, E. I., Tewksbury, J. J., Haddad, N. M., & Levey, D. J. (2009). Landscape Connectivity Promotes Plant Biodiversity Spillover into Non-Target Habitats. PNAS , 106 (23), 9328-9332.

Daelmans, F. (2013). Historishe 'Mergel' Foto's uit het Nationaal Archief. Retrieved June 10, 2014, from De Limburgse Mergelgrotten: http://www.mergelgrotten.com/historische-mergel-foto-nationaal-archief/

de Jong, A., & van Duin, C. (2009). Regionale Prognose 2009-2040: Vergrijzing en Omslag van Groei naar Krimp. Bevolkingstrends , 4th quarter, 35-44.

Dichtbij. (2012, April 3). Maastricht Kapt 384 Doodzieke Paardenkastanjes. Retrieved June 12, 2014, from Dichtbij: http://www.dichtbij.nl/maastricht/regionaal-nieuws/artikel/2545629/maastricht-kapt-384-doodzieke-paardenkastanjes.aspx

Duyzer, J. H., Verhagen, H., & Klok, E. J. (2012). Het in Kaart Brengen van de Wijken in Maastricht die Gevoelig Zijn voor het Hitte-Eiland Effect. TNO, Earth, Environmental and Life Sciences. Utrecht: TNO.

European Commission. (2014, June 3). Natura 2000 Network. Retrieved June 9, 2014, from Environment: http://ec.europa.eu/environment/nature/natura2000/index_en.htm

Gemeente in Cijfers. (2014). Factsheet bevolkingsontwikkeling per maand. Retrieved June 9, 2014, from Gemeente Maastricht in Cijfers: http://maastricht.incijfers.nl

Gemeente Maastricht. (2012). Structuurvisie Maastricht 2030 - Ruimte voor Ontmoeting -Deel II. Maastricht: Gemeente Maastricht.

Gemeente Maastricht. (2014, April). Uniek Natuurgebied. Retrieved June 9, 2014, from Gemeente Maastricht: http://www.maastricht.nl/web/Uitvoering-omgevingsplan-Fort-Sint-Pieter/Uniek-natuurgebied.htm

Groen Maastricht (a). (2014, February). Sint Pietersberg en Enci-Gebied. Retrieved June 9, 2014, from Groen Maastricht: http://www.groen-maastricht.com/plannen/encigebied.html

Groen Maastricht (b). (2014). Waarom Groen Maastricht? Retrieved June 9, 2014, from Gemeentelijke Plannen: http://www.groen-maastricht.com/plannen.html

Gunderson, L., & Holling, C. S. (2002). Panarchy: Understanding Transformations in Human and Natural Systems. Washington, D. C.: Island Press.

Houben, J. (2011, October 20). Oehoe Jaagt in Centrum: Populatie Stadsduiven Daalt. Retrieved June 12, 2014, from Natuurmonumenten: https://www.natuurmonumenten.nl/sites/default/files/Oehoe%20jaagt%20in%20centrum.pdf

KIVI Engineering Society. (2013, June 7). Activiteit: De Groene Loper voor A2 Maastricht. Retrieved June 9, 2014, from KIVI Engineering Society: https://www.kiviniria.net/tr?transaction=KIVI_ACT006&PARAM1=3412#.U5VCM1xKYds

Manning, A. D., Gibbons, P., & Lindenmayer, D. B. (2009). Scattered Trees: A Complementary Strategy for Facilitiating Adaptive Responses To Climate Change in Modified Landscapes? Journal of Applied Ecology , 49, 915-919.

Panhuysen, T. A. (1996). Romeins Maastricht en Zijn Beelden. Maastricht: Bonnefantenmuseum.

Peters, B., & van Winden, A. (2002, March). Verborgen Valleien in de ENCI-Groeve. Maatricht, Limburg, The Netherlands.

Projectbureau A2 Maastricht (a). (2009). Integraal Plan A2 Maastricht. Maastricht.

Projectbureau A2 Maastricht (b). (2009, December 3). Persbericht. Retrieved June 9, 2014, from A2 Maastricht:

http://www.a2maastricht.nl/data/files/alg/id163/Persbericht%20Groene%20voorLoper%20voor%20A2%20Maastricht%20uitgelegd.pdf

Resilience Alliance. (2010). Assessing Resilience in Social-Ecological Systems: Workbook for Practitioners. Version 2.0. Online: http://www.resalliance.org/3871.php.

Smeets, T. (n.d.). Stichting ENCI Stop. Retrieved June 10, 2014, from ENCI Stop: http://www.encistop.nl/start.html

Soete. (2008, May 25). ENCI: Soit-Il. Retrieved June 9, 2014, from http://www.soete.nl/blog/200805.php

Stedentrip. (2010). Geschiedenis Maastricht. Retrieved June 12, 2014, from Stedentrip: http://www.stedentrip.com/geschiedenis-maastricht

Stevenhagen, E. (n.d.). Lichtenberg. Retrieved June 10, 2014, from Lichtenberg: http://web.inter.nl.net/hcc/Ed.Stevenhagen/groeven/dok/oldmap/sp2.htm

Stichting Ontwikkelingsmaatschappij ENCI-Gebied (a). (2014). Planten en Dieren. Retrieved June 10, 2014, from ENCI-Gebied: http://www.enci-gebied.nl/natuur/info/planten-en-dieren

Stichting Ontwikkelingsmaatschappij ENCI-gebied (b). (2014). De Prachtige Oehoevallei. Retrieved June 10, 2014, from ENCI-Gebied: http://www.enci-gebied.nl/natuur/info/oehoevallei

Stouthart, L. G., Jenniskens, A. H., & Baeten, A. M. (1985). Tussen Twee Bruggen: Maastricht in de Tijd van Baeten. Maastricht: Maastricht: Comite Afscheid Burgemeester Baeten.

Tzoulas, K., Korpela, K., Venn, S., Yli-Pelkonen, V., Kazmierczak, A., Niemela, J., et al. (2007). Promoting Ecosystem and Human Health in Urban Areas Using Green Infrastructure: A Literature Review. Landscape and Urban Planning , 81, 167-178.

Walker, B., & Salt, D. (2012). Resilience Practice: Building Capacity to Absorb Disturbance and Maintain Function. Island.

ZJA. (n.d.). A2 bij Maastricht. Retrieved June 9, 2014, from Zwarts & Jansma Architects: http://www.zwarts.jansma.nl/page/2397/nl

# Appendix

| Provisional service | | Regulating service | | Supporting service | | Cultural service | |
|---|---|---|---|---|---|---|---|
| **Service** | **Natural capital** | **Service** | **Natural capital** | **Service** | **Natural capital** | **Service** | **Natural capital** |
| Agriculture (crops) | Soil, nutrients | Flood regulation | Soils, vegetation | Forest regeneration | Seed bank, roots, soil, vegetation | Recreation (walking, cycling) | Paths, hills, river Maas |
| Cement | Limestone (quarry) | Shade | Trees | Soil structure regeneration | Soil, water | Sense of place | Trees, understory species |
| | | Temperature (mitigating urban heat island effect) | Trees, other vegetation within the city | Biodiversity | Wildlife (e.g. the 'Oehoe', vegetation (esp. understory species), river Maas | Education, awareness | Green spaces, trees, bushes, river Maas |
| | | Dust uptake (e.g. from factory) | Trees | Nutrient cycling | Vegetation, soils, water, slopes | Psychological well being | Green spaces, vegetation |
| | | Water filtration | (Limestone) soils, vegetation | Pollination | Wildlife, insects, wind, vegetation | Tourism | Tunnel system, landscapes (incl. agricultural) |

*Table 1: Identification of the ecosystem services provided by the green spaces within and around Maastricht.*

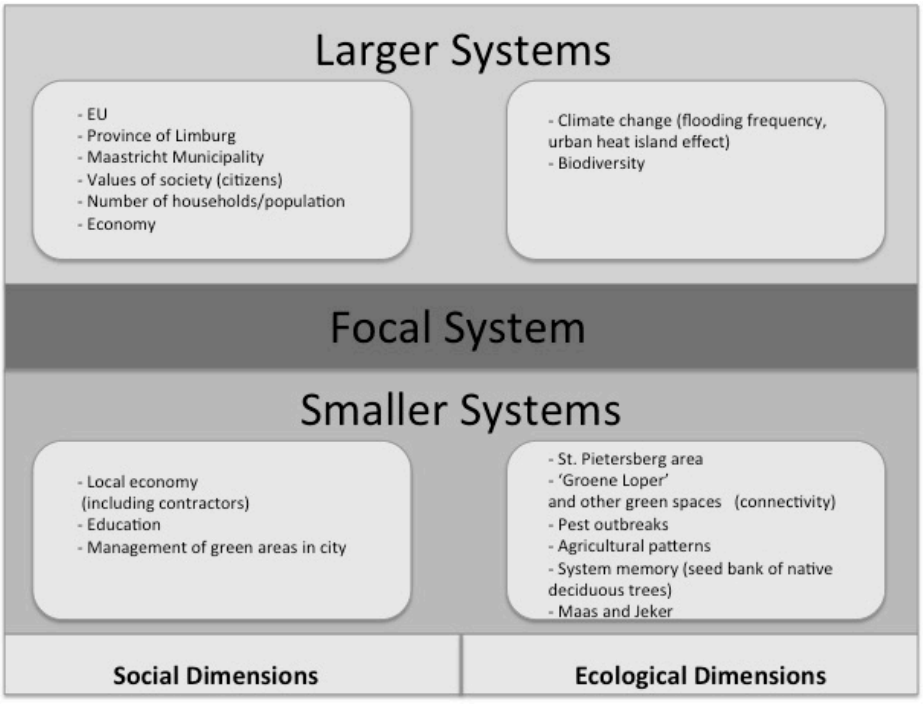


*Figure 1: Social and ecological dimensions of larger and smaller systems that influence Maastricht's social-ecological system.*

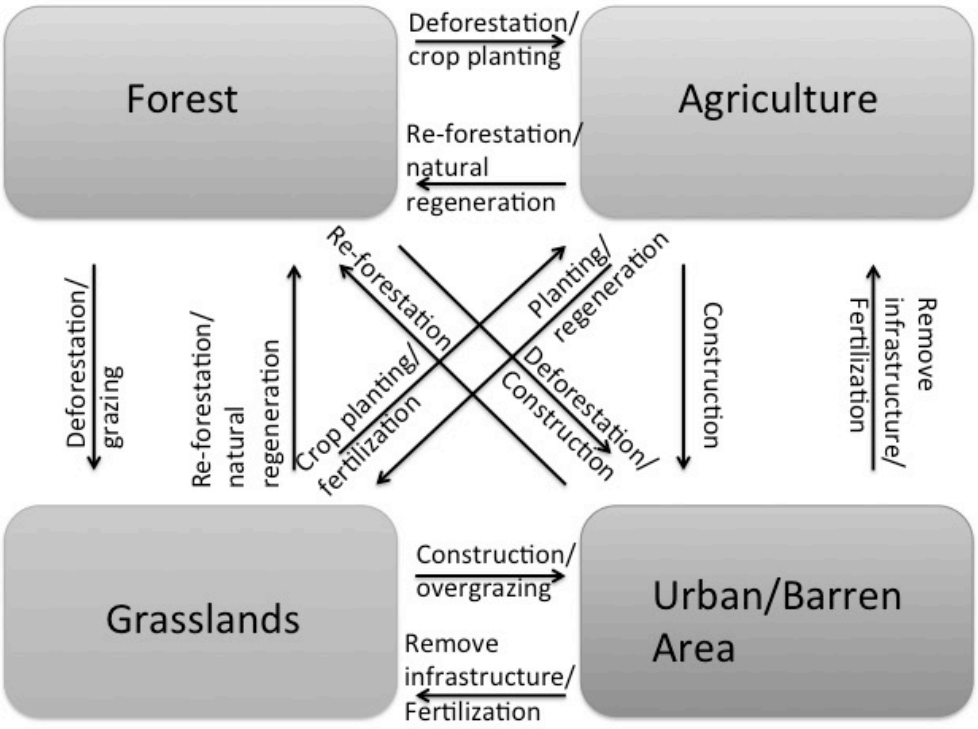


*Figure 3: Different ecological states of the focal scale and actions or processes that influence state transitions.*

## Interactions Between Scales

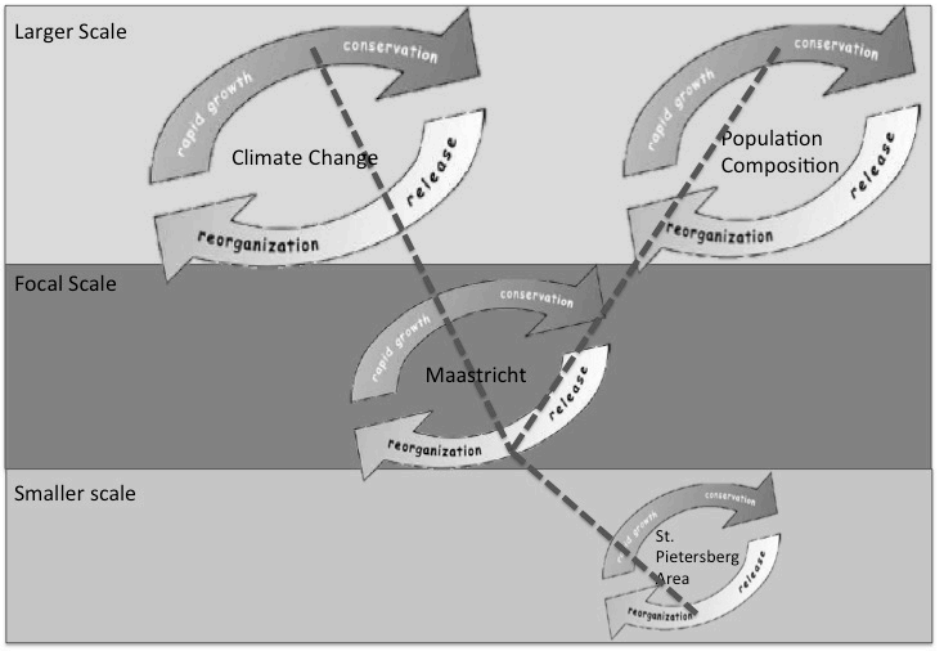


*Figure 4: Interaction between different scales (Adaptive cycle figures used from Resilience Alliance, 2010).*

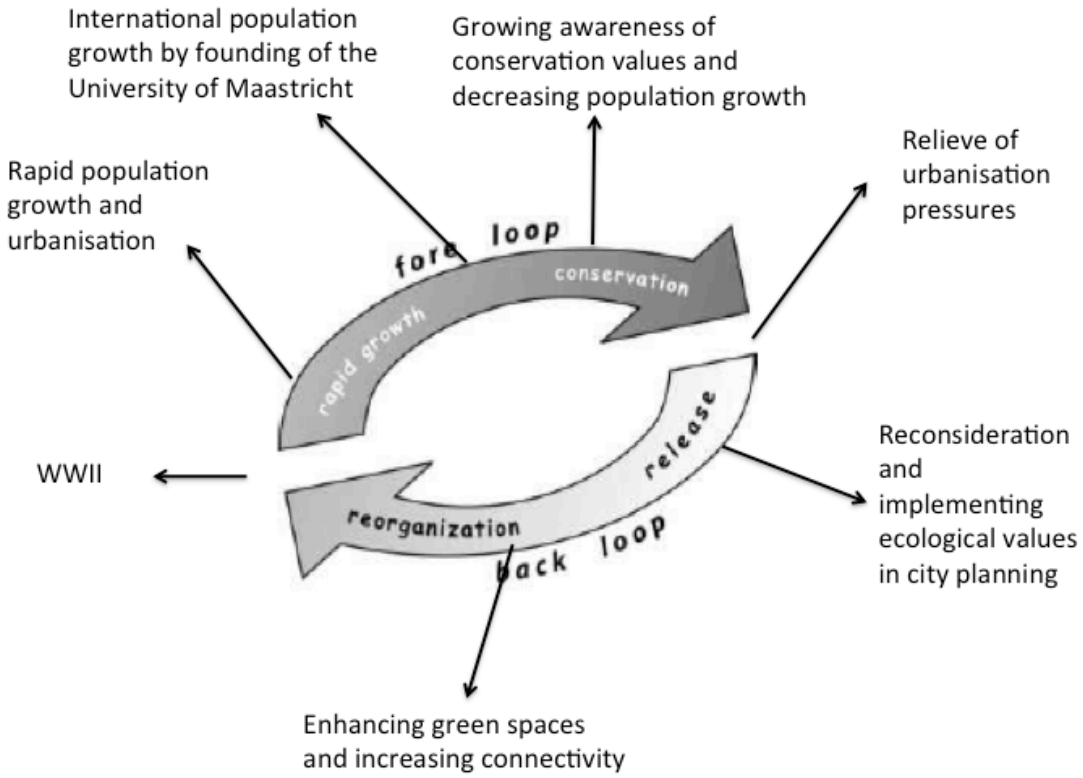


*Figure 2: Adaptive cycle of Maastricht (Adaptive cycle figure, adapted from Resilience Alliance, 2010).*

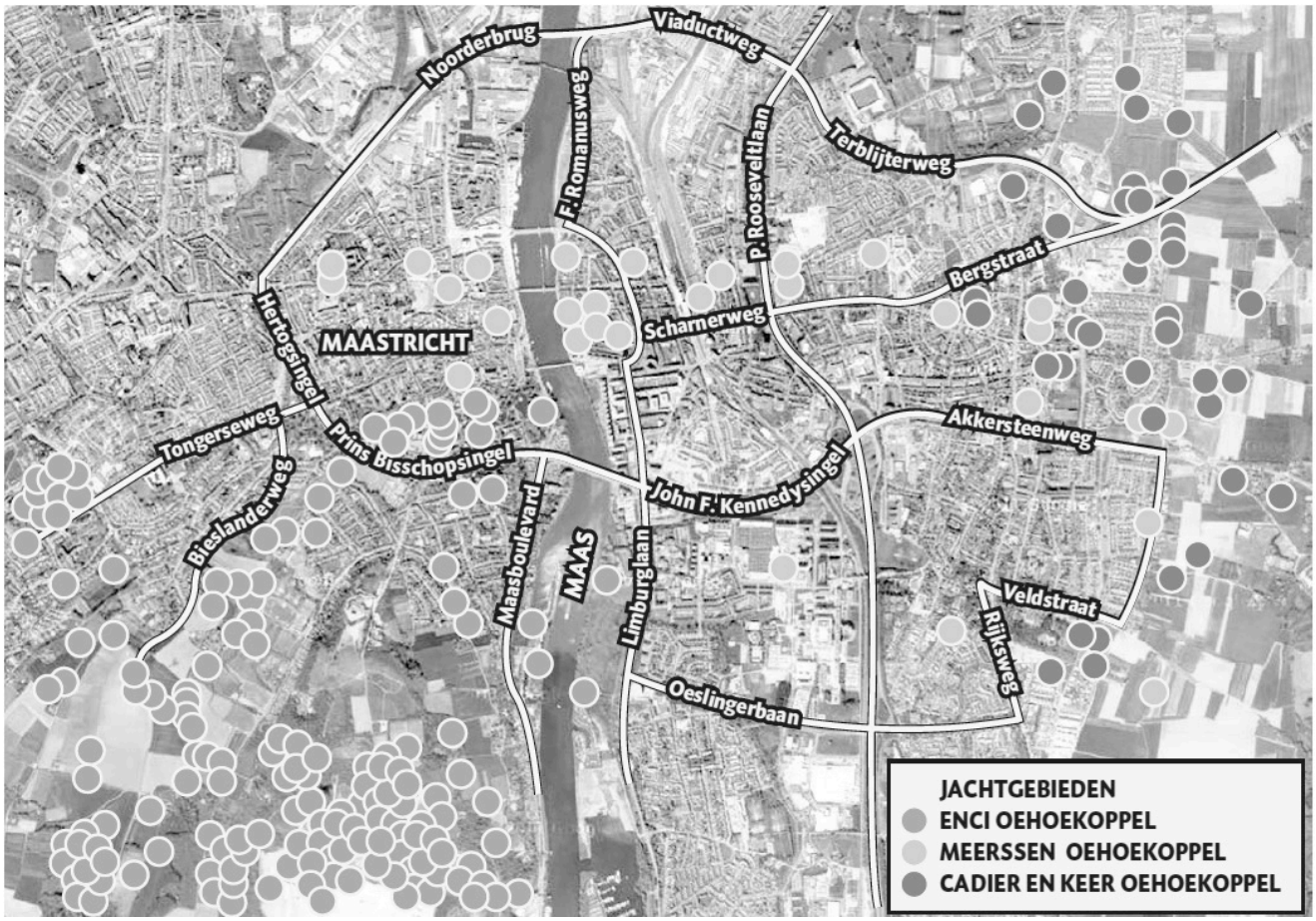


*Figure 5: Hunting areas of the Buba Buba owl (Houben, 2011). The three colours indicate three owl couples that have been tracked. Results show that the owls are starting to hunt within the city at night, mainly in greener areas.*

# The road towards community based ecotourism

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**Abstract**

*As the quest for sustainability reaches the larger public, the sector of tourism also becomes subject to demands of sustainability. Where the notion of sustainability is effectively integrated, it results in ecotourism and community based development. Ecotourism is mainly linked with environmental sustainability, while community based development provides sustainability of culture and local livelihoods. This paper argues that the ultimate form of sustainable tourism is community based ecotourism, which combines both developments. The guidelines on Sustainable Development from the Rio Declaration on Environment and Development (1992) are used to explain how a more sustainable form of tourism can be reached, and why it is believed community based ecotourism is the only possibility to achieve sustainable activity. While the goal of sustainable development requires more promotion in large parts of the world, community based ecotourism could be an effective way to apply theoretical values in practice, thereby improving the preservation of both culture and nature.*

Along with the growing popularity of the concept and idea of "sustainable development" grows the general idea that the world does not pay enough attention to the environment. In addition to this, large amounts of people are attracted to conceptions of local development and sustainable lifestyles. Tourism, as an upcoming sector of the market industry, has in turn become subject to the pursuit of sustainable development (Wnuk, 2013). Ecotourism has emerged as one way of merging sustainability with tourism. However, utter sustainability exceeds the environmental context that is incorporated in ecotourism; tourism should also be socially sustainable. This paper recognises the need for sustainability beyond the environment, towards the tourist industry. The concepts ecotourism and community-based development both reflect promising principles of sustainable development, but lack substantive prognostic when used separately. This paper regards ecotourism

and community-based development as two entities to be merged in order to create the interdisciplinary and proactive concept community-based ecotourism.

In a quest for a form of tourism that is more sustainable, all elements of sustainable development (society, economy, environment) are needed. In fact, with a degraded environment, a malfunctioning society and an unstable economy, tourism can never be sustainable. This quest occurs in response to a market that becomes more aware of the concept of sustainability, as well as in response to the growing awareness of environmental degradation and destruction of culture (Wnuk, 2013). It is useful for tourists, companies and especially local employers to know how to be more sustainable. The principles of sustainable development revealed by the Rio Declaration on Environment and Development in 1992 will be used throughout this paper as guidelines to more sustainable tourism. These principles offer indications of how sustainability can be improved across a large spectrum of activities, of which the tourist industry is one. Because these principles have been accepted by a large international community as desirable standards, these principles will prove useful in providing us with a legitimate way of improving sustainability in practise, namely in the tourism sector. Instead of looking at improvements for existing strategies - community based development or ecotourism - this paper attempts to analyze the principles on which these new forms of more sustainable tourism were built, and investigates whether a full application of sustainability principles can be achieved through coining these developments as a true sustainable form of tourism.

In order to clearly construct our argument, we will first instantiate the most important terms (sustainable development, ecotourism, community-based development and community-based ecotourism) as to avoid future misconception. These concepts will consequently allow us to analyse the concepts as they were brought to practise. A number of concrete principles of sustainable development will be used to compare practise to theory: is sustainability as it has been laid out by the international community reflected in the development of these new forms of tourism? Furthermore, we will illustrate the arguments with concrete examples. The paper mainly focusses on the environmental and social aspects of sustainability, because while the economic aspect of sustainability in general might be more ambiguous, the fact that this paper is concerned about the tourist industry automatically implies an economic activity. Sustainability in this sense concerns sustaining livelihoods for present and future generations, which would aim at generating income from sustainable sources (Griggs et al, 2013). This means that for the economic aspect of the sustainable tourist industry, social and environmental goals would have to be achieved first.

# I. Clarification of concepts

First of all, the concept of Sustainable Development should be explained. It is a term that at first sight might seem paradoxical, as it was always believed that development, as economic growth, and the environment do not go together. Environmental harm was believed to be undeniable within the process of development (Wnuk, 2013). However, in 1987 the World Commission on Environment and Development published the Brundtland Report, which shone a different light on this widespread opinion. In a quest for a development model that would be more sustainable, the report interconnected economy, the environment and the society in the term sustainable development. This meant that only striving for a societal change in regards to development was not enough, because the environment had to be sustained and protected in order for society to develop and sustain itself (Baker, 2006).

In the years after the Brundtland report, the term sustainable development became debatable, because it received criticism on the important role the economy played in the sustainable development equation. Scholars like Griggs pointed out that the three elements of sustainable development are indeed interconnected, however, they are not of equal importance as the Brundtland Commission proposed. Therefore, Griggs et al. (2013) redefined sustainable development as:

*"development that meets the needs of the present while safeguarding Earth's life-support system, on which the welfare of current and future generations depends"* (Griggs et al., 2013, p. 306).

This means that while it is important to maintain a thriving economy, it should be serving a functional and future society, and above all, it should be within the limits of Earth's capacity.

In contrast to the Brundtland's conception of sustainable development, Griggs and his colleagues considered society and the environment to be positively correlated. They furthermore connected the three elements of sustainable development - the economy, society and the environment - in a so-called 'nested approach', in which the three elements are of different importance and interdependence regarding their place in the 'nest'. Through this interconnection, the elements of sustainable development could be infiltrated into every layer of society.

Another important term to be clarified is the often wrongly interpreted ecotourism. Seen by many people as greenwashing, ecotourism is a phenomenon that requires a proactive approach to pursue diminishment of negative impacts and intensification of positive effects of tourism (WWF, 2010).
According to The International Ecotourism Society (abbreviated 'TIES'), ecotourism can be defined as

*"responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education"* (TIES, 2015, paragraph 4).

Ecotourism is a form of tourism with a long-term vision that focuses on the conservation of nature and culture, both for the environment and the local community and its tourists. Sustainability is an important part of it, because ecotourism tries to sustain the environment, as well as society and the economy. Ecotourism goes a step further than regular tourism by believing that "tourism and the environment are not merely interrelated, but are interdependent" (Pigram, 1980, p. 554). The profits gained by ecotourism are often used to fulfil this sustainability by investing in wildlife and natural surroundings (TIES, 2015). An excellent example of this is the Parc des Volcans in Rwanda. The money earned by attracting (eco)tourists is used to set up anti-poaching patrols and to employ local farmers as guides and guards. Because of the $170-a-day fee that tourists pay to enter the park, the gorillas are saved from extinction (Rainforest Action Network, n.d.).

Furthermore, the term Community-Based Development (CBD) refers to a demand-driven (instead of supply-driven) approach that relies on local management of resources and services in order to increase efficiency, equity, and empowerment within a local community. By involving local stakeholders in the decision making, and giving control and accountability to individuals and communities, every CBD scheme is bound to the needs and resources of a particular community (Narayan, 1995). Especially investing in education, as in the case of Sierra Leone, has proven to be beneficial to the local community, because it seeks to improve the education and employment of the community's children and adults (JOY, 2010).

CBD consists of a broad spectrum of approaches that brings the benefits provided by the assistance directly to the community level, as well as prioritizes the ownership of commands and decisions by the community (Parks et al. 2013). Doing this, CBD is able to solve conflicts in certain regions by implying the importance of communication within the centre of the community. In the Philippines for example, CBD has helped restore community-level confidence in decision-making and alleviate poverty with the underlying assumption that poverty leads to conflict (Parks et al.).

Subsequently, community-based ecotourism (CBET) is created by linking ecotourism to community-based development. Through this form of tourism, the local community has a significant involvement in the development and management of the touristic sites in their country, as well as the majority of benefits. CBET should furthermore foster sustainable use and collective responsibility while complying with the host community's institutional structures and individual proposals of the host country

(WWF, 2010). Consequently, the ability of conserving the local communities and preserving the biodiversity whilst simultaneously reducing the local poverty is what makes CBET attractive on a sustainable scale (Kiss, 2004).

In Phuket, Thailand, 'voluntourism' is a CBET phenomenon where tourists volunteer in helping the local communities engage in ecotourism, protecting wildlife and participate in marine conservation (TAT, 2013). One of these projects is the Little Big Project, whose main aim is to protect and rehabilitate Thailand's coral reefs and marine ecosystems, while also creating awareness among the locals of the importance of these ecosystems. Deforestation of the region is leading to food shortages for marine life while having a negative effect on the local economy, and these should thus be addressed in the context of the local community. The project seeks to involve the local population in providing eco-tourism services, which will on the one hand create jobs and income for the local community and on the other hand protect Phuket's environment and culture (TAT, 2013).

## II. Sustainable development and tourism

As the idea of sustainability is increasingly fostered in people's minds, more people also want to be involved in sustainable tourism (Wnuk, 2013). To make tourism more sustainable, the principles of sustainable development as created in 1992 at the Rio Earth Summit can be used as guidelines. These principles were invented by the United Nations Environment Programme (UNEP) to make it easier to promote and implement sustainable development throughout society (McKeown, 2002). By applying these principles, one incorporates all dimensions of sustainable development.

Not all principles of sustainable development will be applied, as that would be both unnecessary and encompassing the paper's objectives. A sustainable approach to tourism signifies neither the environment nor the community will be harmed by the influx of travellers. Even more so, the natural environment and the local communities should profit from tourism, both socially and economically. "Sustainability implies that tourism resources and attractions should be utilised in such a way that their subsequent use by future generations is not compromised", as stated by the World Tourism Organisation (2000).

First, two principles will be applied to tourism in the context of ecotourism. Afterwards the same will be done for CBD. Where ecotourism lacks in the ultimate protection of the local community's identity and culture, CBD takes over and adds to the social dimension of sustainable development (Narayan, 1995; TIES, 2015). Therefore, by combining these two concepts, CBET represents a more holistic representation of sustainable development values.

## II.I. Ecotourism

*"Nations shall cooperate to conserve, protect and restore the health and integrity of the Earth's ecosystem. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command"* (McKeown, 2002).

Ecotourism is not solely an action that has to be done; it should also be used to promote sustainability for both the environment and the community in general. Especially developed countries should advertise sustainability in tourism, as the tourists that cause most environmental and cultural degradation originate from the most developed countries. It is this form of mass tourism that causes most pressure to the Earth's natural environment (Sustainable Travel International, 2015).

During a TED talk, Aziz Abu Sarah, a tourist entrepreneur from Palestine, stated "tourism is the best [...] way to bring down those walls [of anger] and to create a sustainable way of connecting with each other and creating friendships" (Sarah, 2014, 2.02 minute). Ecotourism seeks to accomplish exactly this. Tourists and local villagers can learn about each other's cultures and lifestyles so that they can explain the other's behaviour. Consequently, problems that tourists and local inhabitants encounter can be solved more easily (TIES, 2015). Tourism therefore creates "mutual understanding among people" (Wnuk, 2013, p. 107).

It is the task of every nation to provide companies as well as local villagers with all information necessary to both understand each other's ways of progress and actions, as well as to see the importance of nature as such, and the value it has for humanity and the world's life cycles (May, 1991). A greater participation rate increases this awareness of inhabitants of the host country as well as tourists in their home country. Consequently, the environment will be more successfully protected and sustained.

*"The full participation of women is essential to achieve sustainable development. The creativity, ideals and courage of youth and the knowledge of indigenous people are needed too. Nations should recognize and support the identity, culture and interests of indigenous people" (McKeown, 2002).*

Ecotourism tries to empower local people and especially the youth, because they are the ones that need to raise awareness to preserve the environment. In fact, without a well-preserved environment, tourists are less inclined to come, as nature is what they are often looking for (Liu, 2003). Youths have the potential to change the unsustainable habits of the community, because they can learn about the benefits that the environment has for tourists, and for themselves (UN Divisions for Sustainable Development, 1992, p.275).

We can see this has happened with the EcoQuetzal project in Guatemala. This project made the villagers realize that it takes less effort and it is more sustainable to present their forests to tourists than to ruin them.

*"Together with our agricultural projects, the communities have benefitted greatly and already have begun improving the quality of their lives"* says EcoQuetzal (2012).

Not everywhere in the world do women have the same rights as men. Especially where they do not have these equal rights, women have to be empowered. Women are often the ones that make things happen, usually behind the scenes. Without their commitment, it is difficult to accomplish the goal of sustainable development (UN Divisions for Sustainable Development, 1992). With the full participation of women, a project can be much more productive, because it is performed by every member and within every layer of the community.

In addition, the available knowledge and creativity of indigenous people should be used because they are the ones knowing their natural environment best. Instead of downgrading or erasing local cultures and villages for tourism, companies and nations should acknowledge the importance of local villagers and their valuable knowledge about their surroundings to create situations that are beneficial for both tourists and villagers (TIES, 2014a). One example of successful cooperation is Guatemala, where the Oxlajuj B'atz' Maya Women's Center was built. This project empowers women by providing them with the skills and education to become self-sufficient while at the same time guiding tourists through the communities so they can learn about the Mayan culture. It is a way of preserving indigenous knowledge and culture through tourism that is sustainable on all fronts (TIES, 2012).

Where ecotourism might lack the motivation and knowledge to sustain a healthy and lively community, CBD can take over. Ecotourism is often said to be based on protecting the environment, however it lacks the necessary social dimension for true sustainable action (Liu, 2003). In contrast, CBD focusses entirely on the community, for which the environment is included in sustaining the community and its living grounds (Narayan, 1995). According to the principles of sustainable development, local communities should be protected as much as the environment. This is why, next to ecotourism, CBD is needed to make sure that both environment and culture are equally incorporated in tourism.

## II.II. Community based development

*"People are entitled to a healthy and productive life in harmony with nature"* (McKeown, 2002).

When used in a productive way, CBD is a way to manage natural resources effectively, as well as a tool to provide the community with basic infrastructure and social services (Narayan, 1995). By teaching the communities the appropriate strategies to support community life, changes in the implementing agencies (technical, services etc.) need to be undertaken in order for these to become more effective. These changes are often difficult, as technical and educational personnel in developing countries are often reluctant or are lacking incentives for performance (Narayan, 1995). At this point, the help of NGOs to transform the agencies in a more effective way is interesting, as it enables the communities to remain independent from other nations.

A perfect example of CBD is to be found in Lakka, Sierra Leone, where the organization "Joint Operation Youths" (JOY) takes it as their responsibility to improve livelihoods and education quality for the young adults and children. JOY was initiated in 2006 by a group of locals, and now receives wide national and international help to complete several projects on the improvement of health and education in their community. The organization aims to receive funds and assistance in the management of project proposals originating from (and executed by) the Sierra Leonean community. According to the organization, education is the most important ingredient of a healthy society, and investing in it through development work is a definite sustainable approach for a better future (JOY, 2010).

JOY has fulfilled three projects since its start. Firstly, "The Beach Cops Programme" brought children together to clean the beaches in return for a free meal. Furthermore "The Water and Sanitation Project" accomplished the requirement of accessibility to water and sanitation as a crucial component of a healthy society by building toilets and a water tap. Finally, the project managed to finance books for the local school and for families who couldn't afford them in "Books for the Lakka Primary School". In 2010, JOY started working on constructing a nursery school and other education programs. The organisation organizes fundraisings internationally so that the current 35 children who cannot afford going to school receive financial aid and obtain knowledge like the other children in Lakka (JOY, 2010).

*"Peace, development and environmental protection are interdependent and indivisible"* (McKeown, 2002).

CBD is a model that has a conflict-sensitive approach to development, because the communities play a major role in prioritizing aid investments through open dialogue (Parks et al., 2013). Indeed, CBD does not merely provide the communities with basic infrastructure or resources, but also raises the importance of increased community-level dialogue and democracy in decision-making or project planning, in order to generate important social benefits beyond the substantial outputs of the project (Parks et al., 2013). Three main benefits have been prevalent in conflict-affected areas of the Philippines,

where development aid has been given according to guidelines of CBD. Parks and his colleagues have shown in 2013 that CBD has helped to address a range of challenges in conflict areas by improving the infrastructure and reduce economic deprivation. Second, they have proven that CBD restores confidence in these areas also after the conflicts have stopped, by increasing state-society relations through education and job creation. Finally, marginalized groups are included in the society by encouraging greater participation and collective action (Parks et al., 2013).

Moreover, when looking at the example of JOY in Sierra Leone and the previous principle, a steady education and knowledge on the correct use of resources will enable a better life for the following generations. Sierra Leone has since the late eighteenth century experienced a long past of conflicts, wars, coups and a long-lasting civil war from the early 1990s until early 2000s (BBC, 2015). The civil war destroyed most of the schools, and the living standards of most locals diminished considerably. Traumatized leaders, upcoming rebel groups and economic emergencies have destabilized the country and made it dangerous for locals and visitors, thus leaving the country without proper development.

Nowadays, one of JOY's primary concerns is to maintain the peaceful conditions that are predominant at the moment, by educating the youth and developing the country in a way that provides jobs that are necessary for society (JOY, 2010). In case one of the three elements of sustainable development is not pursued, the others cannot be accomplished to the fullest (Scheyvens, 1999). For example, without development, there is little knowledge or means to sustain an economy and with a degraded environment, there is no development possible as there are no natural resources.

It is thus clear that community-based development is a method of local development completely detached from tourism, but can be incorporated into it. Point taken, Lakka is a beach town that once was a popular tourist destination and with the recovery the country is going through, it progressively attracts more tourists again. Therefore, it is interesting to involve tourism into effective development of Sierra Leone. By combining ecotourism with CBD, we arrive at the phenomenon of Community Based Ecotourism.

## II.III Community based ecotourism

*"In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process, and cannot be considered in isolation from it. Eradicating poverty and reducing disparities in living standards in different parts of the world are essential to achieve sustainable development and meet the needs of the majority of people"* (McKeown, 2002).

Ecotourism organizations claim to assist local communities, either by employing locals or by aiding local projects, which benefits communities on all aspects (Kiss, 2004). However, Kiss argues that adding the term 'community-based' into ecotourism implies going beyond merely aiding communities, but actively involving communities in all actions (2004). The result of community-based ecotourism strongly depends on how the proposed objectives are interpreted by the locals, and the degree of participation of the local community. Where ecotourism stops at merely employing local workers and thereby preventing extreme poverty, CBET strives for actually reducing disparities that exist in communities by involving them to the fullest in local development (Kiss, 2004).

The impoverished commune of Chi Phat, Cambodia, was known for being a hub for illegal logging and wildlife smuggling in the early twenty-first century. However, the Cardamom Mountains are abundant in resources and thus the Wildlife Alliance intervened in 2007 to develop the communities in the mountains and provide these with a better livelihood (Wildlife Alliance, 2015). With the optimistic economic prospects of natural resources and breath-taking landscapes, tourism was an opportunity to develop the region sustainably on both an economic and cultural level.

Each place in the touristic site is run by a committee of villagers that is technically assisted and financially supported by the Wildlife Alliance. The local residents have incentives to be active in the project as local stakeholders, because they see their income grow exponentially over time as tourism to Chi Phat increases each year (Wildlife Alliance, 2015). The villagers, who once depleted the environmental heritage of its resources in order to survive from trade, are now employed as guides to lead the tourists through the abundant hiking trails through jungles, waterfalls, rainforest and typical cultural heritages. Additionally, the villagers are employed to operate in the guesthouses, transport services and restaurants (Wildlife Alliance, 2015).

*"Development today must not undermine the development and environment needs of present and future generations"* (McKeown, 2002).

Community-based ecotourism is a tool to conserve biodiversity, in order to produce economic benefits for the local community (Kiss, 2004). Furthermore, Scheyvens notes that a community-based approach to ecotourism must recognize the necessity of promoting both the quality of life of people and the protection of resources simultaneously (1999).

One of the aims in Chi Phat is to protect the resources found in the area, and to create job and income opportunities for the locals through CBET. This is made possible by producing CBET activities and materials used for tourists as well as by providing adequate training for jobs and improvements in the infrastructure and public facilities. Furthermore, a CBET committee was established in which

members are elected to lead the management of the project, as well as provide the locals with training in order to manage accounting and bookings to further develop the system (Wildlife Alliance, 2015).

The idea of sustainable development implies the concern for both intra-generational and inter-generational equity with respect to the use of resources is an important part of the promotion of sustainable development (Baker, 2006). Intra-generational equity refers to equity across the globe within the current generation, while inter-generational equity involves the needs of future generations in the design of current policies on equity (Baker, 2006).

The Wildlife Alliance (2015) states that the first waste management system of Cambodia was developed in the area, and that the local community, activated through the CBET programme, has taken action to check whether the economic development does not put the environmental protection at stake nor disrespects the environment in the long-term. By implementing waste and environmental protection policies, the Wildlife Alliance is ensuring the security of resources for the future generations to come. With enough patience, CBET is thus a long-term solution to make tourism more sustainable (Narayan, 1995).

## III. Conclusion

To make tourism more sustainable, the internationally acknowledged principles of sustainable development were used as guidelines. After application of a selection of concrete principles to tourism, it seems as if CBET is a good step to take towards a more sustainable form of tourism. Through CBET we found that the combination of ecotourism and CBD successfully integrates the need for promoting environmental and cultural sustainability into tourism.

Ecotourism focuses on the conservation of nature and culture both for the present and future needs, hence it is beneficial both for the local community and the environment as well as for the tourists. By relying on the concept of Community-Based Development, promoting local management of resources and services creates long-term efficiency, equity, empowerment and cost effectiveness within the community. CBET coins both developments to create a form of tourism that more adequately responds to the need for sustainable development in tourism, thereby creating a proactive way of implementing the principles of sustainable development in local communities. By ensuring future access to both human and natural resources, CBET simultaneously paves the path for more inclusive and economic sustainability.

The concept of sustainability concerning the economy, society and the environment can bring about the needed change in society, and thus has to be promoted and implemented in developing as well as developed countries.

Community-based ecotourism offers hope that the environmental responsibility promoted by ecotourism and local empowerment brought by community-based development can accomplish the interests and vital needs of the receiving communities. Still, CBET has limitations concerning local participation and external involvement: finding the help needed to make such a project possible should not hinder locals in creating businesses, nor should it provide an opportunity to outside investors for exploiting the area. As it remains a relatively new concept, countries may be sceptical on the future it promises. However, patience is required in the process of CBET, because the investment in communities and engagement of these communities takes time and money.

Community-based ecotourism promises to be an effective strategy for combining tourism with sustainable development. However, in order to improve upon sustainability in tourism, countries first have to be aware of the need for more sustainability. Indeed, not all countries have sustainability on their (political) agenda. Here the public and the media come in to 'spread the message' and help increasing the demand for more sustainable tourism when travelling. Growing economic power coupled with an increasing interest in sustainability might help to ensure a larger interest in sustainability measures, but there is still work to be done, also in the field of tourism. In order to bring about such change, a widespread promotion of sustainable development is an imperative step to take.

# References


Adams, W. M. & Redford, K. H. (2009). Payment for Ecosystem Services and the Challenge of Saving Nature. Conservation Biology, 23(4), 785-787.

Baker, S. (2006). The concept of Sustainable Development. In D. Pepper (Ed.), Sustainable Development. pp. 17-48. Oxon: Routledge.

BBC monitoring (2015). Sierra Leone Profile. Retrieved 19.01.2015 from http://www.bbc.com/news/world-africa-14094419

Duraiappah, A. K. (1998). Poverty and Environmental Degradation: A Review and Analysis of the Nexus. World Development, 26(12), 2169-2179.

EcoQuetzal. (2012). Ecotourism. Retrieved 25.01.15 from http://ecoquetzal.org/ecotour.php

Griggs, D., Stafford-smith, M., Gaffney, O., Rockström, J., Öhman, M. C.,
Shyamsundar, P., & Noble, I. (2013). Sustainable Development Goals for People and the Planet. Nature, 495, pp. 305–307. Retrieved 22.01.15 from http://www.nature.com/nature/journal/v495/n7441/full/495305a.html

Joint Operation Youths (2010). JOY for Sierra Leone. Retrieved 19.01.2015 from http://www.joyforsierraleone.org

Kiss, A. (2004). Is Community-based ecotourism a good use of biodiversity conservation funds? Elsevier, 19(5), 232-237.

Liu, Z. (2003). Sustainable Tourism Development: A Critique. Journal of Sustainable Tourism, 11(6), 459-475

May, V. (1991). Tourism, environment and development: Values, sustainability and stewardship. Tourism Management, 12(2), pp. 112-118.

McKeown, R. (2002). Principles of Sustainable Development. Education for Sustainable Development Toolkit. Retrieved 13.01.15 from http://www.unep.org/training/programmes/Instructor%20Version/Part_1/readings/Principles_%20of_Sustainable_Development.pdf

Narayan, D. (1995). Designing community based development. The World Bank. Retrieved 06.01.2015 from https://openknowledge.worldbank.org/handle/10986/11662

Parks, T., Schuler, N., Chua, J., Magno, C. Johnson, K., Domado, H., & McCarthy, P., (2013). Community-Based Development in Conflict-Affected Areas of the Philippines. The Asia Foundation. Retrieved 24.01.15 from http://asiafoundation.org/resources/pdfs/CommunitybasedDevinCAAofPhilippinesFeb2013.pdf

Pigram, J. J. (1980). Environmental implications of tourism development. Annals of Tourism Research, 7(4), pp. 554-583.

Rainforest Action Network. (n.d.). Do Rainforests benefit from Ecotourism? Retrieved 25.01.15 from http://www.unesco.org/education/tlsf/mods/theme_c/mod16.html?panel=3#top

Sarah, A. A. (2014). For more tolerance, we need more … tourism? TED Talk. Retrieved 14.01.15 from http://www.ted.com/talks/aziz_abu_sarah_for_more_tolerance_we_need_more_tourism?language=en

Scheyvens, R. (1999). Ecotourism and the empowerment of local communities. Tourism management, 20(2), pp. 245-249.

Sustainable Travel International. (2015). The Effects Mass Tourism Has Had on Developing Countries. Retrieved 25.01.15 from http://sustainabletravel.org/tourism-solutions-overview/for-travelers/before-you-travel/the-effects-mass-tourism-has-had-on-developing-countries/

The International Ecotourism Society (TIES). (2012). Oxlajuj B'atz' Maya Women's Center: Empowering Women, Inspiring Change. Retrieved 24.01.15 from http://www.ecotourism.org/news/13-threads-maya-womens-center-empowering-women-inspiring-change

The International Ecotourism Society (TIES). (2013). Tropic Journeys in Nature Opens Window on Huaorani Indigenous People Threatened by Oil Interests in Amazon Rainforest. Retrieved 24.01.15 from http://www.ecotourism.org/news/tropic-journeys-nature-ecuador-huaorani-indigenous-people-threatened-oil-interests-amazon

The International Ecotourism Society (TIES). (2014a). Indigenous Knowledge. Retrieved 24.01.15 from http://www.ecotourism.org/indigenous-knowledge

The International Ecotourism Society (TIES). (2014b). Project summaries. Retrieved 25.01.15 from http://www.ecotourism.org/project-summaries

The International Ecotourism Society (TIES). (2015). What is Ecotourism? Retrieved 13.01.15 from http://www.ecotourism.org/what-is-ecotourism

Tourism Authority of Thailand, TAT (2013). Responsible Eco-Tourism and Marine Conservation in Phuket. Tourism Authority of Thailand Newsroom. Retrieved 19.01.2015 from http://www.tatnews.org/responsible-eco-tourism-and-marine-conservation-in-phuket/

United Nations Division for Sustainable Development. (1992). United Nations Conference on Environment & Development. Agenda 21. Retrieved 25.01.15 from https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf

Wildlife Alliance (2014). Welcome to Chi Phat community-based ecotourism. Retrieved 19.01.2015 from http://www.chi-phat.org/Default.htm

Wildlife Alliance (2015). Community Based Ecotourism. Retrieved 19.01.2015 from http://www.wildlifealliance.org/page/view/80/community-based-ecotourism.html

Wnuk, Z. (2013). Ecotourism - Sustainable Development. Geography series Visnyk of the lviv University, 43(1), 107–118

World Tourism Organisation. (2000). Report of Multistakeholder Working Group on Tourism. Retrieved 24.01.15 from http://www.unesco.org/education/tlsf/mods/theme_c/mod16.html?panel=1#top

WWF International. (2001). Guidelines for community-based ecotourism development. Retrieved 06.01.2014 from http://www.widecast.org/Resources/Docs/WWF_2001_Community_Based_Ecotourism_Develop.pdf

# The Essence of Free Market Environmentalism: Protection through private property

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**Abstract**

*In the 21st century, public policy actors are increasingly confronted with environmental questions that, as for now, have been solved through actions of state-control. This paper studies the theories and practicality of free market environmentalism and its fundamental difference with current regulatory systems. The research focuses on the conceptualisation of property rights by different economists and philosophers and seeks to illustrate how policies relying on a consistent defence of property rights or the absence of state actors altogether could indeed be beneficial.*

The end of the 20th century has started to shape the importance that environmentalism plays in politics and public discourse, through the birth of powerful NGO's such as Greenpeace or WWF, the development of recycling practices, the arrival of energy produced through alternative energy sources, the ever growing sensitivity towards endangered species, the emerging of environmentalist political parties or through political figures such as Al Gore, the embrace of the political mainstream of environmentalist policies. In the 21st century environmentalism is an integrated factor of public policy, yet there are a myriad of approaches in the aspect of how to achieve a drop in global temperature, less pollution or increased protection of endangered species.

Free-market environmentalism (FME), a market approach to the protection of the environment, is a lesser known way of tackling these issues, yet it is not only appealing in its radical approach, but also divergent in theory within itself. FME has a wide scholarly range that derives its philosophy from the classical liberal movement, but divides into very differing perceptions concerning its implimentation.

The liberal scholars, up until the school of modern anarcho-capitalism, disagree on matters such as taxation or the use of property rights, which makes the concept difficult to define. Only a few research groups and think tanks, including the US-based Property and Environment Research Center (PERC) or the think tank Strata, both referenced in this paper, focus solely on FME in their policy research. The theories of liberal authors such as Friedrich Hayek, Ronald Coase, Murray Rothbard, Milton Friedman or Adam Smith, serve as the baseline for this research.

In general terms, Free Market Environmentalism purports the idea that current environmental policy is deeply mislead on the assumption that government actions remidy the problems related to sustainable development. FME suggests, as a general rule, that the current marketplace is overregulated and distorts market prices, which contributes to the degradation of the environment.

This paper will attempt to illustrate the different theories relating to Free Market Environmentalism, to analyise its application in practice.

## I. A counter-intuitive concept

At the sound of hearing "free market environmentalism" (FME), there is a certain tendency to suggest that we are dealing with an oxymoron. A major contributor to this is the notion that climate change and pollution are "market failures" by the widespread journalistic narrative. There is nonetheless a larger philosophy behind what makes the essence of free market theories, which especially goes into the concept of property rights and deep into economic theory. It promotes the study of spontaneous market evolution contrary to political action. Over the course of its analysis, it is to be immediately pointed out that essence of FME is not to advocate the absence of any intervention (or 'doing nothing'), but it rather says the actions of property rights through the rule of law and market demands as driving factors for increased sustainability on environmental issues.

The primary question FME raises is not “what” should be done, but “who” should do. FME should be understood as a movement of scepticism towards state interventionism and advocacy for private property rights, which can be either enforced in a state of limited government or be understood as concept adhering to the non-aggression principle (aggression including the violation of the property of another individual).

What is commonly identified as a market failure would be argued by advocates of FME to be failures of the regulatory state. There is, therefore, not only fundamental disagreement on the solution to the problem, but also on the identification of its cause.

# II. Theoretic bases

This section will explore the different theoretical approaches that exist inside the concept of Free Market Environmentalism. It needs to be noted that these theories can be in contradiction with each other – for instance, those arguing for the existence of government to implement authorities able to protect private property rights and those refuting that state institutions are necessary to reach their goals – without negating the general idea that the concept of individual ownership serves as a protection for the environment.

In general terms, all of the proponents of these theories can be identified as "libertarians", with distinctions between those who believe that state institutions need to be reformed or reduced and those believing that state institutions are not only unnecessary but also counterproductive.

**2.1 Property rights and the rule of law**

The Heritage Foundation defines property rights as follows:

"*The property rights component is an assessment of the ability of individuals to accumulate private property, secured by clear laws that are fully enforced by the state. It measures the degree to which a country's laws protect private property rights and the degree to which its government enforces those laws. It also assesses the likelihood that private property will be expropriated and analyzes the independence of the judiciary, the existence of corruption within the judiciary, and the ability of individuals and businesses to enforce contracts.*" *(Heritage Foundation, 2016)*

Property rights are an essential good in the striving for free-market environmentalism, since they influence **human behaviour** through the changing **perception of responsibility**. The fundamental claim is that individuals hold their own property, when it is protected by government, as a higher good than their fear of regulatory sanctions. This is illustrated in the divide between **public property** and **private property**. For instance, this phenomenon comes to light when looking at the water consumption of flat buildings. It is difficult to encourage water efficiency through price signals (The Atlantic, 2011), since owners and renter of multi-flat buildings do not actually pay their very own consumption. Instead, the water consumption is divided between all the tenants. An OECD report (OECD, 1999-2000) found that two-thirds of OECD member states meter more than 90% of single-family houses, yet for flat buildings the report only mentions "*a few a metered*". There is evidence supporting that individual metering of water reduces overall water consumption. In the United Kingdom, a study (Lis Stedman, 2006) shows an instant drop of 10%, while the 1993 German tap water report (Trinkwasserversorgung in Deutschland, 1993) shows a difference of an 18% lower consumption compared to flats that were not metered. This situation is comparable to nature of public property, since it

follows the principle of **collectivism/ common ownership**. The critique of FME towards this collective ownership is the loss of individual responsibility, a void which then has to be filled with regulation. The American Property and Environment Research Center (PERC), a research institute dedicated to study of FME, describes to advantageous nature of property rights as follows (PERC, 2016):

"*Property rights make the environment an asset rather than a liability by giving owners an incentive for stewardship.*"

The defence of property rights demands the existence of the rule of law, a justice system ready to establish property and that punishes its violation. If the use of property rights is not based on proper consent and they are in themselves not easily transferable, this would negate the concept of property rights as such and be contrary to FME (Richard L. Stroup, 2016). Without the existence of the rule of law and its implication of force, restricting the arbitrary use of power (Oxford Online Dictionary, 2016), property rights would be a mere philosophical concept that would have to be generally accepted before it could be established. Illustrations of the importance for the rule of law will be given in *FME in practice* chapter.

**2.2 Coase Theorem**

The British Nobel Prize-winning economist and author Ronald Coase (1910-2013), also known for his works on transaction cost analysis, developed this theorem in order to best illustrate economic efficiency and allocation of resources on the marketplace when confronted with external factors, all in the absence of regulation. Apart from the assumption of the existence of clearly defined property rights, Coase did not suggest a solution to the confrontation of externalities, he merely observed that if confronted with the latter, and as long as the problem is reciprocal to conflicting parties, the marketplace would find the most efficient solution.

The Ronald Coase Institute develops the concept in his theorem as follows (Ronald Coase Institute, 2016):

"*Coase further suggested that, if transaction costs were zero, then it would not matter which of the affected parties were found to be legally liable for a social cost, since they could costlessly negotiate agreements to maximize their wealth; and the right to use property, make noise, or pollute would end up in the hands of the one who values the right the most.*"

Coase famously illustrated his theory on the regulation of radio frequencies. In his counter-intuitive argument he suggested that a situation in which competing radio stations are trying to use the exact same radio frequency, no governmental regulation was needed and that in contrary, competing interests would find the most efficient outcome. As long as property rights were in use, the radio station that is able to accumulate the highest amount of value out of the use of the frequency will end up paying for its

use, even if it was owned by a different station at the time. Coase opposes resource allocation in its classic economic perspective between central planning and spontaneous market order.

It needs to be said nonetheless that Coase recognised that it is impossible to wind back time, so that initial allocation of property rights by a governmental institution cannot be ignored. The transaction cost must therefore encompass the "head-start" of the station that the frequency was given to.

In summary, the Coase theorem seeks companies to internalise externalities to its absolute maximum. How does this apply to environmentalism?

The same principle that applied to the example of radio frequencies also applies to environmental externalities. If property rights work identically on factors such as pollution, then pollution - as a result of the production of goods - becomes a liability, a negative externality, that a company has take into account. Under these circumstances, actors on the marketplace need to negotiate, and thereby internalise these externalities. Supporters of this theorem as a solution to environmental problem believe that private ownership is the most effective protector of the environment, provided ownership is transferable and backed by courts that make people liable when their pollutants invade the person or property of others.

Further illustrations on the exam-ples of pollution will be given in the chapter *FME in practice*.

**2.3 Rothbardian anarchism**

Murray N. Rothbard (1926-1995) was an economist, historian and political theorist who is at the philosophical heart of **anarcho-capitalism**. This belief system rejects the concept of a state, generally out of moral objection, and praises the effectiveness of peaceful interaction between individuals and the guiding hand of free markets. Although anarcho-capitalism rejects environmental regulations by government by principle, it does answer nonetheless to environmental policy. To understand a Rothbardian interpretation of FME (although Rothbard did notably reject the term of "free market environmentalism"), it needs to be pointed out that its proponents define property differently.

Rothbardians follow the **Labour Theory of Appropriation** of John Locke. Locke establishes property through usage and declares the possibility to live on an own property a **natural right**. For natural law theorists, a declaration of property (for instance through fencing off a piece of land) is meaningless. They believe that individuals own themselves and their own body, which makes them legitimate property holders of their own labour. As long as an individual utilises a piece of land for his own self-interest by actively putting labour into it, he is capable of calling this natural resource his homestead property. Rothbardians adhere to this concept of self-ownership, however reject the concept of the **Lockean proviso**. The idea of the Lockean proviso, developed by the American philosopher Robert Nozick

(1938-2002), is that the conversion from public property into private property included a moral sense of responsibility: the act of claiming property cannot make another individual worse off. This minimalist view on the accumulation of wealth calls for a certain scepticism in the realm of free-market thinkers. Columnist Matt Zwolinski writes about this :

"*This "Lockean proviso" has been thought by many to be difficult, if not impossible, to meet. How could any act of appropriation leave as much and as good for others, when natural resources are finite?*" (Matt Zwolinski, 2013)

Murray Rothbard rejected the Lockean proviso in the absence of knowledge of how to allocate resources for people's good (David Gordon, 2007). Rothbard also criticised Nozick's view on compensation, refuting that the act of compensating a liability justifies the prior violation of a right (Murray N. Rothbard, 1982). Here's where anarcho-capitalism parts ways with different other theories: while asserting the importance of property rights for the allocation of resources, Rothbardians are consistent consequential when it comes to immediate pollution as a committed damage. Murray Rothbard admitted in his 1973 book *For A New Liberty* that pollution is a private property violation (Murray N. Rothbard, 1973):

"*The vital fact about air pollution is that the polluter sends unwanted and unbidden pollutants—from smoke to nuclear fallout to sulfur oxides—through the air and into the lungs of innocent victims, as well as onto their material property. All such emanations which injure person or property constitute aggression against the private property of the victims. Air pollution, after all, is just as much aggression as committing arson against another's property or injuring him physically. Air pollution that injures others is aggression pure and simple.*"

Anarcho-capitalism therefore takes a radical position on the question of pollution, since it considers it to be in violation with the **non-aggression principle** (NAP). The NAP rejects all forms of coercion and that no form of aggression can ever be justified, which leads its supporters to reject to concept of a state. The radical position of Rothbardian anarchism on environmental damage has been criticised (Ryan McMaken, 2016) for being too unforgiving and of lacking the support of clear definitions when it comes to the quantification of environmental damage and its origins.

**2.4 Reformed tax systems – Geolibertarianism**

The geolibertarian philosophy is convergent with classical liberalism and is not inherently tied to free market environmentalism by its interpretation of property rights. Although geolibertarians, like all libertarians, believe in the concept of **self-ownership**, that one is the property holder of one's body and therefore holds legitimate ownership of the fruits of one's labour, they refute that occupation of resources (such as land) for the

accumulation of wealth makes these resources individual property. They believe instead that the planet is a common heritage that should be accessed by everyone equally under the law.

Geolibertarians suggest to reform the tax system in order to incentivise environmental protection, without being opposed to the general concept of free markets. They uphold the concept of **land value taxation** (LVT). LVT taxes unimproved land value (meaning the value of the land without the improvements made through human action, such as the construction of a house), and redistributes the so called ***Citizen's Dividend***. This policy is known as the oldest existing **basic income** proposal, dating back to 483 BC (Wordsworth, 1996), when a silver deposit was found in the village of Laureium near Athens in Greece. The Athenian leader Themistocles convinced the local population to invest the revenue from this deposit in a large fleet. This proposal was opposed to the idea of the statesman Aristides who wanted to share the dividend from the mine (10 drachmas each) equally among the population, as a basic income.

As a proponent of the Lockean proviso, Geolibertarianism rejects the accumulation of landmass by individuals and therefore encourages taxation as a means to come closer to a level playing field. In this instance the LVT is a mere concession issued by the general public for the use of the individual piece of land, which **negates the concept of private property**. In this philosophy, which is at odds with certain aspects of most FME theories, the collective vision of property only applies to natural law, as it did for John Locke. Furthermore, this perception leads geolibertarians to favour centralised repercussions to the act of polluting, through favouring so called **Pigouvian taxes**

*"Pigouvian taxes, named after Arthur C. Pigou, a renowned English economist from the early 20th century, are designed to correct what economists call "market failures" or "negative externalities" that impose spillover costs on society, such as pollution".*
(Tax Foundation, 2016):

Unlike other collectivist philo-sophies, geolibertarianism only applies Pigouvian taxes to environmental exter-nalities such as pollution or the extraction of natural resources.

**2.5 Altruistic market demands**

Outside of established theories, there is a point to be made about market demands. Microeconomics teaches that individuals follow a certain rational of a cost-benefit analysis. However, the charitable aspect of consumption cannot be ignored: there is for instance a higher demand in environmental labelling (so called eco-labelling), than there was before. In order to illustrate this phenomenon, we'll take a look at the Global Eco-Labelling Network (GEN), a non-profit association dedicated to fostering cooperation between different eco-labels, promoting the practices of these labels and encouraging the consumption of

sustainable products. Groups like these show how market transparency for the consumer can be a result of voluntary cooperation. The GEN differentiates today between three types of labelling established by the International Organization for Standardisation (ISO) (Global Labelling Network, 2016):

**TYPE I:**
A voluntary, multiple-criteria based, *third party* program that awards a license that authorises the use of environmental labels on products indicating overall environmental preferability of a product within a particular product category based on life cycle considerations.

**TYPE II:**
Informative environmental *self-declaration* claims.

**TYPE III:**
Voluntary programs that provide quantified environmental data of a product, under pre-set categories of parameters set by a qualified third party and based on life cycle assessment, and verified by that or another qualified third party.

The demand for these labels for the purposes of consumer transparency has been continuously increasing. This trend has been especially visible for organic products. A study by the Organic Trade Association (OTA) has found (Organic Trade Association, 2016) the expenditure on organic foods per household (in the United States) to more than double in the period between 2006 to 2016.

This development is indicative of a conscious of environmental protection among the general population, which does not necessate governmental control.

## III. FME in practice

### 3.1 Pollution

In order to uphold the spirit of FME, private property rights need to be upheld, which is only possible through the rule of law, thus an effective court system. In practice, and paired with the definition of FME being that negative externalities become a liability, it means that in the case of pollution, individuals can sue companies and other individuals for the pollution they committed. In an article for the Cato Institute, Fred L. Smith Jr., and Kent Jeffreys describe this situation as such:

*"Pollution is generally some form of waste, but even if pollution were unavoidable in certain manufacturing processes, strongly enforced property rights would force polluters to either clean up or close shop. By definition, pollution is a trespass against someone's property or person. If the trespass is so minor that it creates no impact or inconvenience for the property owner, it will normally be tolerated, even under common law rules."* (Fred L. Smith, Jr., & Kent Jeffreys, 2016)

One example of practicing this respect for property rights leads to the

inevitable conclusion that the principle that the polluter should pay for his pollution is correct. This can effectively be implemented for instance through the privatisation of motorways. If we presume the motorway is owned by a private company, then this company will be liable to the neighbouring landowners' loss of land value due to pollution and noise. Compensating those liabilities will be costly, and the owner of the motorway will proceed to levy this burden on the consumer, who are the initial polluters. This leads to the conclusion that there will be major incentives to not make use of a car, since its negative externality has to be taken into account.

Another effective illustration of this phenomenon would be the privatisation of waste disposal. Without looking into the question if it is paper or plastic bags in supermarkets that is the harmful choice for the environment, let us assume that both cost the exact same price. Under this premise, the market demand will be equal for both bags, since it will merely depend on the personal preference of the consumer, since he does not carry a heavier cost for one of them. This situation emerges when waste disposal is run by government, since the disposal of either bag bears the same cost as well in terms of what is charged. The question whether or not it is more difficult or not to dispose a plastic bag or a paper bag is never asked, since waste disposal is collectivised.

If we would now assume that waste disposal was a private service, then consumers and companies would internalise externalities: they would ask the question which additional cost do I bear for either choice? If it were indeed true that plastic bags are more difficult to dispose than paper bags (which by the pure nature of this illustration, and the marketplace as such, does not play any role), then consumers on all ends would be incentivised to opt for the paper bag. Here is where the invisiable hand of the marketplace leads consumers to make sustainable choices.

**3.2 Endangered species**

When it comes to the protection of endangered species, free-market environmentalism draws out the effect of economic incentives. The question asked must therefore be: what incentivises locals to protect animals they otherwise would have no interest in whatsoever? FME tries to shift the incentive away from escaping a governmental sanction by leaving these animals alone, to a positive and lucrative incentive to protect them.

A specific example of the effects that the rule of the marketplace has on endangered species can be seen with exotic wildlife animals such as the rhinoceros or lions in Africa. There is a consistent public outrage about trophy hunting, meaning the act of shooting rare animals for sport. The Humane Society defines trophy hunting as such:

"*Trophy hunting is defined as killing wild animals for their body parts, such as head and hide, for display but not primarily for food or sustenance.*" (Humane Society, 2016)

This hunting sport has gotten increasingly popular over the years. As National Geographic reports in 2016, these hunters imported more than 1.26 million trophies to the United States between the years 2015 and 2014, which is an average of 126,000 trophy imports a year, or 345 a day (National Geographic, 2016).

Trophy hunting however is not the reason for why these species are endangered in the first place, they suffer considerably more form loss of habitat and poaching (Scientific American, 2016; PoachingFacts, 2016). In the case of loss of habitat, the endangered animals are driven out due to agricultural expansion for the harvesting of timber, wood or fuel (WWF, 2016).

In accordance with FME, the local population can be incentivised economically to protect these animals. In fact, in Namibia, the revenue from trophy hunting is the main revenue source for the funding of wildlife conservancies (Biological Consevation, 2007) and in South Africa trophy hunting reportedly incentivised locals to give rhinoceros' land to live on and to protect them form poachers (Conservation Magazine, 2015). This evolution has led the number of existing rhinoceros to jump from 100 in 1916 to over 18,000 today (World Wildlife Fund, 2016). According to South Africa's Department of Environmental Affairs the total revenue from trophy hunting was close to R807 million (52.3 million euros) in 2012 and just over R1 billion (64.8 million euros) in 2013 (South Africa Department of Environmental Affairs, 2012, 2013).

The author and libertarian economist Walter Block (Walter Block, 2016) described further illustrations in a lecture for the Australian Mises Seminar (Walter Block, 2013). In fact, Block talks about the specific privatisation of animals on a large scale. With the inquiry: "How come the bison came close to extinction, yet there is still cattle?", Block explains the incentive of protection of animals if they are private property. This is the so-called Tragedy of the Commons. This phenomenon is being defined as:

"*Archetypical social phenomenon where an attempt to exploit others (or 'the system') in one way or the other eventually turns out to be self-defeating.*" (Business Dictionary, 2016)

Bison were considered as wildlife that did not have a specific owner, so in order to maximise profit, people would hunt as many of them as possible, which ultimately drove them extinct. Cattle on the other hand were privatised, so killing cows that were not wild created a liability and a situation of violation of property, since they belonged to someone else. This system has not only protected cows from becoming extinct, it made it an incredible numerous animal that is harvested in multiple manners by modern agriculture.

Others, such as Peter J. Hill (PERC research), have concluded that the near extinction of the bison was due to the increasing demand in land for cattle, which proceeded to deprive them of their natural habitat. In his publication Are All Commons Tragedies? The Case Of Bison In

The Nineteenth Century (P.J. Hill, 2014), Hill explains that even though property rights in the open prairies were not well defined for the bison, there is no reason to believe that the tragedy of the commons applies. He claims that the bison is simply not a valuable ressource, and there the establishment of rights for bison was deemed unnecessary.

### 3.3 Innovation

The underlying concept of all FME thinkers is the belief of the inability of knowing the future, being opposed to what Nobel-prize winning economist Friedrich A. Hayek (1899-1992) called the pretence of knowledge. They believe that future innovation is unpredictable, yet that its historical trend has only been positive in the sense of sustainability. Indeed, despite the dramatic population growth and therefore increased energy consumption, many everyday devices turn out to improve significantly over time. A notable example to this is the historical evolution of fuel economy in cars: in statistics (EPA, 2011) published by the US Environmental Protection Agency (Pew Charitable Trusts, 2011) show that fuel economy has dramatically increased since 1975, rising from about 10 MPG (miles per gallon) to over 30 MPG until 2010.

Although the agency might suggest that these changes are due to environmental protection regulation and carbon tax measures, more needs to be said: companies are, by nature, incentivised to produce cars with a higher fuel economy, since consumers demand lower petrol costs for their vehicules. Evidently so, the volatility of the petroleum market has also fostered the development of electrical cars.

If, on the contrary, governmental institutions were to overtax carbon emissions to a degree that the usage of a vehicule becomes a questionable investment for the consumer, then the lower demand will manifestly hamper innovation. This leads to the conclusion that in order to innovate in the sector of sustainable development, the exact products that today are considered to be harmful for the environment necessitate an increased demand.

## IV. Critique on the current centralized regulatory system

### 4.1 The failure of market socialism

F.A. Hayek's *pretence of knowledge* applies to economics, the environment or public policy in general. He wrote in "*The Fatal Conceit*":

"*The curious task of economics is to demonstrate to men how little they really know about what they imagine they can design.*"

Free-market environmentalist issue the same critique towards the regulatory system we are momentarily in. They presume that knowledge about how to best preserve the environment cannot possibly lie in a political bureau, it is spread among all individuals. The same way that economic intervention creates

malinvestments, government institutions unintentionally create wrong incentives and hamper economic growth.

Regardless of the nomenclature employed by market socialism, the goal remains the same: directing human behavior through state action. The presumption that advocates of state intervention defend is that individuals cannot possess the necessary knowledge and make "wrong choices". FME advocates tend to respond that if the concern that individuals fail to make the right choices is legitimate, then transferring the power of decision-making from some individuals to a group of individuals now called government is inherently counter-productive. FME rejects the notion that environmental solution can ever be directed through centralised control. A report by the Utah-based policy research group *Strata* explained this phenomenon as such:

*"Unintended consequences easily arise from even the most well-inetnioned policies. When making policies, government officials cannot know all relevant information or foresee all possible outcomes. Even with large numbers of well-educated advisors, policymakers can still pass flawed laws that impose unintended economic or environmental harm."*
(Strata, 2016)

**4.2 Easement of significant pollution**

Free-market environmentalists criticise furthermore that unlike the pretended defence of the environment, current environmentalists fail to punish significant pollution. By denying the concept of property rights and therefore regarding polluting someone else's private property as trespassing, state-environmentalists rely solely on the sanctioning of legislation, all while individuals cannot act themselves on the pollution of their property by someone else. Allowing a court system to act upon liabilities would, according to FME thinkers, significantly reduce pollution.

## V. Conclusion

Environmental protection is undoubtedly one of the main challenges of the 21st century. This paper investigates the incentives created through the marketplace in the absence of centralised state regulation, how inducing personal responsibility through private property helps to protect the environment, or the absence of state actors altogether fosters sustainable development. Some FME thinkers purport the idea that if environmental protection includes the protection of property rights through the rule of law, then we can expect significant reduction of pollution and increased sustainable development over time. Others reject the idea the the state is needed, and that a society based on voluntary ex-changes between consenting individuals is essential for behaviour that leads to sustainable development. In general terms, Free market environmentalism refuses the concept of the *pretence of knowledge* and recognises that the competencies regarding environmental protection lie in each and every individual.

This inability to define FME as a defined school of thought is a weakness when it comes to identifying its proponents, but it simultaneously excludes it being a mere theory used for policy advocacy. In fact, the deregulation that it supports would not support corporate interests, but could, depending on the model that would be implemented, even

be harsher on businesses and individuals attempting to disregard the environmental costs of their actions, by making them bear the full costs they brought on other individuals through hurting them or their private property.

The fact that property rights stand at the core of the FME-argument is not problematic, yet the fact that the thinkers disagree on how to make private property rights respected, be that through state institutions or through the non-aggression principle as a moral value held by indidviduals can be regarded as precarious. The feeling of urgency on the issue of acting on environmental issues is widespread, yet FME is still differing on the fundamental question regarding property. This can be perceived as discrediting and exclude FME advocates from the discussion on urgent environmental policies.

Nonetheless, despite the views expressed in FME, which are off the mainstream, it provides a necessary incentive for policy makers to take a step back and re-evaluate if current policies are effective not only on their intentions, but also on their results.

# References


Biological Conservation. 2007. Economic and conservation significance of the trophy hunting industry in sub-Saharan Africa. [ONLINE] Available at: http://www.africanwildlifeconservationfund.org/wp-content/uploads/2011/09/ Economic-and-conservation-significance.pdf [Accessed 6 October 2016].

Business Dictionary. 2016. businessdictionary.com. [ONLINE] Available at: http://www.businessdictionary.com/definition/tragedy-of-the-commons.html [Accessed 6 October 2016].

Conservation Magazine. 2015. Spring 2015.

David Gordon. 2007. The History of Political Philosophy: From Plato to Rothbard, June 9th, 2007.

EPA. 2011. epa.gov. Data & Testing [ONLINE] Available at: https://www3.epa.gov/fueleconomy/data.htm [Accessed 6 October 2016].

Fred L. Smith, Jr., & Kent Jeffreys. 2016. A Free-Market Environmental Vision. cato.org. [ONLINE] Available at: http://www.cato.org/pubs/chapters/marlib23.html [Accessed 6 October 2016].

Global Ecolabelling Network. 2016. globalecolabelling.net. [ONLINE] Available at: http://www.globalecolabelling.net/what-is-eco-labelling/ [Accessed 6 October 2016].

Heritage Foundation. 2016. 2016 Index of Economic Freedom. heritage.org. [ONLINE] Available at: http://www.heritage.org/index/property-rights [Accessed 6 October 2016].

Humane Society. 2016. February 2016. Trophy Hunting by the Numbers.

Lis Stedman. 2006. Motivations for metering, Water 21, The Magazine of the International Water Association, April 2006, p. 26-28.

Matt Zwolinski. 2013. libertarianism.org. Locke and Nozick on the Justification of Property, February 18th, 2013. [ONLINE] Available at : http://www.libertarianism.org/blog/locke-nozick-justification-property [Accessed 6 October 2016].

Murray N. Rothbard. 1973. For A New Liberty : The Libertarian Manifesto.

Murray N. Rothbard. 1982. The Ethics of Liberty.

National Geographic. 2016. Hard Numbers Reveal Scale of America's Trophy-Hunting Habit. nationalgeographic.com. [ONLINE] Available at: http://news.nationalgeographic.com/2016/02/160206-American-trophy-hunting-wildlife-conservation/ [Accessed 6 October 2016].

OECD. 1999-2000. The OECD Enviroment Program, The Price of Water : Trends in OECD Countries.

Organic Trade Association. 2016. ota.com. [ONLINE] Available at: https://www.ota.com/resources/market-analysis [Accessed 6 October 2016].

Oxford Online Dictionary. 2016. oxforddictionaries.com. [ONLINE] Available at: https://en.oxforddictionaries.com/definition/rule_of_law [Accessed 6 October 2016].

PERC (Property and Environment Research Center). 2016. perc.org. [ONLINE] Available at : http://www.perc.org/about-perc/free-market-environmentalism [Accessed 6 October 2016].

Pew Charitable Trusts. 2011. pewtrusts.org. Driving to 54.5 MPG : The History of Fuel Economy. [ONLINE] Available at: http://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2011/04/20/driving-to-545-mpg-the-history-of-fuel-economy [Accessed 6 October 2016].

P.J. Hill. 2014. independent.org. Are All Commons Tragedies? The Case of Bison in the Nineteenth Century. [ONLINE] Available at : http://www.independent.org/publications/tir/article.asp?a=984 [Accessed 20 October 2016]

PoachingFacts. 2016. poachingfacts.com. [ONLINE] Available at: http://www.poachingfacts.com/poaching-statistics/rhino-poaching-statistics/ [Accessed 6 October 2016].

Richard L. Stroup. 2016. Free-Market Environmentalism. econlib.org. [ONLINE] Available at: http://www.econlib.org/library/Enc/FreeMarketEnvironmentalism.html [Accessed 6 October 2016].

Ronald Coase Institute. 2016. coase.org. [ONLINE] Available at: https://www.coase.org/coaseretrospective.htm [Accessed 6 October 2016].

Ryan McMaken. 2016. mises.org. Are Libertarians Too Anti-Pollution ? [ONLINE] Available at: https://mises.org/blog/are-libertarians-too-anti-pollution. [Accessed 6 October 2016].

Scientific American. 2016. 2015 : Deadliest Year Ever for Rhinos. scientificamerican.com. [ONLINE] Available at: https://blogs.scientificamerican.com/extinction-countdown/2015-deadliest-rhinos/ [Accessed 6 October 2016].

South Africa Department of Environmental Affairs. 2012. 2013. africacheck.org. [ONLINE] Available at : https://africacheck.org/wp-content/uploads/2015/09/Annexure-1-2012-Trophy-stats-5-August-2015.xls & https://africacheck.org/wp-content/uploads/2015/09/Annexure-2-2013-Trophy-stats-5-August-2015.xlsx [Accessed 6 October 2016].

Strata. 2016. strata.org. How Good Intentions Backfire : Negative Effects Of Federal Environmental Policies. [ONLINE] Available at: http://www.strata.org/goodintentions/ [Accessed 20 October 2016]

Tax Foundation. 2016. taxfoundation.org. [ONLINE] Available at : http://taxfoundation.org/tax-topics/environmental-policy-and-pigouvian-taxation [Accessed 6 October 2016].

The Atlantic. 2011. theatlanctic.com. The Simple Gadget That Could Slash Apartment Buildings' Water Use [ONLINE] Available at : http://www.theatlantic.com/technology/archive/2011/11/the-simple-gadget-that-could-slash-apartment-buildings-water-use/247965/ [Accessed 6 October 2016].

Trinkwasserversorgung in Deutschland. 1993. DIW-Wochenbericht 39/1993.

Walter Block. 2013. mises.org. Walter Block: Free Market Environmentalism. [ONLINE] Available at : https://mises.org/blog/walter-block-free-market-environmentalism [Accessed 6 October 2016].

Walter Block. 2016. walterblock.com. [ONLINE] Available at: http://www.walterblock.com/about/ [Accessed 6 October 2016].

Wordsworth. 1996. ancientgreekbattles.net. [ONLINE] Available at: www.ancientgreekbattles.net/Pages/48350_LaurionMine.htm [Accessed 6 October 2016].

World Wildlife Fund. 2016.

WWF. 2016. Impact of Habitat Loss on Species. wwf.panda.org. [ONLINE] Available at: http://wwf.panda.org/about_our_earth/species/problems/habitat_loss_degradation/ [Accessed 6 October 2016].

# NAFTA and TPP: Comparing Imaginaries of Sustainability

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**Abstract**

*Debates about new free-trade agreements provide various societal actors with opportunities to communicate their visions of sustainable futures. This paper analyses the development of US environmental groups' imaginaries of sustainability from discussions around the North American Free Trade Agreement in the 1990s to current debates about the Transpacific Partnership. Using a qualitative Science and Technology studies approach, it examines statements, 'fact sheets', and reports published by environmental groups for (changing) patterns of mutually held visions of desirable futures in these two, isolated free-trade debates. The paper concludes that while argumentative continuity can be detected in the imagining of sustainability as an inclusive democratic concept, claims made against TPP increasingly focused on exclusively national concerns, the intrinsic value of nature, and the compatibility of economic growth with environmental protection.*

As the heated debates around the Transpacific Partnership (TPP) and the Transatlantic Trade and Investment Partnership (TTIP) have indicated, negotiations of free-trade agreements (FTA) provide special occasions for a variety of actors from the political, economic, and social sphere to debate crucial social issues. In recent years, the liberal consensus that free trade is to be supported has increasingly come under attack not just from the Left, but also from the Right. In this regard, the selection of Donald Trump as the presidential nominee of a US Republican Party that was until recently an ardent supporter of free trade was at least as astounding as the United Kingdom deciding to leave the European Union on a platform of isolationism and protectionism. At a general level, these developments indicate that FTAs often offer windows of opportunity for different actors to assert visions and conceptions of desirable futures.

This paper aims to examine the field of environmental politics and sustainability as one of the areas in which such visions are often asserted. Specifically, its goal is to trace and understand the differences of public visions for sustainability between two isolated free-trade debates: the North American Free Trade Agreement (NAFTA), concluded in 1994, and the Trans-Pacific Partnership completed roughly twenty years later. In this, it will not be concerned with the 'official' governmental interpretation of the agreements, but will examine the change in imaginaries of sustainability of grass-roots environmental organizations opposed to both NAFTA and TPP; in particular, Friends of the Earth (FOE) and the Sierra Club (SC). It is thus interested in the 'excluded' voices and the 'losers' of the free trade debates.

Following this introduction and a brief note on methodology, the essay will first proceed to an examination of the opponents' statements made on NAFTA and before moving to an analysis of the debates around the TPP. Thereafter, it will compare the imaginaries of sustainability emerging from these two debates and briefly conclude with some implications of the results. The paper finds that in both discourses sustainability was imagined to be an inclusive concept ensuring citizens' overall well-being in a democratically accountable manner. Where TPP debates depart from NAFTA controversies is in their increased emphasis on the intrinsic value of nature, their stressing of the national interest, and their assurance of the compatibility of sustainability with economic growth.

## I. Terminology and Method

As this essay aims to compare imaginaries of sustainability of a particular set of US environmental organizations, it is only fitting to first define the term imaginaries itself. For the purpose of this essay and following Jasanoff (2015, p.4), imaginaries are taken to be collectively held visions of desirable futures, animated by shared understandings of forms of social life and social order. As in Jasanoff's piece, the focus will be on the desirability of certain environmental measures and free-trade policies in relation to their sustainability. Although touching upon technological issues at its margin, this essay will shed Jasanoff's focus on sociotechnical imaginaries, however, and be primarily concerned with the general character of the groups' imaginaries of sustainability.

In regards to methodology, while relying more on secondary sources and newspaper articles for an analysis of the debates around the NAFTA, the essay will primarily use publications by environmental organizations themselves, such as 'fact sheets' and 'reports', as material for examining imaginaries of sustainability in the TPP disputes. This incongruence in the type of sources can, of course, be seen as a limitation to the findings of this essay: Secondary sources may have wrongly

interpreted some of the original arguments made about the NAFTA and some inductive reasoning is required for the discourse analysis on TPP due to the paucity of relevant academic sources. Yet, the following comparison is still sufficiently grounded in historical evidence to draw conclusions about conceptualizations of sustainability of some of the opponents of the two free-trade agreements.

## II. Environmental organizations and their opposition to NAFTA

The NAFTA was used by environmental organizations to launch a successful attempt at shaping trade policy, once the very epitome of reclusive and sovereign policy areas (Mumme, 1993, p.215). For the first time, these groups not only formed cross-national networks (e.g. between the US and Mexico), but also became active participants in trade policy (Gregory, 1992, p.104). While many US environmental organizations eventually came to support NAFTA and its environmental side agreement NAEEC, strong opposition remained especially among grass-roots organizations, such as the Sierra Club and Friends of the Earth. Broadly speaking, these critics of NAFTA were concerned with three issue areas: first, public participation, transparency, and the upholding of US standards; second, public health and pollution in the Mexican-American border region; and, third, the Mexican interior turning into a pollution haven.

First, in regards to US standards, participation and transparency, opponents asserted that the planned investor-state settlement mechanism would undermine US environmental protection laws and standards (NYT, 1993). The argument against private investment tribunals coincided with a fear of corporations posing a danger to democracy and the environment. It was also related to long-standing demands for responsible business behavior and the general implementation of the 'polluter-pays' principle (Dreiling & Wolf, 2001, p.43; Durbin, 1993). Against the backdrop of skepticism towards corporations, the lack of transparency and citizen oversight in the negotiations and in the implementation of the NAFTA was criticized (Gregory, 1992, p.172). In a hearing before the House Subcommittee on Trade, Friends of the Earth, for instance, demanded a more representative process and more public participation (Durbin, 1993). These demands to uphold legal standards and ensure broad public participation reflect the domestic agenda that US environmental organizations opposed to the NAFTA pursued at the time.

Secondly, these groups were also concerned with the cross-national issues of hazardous waste disposal and industrial pollution and the ensuing threat to public health in the Mexican-American border region. The fear of trade-induced growth of excessively dirty maquiladora industries on the border was primarily expressed in

terms of its threat to the health of citizens in the area and not so much in terms of the danger to the environment itself (Durbin, 1993; Fox, 1995, p.52). Skepticism was not just directed at economic growth itself, but also at "sound science" as the proposed solution to such problems (Fox, 1992, p.54). In essence, critics did not accept the 'grow now, clean up later with the use of science and technology' imaginary touted by the government. In the dispute on waste- and pollution management in the border region, there was thus a tendency to invoke cross-national solidarity, as well as growth- and techno-skepticism as unifying patterns of discourse.

This internationalist coupling of social and environmental issues also persists in the third main issue area of concern for environmental organizations opposing the NAFTA: the fear of Mexico turning into a pollution haven. Aside from viewing the FTA as an opportunity to influence trade policy in the US, environmental organizations saw the chance to shape environmental policy in other countries, as well (Fox, 1992, p.52). They feared the relocation of America's dirtiest industries to Mexico as result of low wages and lax enforcement of environmental laws. This, in turn, would result in the displacement of rural labor, human settlement problems, and massive pollution in the southern neighbor (NYT, 1993). With these arguments, American critics of NAFTA demonstrated that they were not just concerned with their own domestic environment, but were also eager to improve social and environmental conditions for their neighbors.

In sum, the NAFTA's opponents' imaginaries of sustainability merged environmental and social concerns to argue for environmental justice. They also sought to refute the assumption that trade automatically stimulates environmental protection and replace it with their own vision of sustainable development. The former point is exemplified by FOE's Andrea Durbin's demand that all "environmental, health and safety laws that may impact trade" be upheld (Durbin, 1993). This reasoning enabled opponents to form a discursive frame with an expanded, comprehensive meaning beyond purely environmental concerns, which enabled an alliance between labor and environmental groups in opposition to NAFTA (Mumme, 1993, p.46). More importantly, the aim was to undermine the prevailing view that environmental protection could be achieved through growth. In an official statement, Friends of the Earth argued that

*"rather than protecting the environment for future generations, the Agreement's [NAFTA] backers have decided the U.S., Mexico, and Canada should first get rich, then use their wealth to clean up. This terrible gamble with the future is nothing less than the environmental equivalent of deficit spending."* (FOE, 1992 as cited in Mumme, 1993, p.46)

Opponents of the NAFTA thus constructed a dichotomy between economic growth and the protection of the environment. Liberalized trade would necessarily lead to increased pollu-tion and resource

depletion (Gregory, 1992, p.113). This rejection of the view that trade by itself stimulates environmental safeguarding through increased wealth and better technolo-gy was very much at the heart of the controversy around NAFTA (Mumme, 1993, p.206). In contrast to what would later be the case with TPP, the worry that increased trade would aggravate environmental abuse was also extended to include concern for other nations, par-ticularly Mexico and its maquiladora industries.

## III. Environmental organizations and their opposition to TPP

Condemning it as "NAFTA on steroids" (e.g. Henning, 2014), a number of environmental organizations saw the Trans-Pacific Partnership as continuing on the destructive path of the North American Free Trade Agreement concluded 20 years earlier. While opposition to the NAFTA was also concerned with defending US standards and anti-corporate rhetoric, re-sistance against private investor-state tribunals and national sovereignty concerns topped the agenda for critics of TPP. A second biggest critique targeted the secrecy of the trade talks. Here, the issue of sustainability was explicitly coupled with democratic accountability: environmental protection required public participation and scrutiny. Thirdly, conservation issues, such as wildlife trafficking, entered the agenda. The fourth issue area was climate change, which the agreement inadequately addressed only according to its opponents.

Resistance against investor-state settlements crystalized around the threat to domestic environmental and health protection standards posed by large corporations. As Michael Brune (2015) of the Sierra Club put it in an op-ed in the New York Times, TPP would "empower some of the world's biggest polluters to challenge environmental protections in private trade tribunals" as non-tariff barriers to trade. The fear of corporations disregarding regulation of toxic chemicals or even simple consumer protection measures like food labeling in their search of profits manifestly assumed that TPP would drive a race to the bottom in sustainability-related areas and leave the ordinary citizen and the environment worse off than before (Cossar-Gilbert, 2015).

Aside from this dichotomy between corporate profits and a suffering environ-ment, the threat of 'the foreign' to 'the domestic' was also increasingly emph-asized. The Sierra Club's report on the TPP, for instance, titles its paragraph about the investor-state dispute settlement "A parallel legal system for foreign corporations" and argues that this mechanism would give "*foreign* investors, including some of the world's largest fossil fuel corporations, expansive new rights to challenge climate protections" (Solomon & Beachy, 2015, p.4). Similarly, FOE's Bill Waren (2015) states that the "TPP […] investment chapters provides greater

rights for *foreign* investors than U.S. investors enjoy under the constitution" [both emphases added] and cites Senator Elizabeth Warren as asking "What's wrong with the U.S. judicial system?" Leaving aside the fact that many of the world's largest polluters may in fact be US corporations, opponents of the TPP make no mention of the prospect of American businesses profiting from suits brought against other countries under these tribu-nals. Similarly, the possibility that US standards may not be the gold standard in environ-mental protection is never considered. In the critique of the Trans-Pacific Partnership, anti-corporate rhetoric thus increasingly meshed with fear of 'the foreign' invading 'the domes-tic'.

The anti-corporations discourse was also a recurring theme in the critique of the secrecy of the trade talks; this critique linked sustainability to democratic accountability. Not only was the public not sufficiently heard in the deliberations concerning TPP, the argument went, the trade deal was also negotiated in secret with corporate lobbyists shaping the agreement to their liking (Waren, 2015). Transparency was therefore seen as a prerequisite to ensuring the upholding of environmental safeguards and sustainable development. FOE captured this link in the slogan "Protect Our Food and Our Democracy" and depicted it visually in one of its news releases on TPP (see Image 1). Similarly, the issues of unaccounta-bility to the public and openness to (foreign) businesses are the very first and most dwelled upon arguments in the Sierra Club's (2015b) TPP video.

Opponents of TPP also pointed to gaps and deficiencies in the agreement that concerned a broad range of conservationist issues. Trade in illegally obtained timber or wildlife, for instance, was seen as inadequately addressed (The Sierra Club, 2015a). In a letter to Congress, 350.org, Greenpeace USA, FOE, the Sierra Club, and others demanded a "legally enforceable prohibition on trade in illegally sourced timber, wildlife, and marine resources" (350.org et al., 2015). Illegal, unreported, and unregulated fishing leading to the depletion of fisheries were also of major concern for a number of organizations (350.org et al., 2015; Environmental Investigation Agency et al., 2015). Even issues as specific as the shark fin trade were taken up by both the Sierra Club (2015a) and the National Resource Defense Council (Schmidt, 2014).

The SC, FOE, and the NRDC were also outraged about the failure of the pact to even mention the words 'climate change'. Given their view that TPP would increase emissions and pollution by locking the US into fossil fuels and fracking to satisfy the demand of its Pacific trade partners, such an omission was seen as alarming and detrimental to the US commitment to the United Nations Framework Convention on Climate Change (UNFCCC) and the Sustainable Development Goals (SDGs) (Solomon & Beachy, 2015). Taken together, the broad inclusion of conservationist issues and the concern for climate change point to an

increase in the scope of concerns of environmental organizations opposed to the TPP in comparison with the debate around NAFTA.

In sum, the imaginary of sustainability in the TPP's opponents' description of the trade pact was both narrow and broad at the same time: narrow, since it focused on the danger posed to the domestic environment and the American citizen; broad, since it coupled environmental concerns with social and political issues and encompassed a broad range of problems ranging from overfishing to emissions from a growing fracking industry. Somewhat paradoxically, Critics of TPP hoped to achieve sustainability 'for everyone' by criticizing corporate involvement and demanding public participation and the fulfillment of multilateral UN climate change obligations. Somewhat paradoxically, they were simultaneously focusing solely on the pollution of the American environment and TPP's threat to American democracy. Although often defined ex negativo, sustainability was thus implicitly imagined as encompassing the environmental, i.e. conservation and protection, as well as the social and the political, i.e. fair trade, fair working conditions, and democratic accountability, but only for the United States.

## IV. Comparing imaginaries of sustainability

How, then, if at all, did imaginaries of sustainability of FTA opponents change from the debates around NAFTA to those on TPP? Discursive similarities appear in the coupling of social issues with environmental protection and a concern about environmental safeguards in the face of a perceived corporate attack on national sovereignty. Criticisms of NAFTA and TPP both primarily viewed the social aspect as consisting of health and safety regulations ensuring the well-being of the ordinary citizen. Specifically, for the former group this was manifested in a concern for toxic waste management and industrial pollution, while for the latter it consisted of ensuring food safety. By linking the social and the environmental, sustainability was imagined as favorable for ordinary citizens, in particular those who were vulnerable and disadvantaged. The aim of inclusivity also appeared in the fear that environmental standards would be undermined by corporations. Opponents of both NAFTA and TPP saw corporate greed as inherently detrimental to the needs and wants of ordinary citizens. They demanded a kind of "social sustainability", which includes normative claims of public participation and social justice (Littig & Grießler, 2005, p.11). In both debates, sustainability was thus imagined as a concept that would be democratically negotiated, and thus ensure the well-being

of all, and prevent the exclusion of any (disadvantaged) group of society.

A first difference between the two debates concerns the environmental issues they encompassed. Whereas criticism of the NAFTA primarily focused on waste management and industrial pollution, opposition to TPP also covered a number of conservationist topics and climate change. In fact, illegal trade in wildlife and overfishing displaced chemical waste treatment and smog in cities on the agenda. A healthy environment previously tended to signify the well-being of humans and thus showcased an 'instrumentalist' conception of the environment. Per this logic, entities are only valuable insofar they are considered valuable by some (human) agent (Justus, Colyvan, Regan, & Maguire, 2009, p.187). In the TPP debates, however, there was a tendency to imagine sustainability to include a genuine and 'intrinsic' appraisal of the environment itself. This approach seeks to liberate sustainability from a narrow anthropo-centricism (Justus, Colyvan, Regan, & Maguire, 2009, p.187). Exemplifying this trend towards intrinsic valuation is a new concern for very specific conservationist issues, such as the advocated prohibition of shark fin trading or wildlife trafficking.

The two debates also exhibit major differences regarding the scope of sustainability. While both discourses emphasize inclusiveness, the criticism of TPP almost completely dis-regards the international dimension of sustainability. In addition to their domestic demands, NAFTA's opponents were alarmed by the prospect of increased trade aggravating the situation for the environment and its inhabitants both at the Mexican-American border region and in the Mexican interior. Statements on TPP, on the other hand, evoke threats to American jobs, American food, 'our' habitats, and 'our' workers' health. Even anti-corporate rhetoric, generally a common denominator of NAFTA and TPP discourses, was framed differently to emphasize the threat that foreign corporations posed to strict American environ-mental regulations. While still claiming to be inclusive, the imaginary of sustainability among opponents of the FTAs therefore narrowed from NAFTA to TPP, increasingly stressing the national interest as the primary concern.

Finally, 20 years ago, environmental organizations were much more critical of economic growth than they are today with regard to TPP. In the environmental controversy over the NAFTA, the allegation that growth stimulates environ-mental protection was at the very heart of the debate. With the NAFTA, growth arising from increased trade was seen as exacerbating environmental destruction, particularly in Mexico. In the debates over TPP, however, the term 'growth' rarely appears, and growth per se is never criticized. Instead, the critique of growth has given way to a critique of irresponsible corporate behavior. Sustainability was no longer imagined to be detrimental to economic growth (and vice versa), but it did require responsible corporate behavior, which could be achieved

through governmental regulation with enforceable environmental safeguards.

## V. Conclusion

The transformation in imaginaries of sustainability projected by environmental organizations opposed to NAFTA and TPP can thus be summarized in the following terms: In both debates, a sustainable future was imagined as being inclusive and ensuring citizens' well-being in a democratically accountable manner. Yet, TPP debates differed from NAFTA controversies in moving from instrumental to more intrinsic valuations of the environment, their focus on the national interest, and their view that economic growth and sustainability are in principle compatible.

In an age when an American president proposes to solve the problems of globalization with protectionism, isolationism, and coal mining, it seems odd to look to grassroots environmental organizations as guides for understanding today's world. Yet, the findings of this essay indicate that a society's 'excluded' voices and 'losers' may share basic imaginaries with even their most bitter opponents. After all, although Donald Trump certainly seems to have no regard whatsoever for protection of the environment, he, too, wants to 'take back control', 'make the people heard', and 'put America first'. A society's visions of desirable futures can therefore be easily invoked for purposes both respectable and unscrupulous.

# References


350.org et al. (2015). Environmental Provisions in the Trans-Pacific Partnership: Letter to Congress. Retrieved from https://www.sierraclub.org/sites/www.sierraclub.org/files/uploads-wysiwig/TPP%20letter%20FINAL%20(2).pdf

Brune, M. (2015, October 7). Congress should oppose TPP on environmental grounds. The New York Times. Retrieved from http://www.nytimes.com/roomfordebate/2015/10/06/the-future-of-trans-pacific-trade/congress-should-oppose-tpp-on-environmental-grounds

Cossar-Gilbert, S. (2015, September 25). Secret Trade Negotiations Threaten Sustainable Development Goals. Inter Press Service. Retrieved from http://www.ipsnews.net/2015/09/opinion-secret-trade-negotiations-threaten-sustainable-development-goals/

Dreiling, M., & Wolf, B. (2001). Environmental Movement Organizations and Political Strategy: Tactical Conflicts Over NAFTA. Organization & Environment, 14(1), 34–54.

Durbin, A. (1993). Testimony before the House Ways and Means Subcommittee on Trade on the North American Free Trade Agreement and the environmental side agreement. Retrieved from http://www.nathannewman.org/EDIN/.trade/.NAFTA/.sideFOE.html

Environmental Investigation Agency et al. (2015). Environmental Chapter of the Trans-Pacific Partnership Agreement: Letter to United States Trade Representative Ambassador Michael Froman. Retrieved from http://vault.sierraclub.org/trade/downloads/NGO-Letter-Ambassador-Kirk-TPP.pdf

Fox, A. B. (1995). Environment and Trade: The NAFTA case. Political Science Quarterly, 110(1), 49–68.

Gregory, M. (1992). Environment, Sustainable Development, Public Participation and the NAFTA: A Retrospective. Journal of Environmental Law & Litigation, 7, 99–174.

Henning, C. (2014). What you don't know about the Trans Pacific Partnership could hurt you -- and the planet. Retrieved from http://angeles.sierraclub.org/news/blog/2014/11/what_you_dont_know_about_trans_pacific_partnership_could_hurt_you_and_planet

Jasanoff, S. (2015). Future imperfect: Science, technology, and the imaginations of modernity. In S. Jasanoff & S.-H. K. Kim (Eds.), Dreamscapes of modernity: Sociotechnical imaginaries and the fabrication of power (pp. 1–47). Chicago: University of Chicago Press.

Justus, J., Colyvan, M., Regan, H., & Maguire, L. (2009). Buying into conservation: intrinsic versus instrumental value. Trends in Ecology & Evolution, 24(4), 187–191.

Littig, B., & Grießler, E. (2005). Social sustainability: a catchword between political pragmatism and social theory. International Journal of Sustainable Development, 8(1-2), 65–79.

Mumme, S. P. (1993). Environmentalists, NAFTA, and North American environmental management. The Journal of Environment & Development, 2(1), 205–219.

NYT (1993, September 27). NAFTA and the environment. The New York Times. Retrieved from http://www.nytimes.com/1993/09/27/opinion/nafta-and-the-environment.html

Schmidt, J. (2014, October 30). U.S. Trade Agreement with Asia-Pacific Countries Must Have Strong Environmental Provisions. The Huffington Post. Retrieved from http://www.huffingtonpost.com/jake-schmidt/us-trade-agreement-with-a_b_6075064.html

Solomon, I., & Beachy, B. (2015). A Dirty Deal: How the Trans-Pacific Partnership Threatens our Climate. Retrieved from https://www.sierraclub.org/sites/www.sierraclub.org/files/uploads-wysiwig/dirty-deal.pdf

The Sierra Club. (2015a). *The Trans-Pacific Partnership: A Threat to Our Air, Water, and Climate*. Retrieved from http://www.sierraclub.org/sites/www.sierraclub.org/files/uploads-wysiwig/TPP%20fact%20sheet.pdf

The Sierra Club. (2015b). *What is the TPP? (Trans-Pacific Partnership)*. Retrieved from http://www.sierraclub.org/trade/trans-pacific-partnership

Waren, B. (2015). *Tell tales of the TPP (and the TTIP)*. Retrieved from http://www.foe.org/news/archives/2015-02-tall-tales-of-the-tpp#ednrefl

# Urgenda and Beyond: The past, present and future of climate change public interest litigation

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**Abstract**

*Scientific evidence demonstrates that anthropogenic climate change is an urgent global problem with tremendous destructive capacity. Decades of multilateral negotiations have yielded limited success to date, but other responses are available. One such alternative is climate change litigation. Particularly interesting are recent public interest lawsuits, first in the Netherlands, and then in Pakistan, which have sought to hold the State responsible for climate change. This paper seeks to demystify the past, present, and future of climate change public interest litigation by placing it in a historical perspective, looking at contemporary developments, and assessing the potential of this technique for encouraging social change on a global scale.*

The anthropogenic alteration of the global climate undoubtedly represents one of the greatest challenges that humanity faces in the 21st Century. The urgency of climate change mitigation is reflected in the findings of the Intergovernmental Panel on Climate Change (IPCC), which suggest a failure to restrict temperature increases to 2 degrees Celsius above pre-industrial levels would irrevocably and perilously alter the world's climate (Peters et al., 2013). International policymaking has, to date, been inadequate in dealing with climate change, and according to the findings of the IPCC's fifth assessment report, the current policy baseline would most likely result in a temperature increase of well above 2 degrees (Ibid.). Contemporary international political efforts to address climate change include the Paris agreement, which was signed by the US and China (the two greatest emitters) and entered into force on 4 November 2016, and the inclusion of a

climate target in the Sustainable Development Goals (SDGs). However, as political action has dragged its feet, climate litigation has emerged as a possible alternative method to encourage social change. In particular, public interest litigation has become an important talking point in contemporary debates about climate change subsequent to a landmark judgement recently issued by a Dutch court in the Urgenda case. In this case, the Hague District Court held the Dutch government responsible for climate change. The ruling, which is being discussed as a potential international precedent, was followed by a comparable decision by a Pakistani court in Ashgar Leghari v Pakistan.

The aim of this paper is to investigate domestic public interest litigation as a potential tool in the struggle against climate change. The following research question will be addressed: Taking into account past and present cases, as well as the potential future prospects of this technique, can public interest litigation play an effective role in combating the global problem of climate change? In this context, the effectiveness of this technique refers to the potential for encouraging political action and social change.

In addressing the research question, this paper will draw on case law and scholarly literature. Historical cases from the US and Indian contexts will be used as illustrative examples of past environmental public interest litigation. In the contemporary context, the Urgenda, Leghari, and Kelsey Cascade Rose cases will be discussed, in addition to ongoing cases in Belgium and Norway, as they seem to signal the emergence of a new kind of climate change public interest litigation. Subsequently, climate change public interest litigation will be placed in a more analytical perspective in the discussion, which will be followed by some further comments on the future prospects of this technique. The discussion will be guided by some analytical questions, such as do these new cases constitute a global trend? and are they examples of (dangerous) judicial activism?

## I. Conceptualisation of public interest litigation and judicial activism

Both in theory and practice, public interest litigation is a concept that is not easily defined, especially as it may take on a different shape depending on the jurisdiction in which it occurs. Hussain (1993, p. 1) defines public interest litigation in a broad sense as "litigation in the interest of the public", where "The word 'public' means public at large, including all classes and sections of society without any distinction of gender, social status, economic background, ethnic origin, religious credence or cultural orientation". This form of litigation is often employed strategically as a motor for social change, and particularly aims to advance the cause of minority or disadvantaged groups, or individuals who have no voice ("About Public Interest Litigation," n.d.). Climate

change litigation, which per definition seeks to protect the public interest, can thus be categorised as a subset of public interest litigation. Since climate cases frequently envisage the shielding of future generations from potential harm, they also aim to protect those with no voice. Though this cursory definition captures the spirit of public interest litigation, it also leaves many questions unanswered. Most notably, commentators clash over whether criteria for assessing public interest exist and, if so, what these may be. It is also often unclear whether a particular case should be considered public interest litigation. One of the main reasons for this disagreement is that there are diverging perspectives of what constitutes an advancement of social justice (Cummings & Rhode, 2009). Conceptions of the exact confines of public interest litigation may also differ across jurisdictions, especially when it concerns two legal systems that are poles apart.

"Judicial activism" is another term that requires some further attention. This concept is multifaceted, defies clear definition, and also varies across jurisdictional contexts. As Kmiec (2004, p. 1443) points out, the exact meaning of judicial activism is frequently unclear, as "it is defined in a number of disparate, even contradictory ways". He distinguishes between five core meanings of judicial activism, namely: "(1) invalidation of the arguably constitutional actions of other branches, (2) failure to adhere to precedent, (3) judicial "legislation", (4) departures from accepted interpretive methodology, and (5) result-oriented judging" (Ibid., p. 1444). In the context of public interest litigation, judicial activism can be broadly characterised as judges pushing the boundaries of existing law for political purposes. Such practices may run the risk of crossing these boundaries if not handled with sufficient care (Heringa, 2016, p. 203). Judicial activism is subject to different views depending on the applicable legal system. For instance, in Pakistan and India, judicial activism is embraced as an important facet of the respective legal traditions (Razzaque, 2004). By contrast, in the US context, judicial activism is often imbued with a negative connotation (Siegel, 2010). Interestingly, however, both jurisdictions have seen high-level justices defending this method, at least in some contexts. Climate lawsuits are frequently linked to (liberal) judicial activism, as was notably the case in relation to the Urgenda ruling. Accordingly, this debate will be more thoroughly addressed in the discussion section.

## II. Historical use of public interest litigation in relation to climate change

Though public interest litigation is used by lawyers globally, it is more developed in some legal traditions than in others. In the Indian and US national contexts, this form of litigation is particularly well established.

The following section will dissect some historical environmental public interest litigation cases with relevance to the climate change debate in the US and Indian contexts.

India has a rich history of public interest litigation, which really started to take off as a legal mechanism in the 1980s. In SP Gupta v Union of India (1982), a seminal case for the development of this concept in the Indian context, the Supreme Court explicitly mentioned and gave meaning to public interest litigation. Following this judgement, there have been many Indian cases that conform to this definition, particularly in the realm of fundamental rights. In environmental matters, the Indian Supreme Court has taken an interventionist line, partly due to its strong tradition of judicial activism (Deva, 2009). Public interest litigation is widely regarded as one of the most important legal innovations with regards to environmental protection in India (Sahu, 2008). There has been a long line of environmental public interest lawsuits, starting with the Dehradun valley litigation in 1983 (Ibid., p. 382-383). In fact, the Indian Supreme Court's public interest litigation guidelines specifically recognise the possibility of such claims '[…] pertaining to environmental pollution, disturbance of ecological balance, […], forest and wild life and other matters of public importance' (Supreme Court of India, 2003, p. 2). However, most of these environmental public interest lawsuits have no immediately apparent link to climate change. One interesting case, which is illustrative of the Indian approach, and has some relevance to climate change, is Mehta v Union of India (2002), in which the Supreme Court ordered the government to replace the entire bus fleet of Delhi by more environmentally friendly Compressed Natural Gas (CNG) buses. Though the issue of climate change was not explicitly mentioned in the Court's reasoning, the case is demonstrative of how environmental public interest litigation can be used indirectly as a tool for climate change mitigation. Additionally, due to the prevalence of such cases in India and the Court's activist role, a case in relation to climate change would certainly not be inconceivable (Gupta, 2007).

The US has a history of public interest litigation that finds its roots in the civil rights activism of the 1950s and 60s. Brown v Board of Education, in which the US Supreme Court found segregation in public schools unconstitutional, is often cited as the first example of this form of litigation (Hershkoff, 2005). In the US, recent years have seen an explosion of climate change litigation before the courts. One important vehicle that has been employed is initiating public nuisance tort claims (Hester, 2013). Though the conceptual delimitation of public nuisance is not entirely clear, an indicative definition is provided by the second US Restatement of Torts, which defines it as, 'an unreasonable interference with a right general to the common public' (Restatement (Second) of Torts § 821B, 1979). The first public nuisance climate

change lawsuit was the unsuccessful AEP v Connecticut case, but numerous other attempts followed (Hester, 2013). One case of particular interest is Comer v Murphy Oil USA, Inc. (2009). In this case, which went to the fifth circuit Court of Appeals before being dismissed, Mississippi residents sought to sue energy companies for contributing to global warming, and thus exacerbating the effects of Hurricane Katrina. A similar case, Kivalina v ExxonMobil (2012), saw Alaska residents suing oil companies over melting permafrost caused by greenhouse gas (GHG) emissions. Though these cases have not yielded successful results to date, they present an interesting legal technique in the struggle against climate change. When it comes to filing suit against the federal government for climate change, the Massachusetts v EPA case entailed an interesting application of state-initiated public interest litigation (Welti, 2008). After its petition asking the Environmental Protection Agency (EPA) to regulate GHG emissions from new motor vehicles under the Clean Air Act (CAA) was denied, Massachusetts appealed this decision in the courts. In Massachusetts v EPA (2007), the Supreme Court found, without imposing a specific obligation to regulate, that the EPA had the authority to regulate GHGs, and remanded the case to the EPA, requiring the agency to review its reasoning, as its argumentation had been inadequate. On remand, the EPA found that six GHGs met the threshold of endangering public health and welfare (Environmental Protection Agency, 2009). Thus, though the Supreme Court exercised judicial restraint in its judgement, this kind of state-initiated public interest litigation can serve as an effective tool to address climate change.

An exhaustive study of historical global public interest litigation cases with relevance to climate change is beyond the scope of this paper. However, the US and Indian case studies serve as illustrative examples, and are particularly interesting for a number of reasons. Significantly, both India and the US have an extensive history of public interest litigation in their domestic legal systems, and belong to the world's greatest emitters of GHGs. A comparison between the two can also yield some thought-provoking insights. It is for example interesting that, despite the strong culture of judicial activism and public interest litigation in India, there have been no cases directly addressing climate change. Conversely, in the US, where these concepts are often approached with more caution, numerous claims have been brought, albeit with limited success.

## III. Present emergence of climate change public interest litigation

Starting with the Urgenda case in 2015, a new type of public interest litigation has started to gain currency in the courts. A subsequent ruling with comparative value occurred in Leghari v Pakistan, and further insights can be gained by looking at ongoing lawsuits in the United States,

Belgium, and Norway. These cases differ from the historical examples discussed above in that they hold the state directly responsible for climate change. Thus, the form of public interest litigation they embody appears to have tremendous potential in terms of influencing state policy, and encouraging social change. The following section seeks to further explain and compare these case studies.

In the Urgenda case, a non-governmental organisation (NGO) named Urgenda brought suit against the Dutch state. They argued that the government climate policy violated a duty of care under Dutch law, and the fundamental rights of Urgenda, as well as 886 individual plaintiffs, under the European Convention of Human Rights (ECHR). To remedy this transgression, they claimed the government would have to readjust its low emissions reduction targets, which were set at 17 percent by 2020 compared to 1990 levels at the time, to the 25-40 percent suggested in the Cancun agreements (Urgenda Foundation v. State of the Netherlands, 2015, para. 3.1). In their submission, they referred to national law, most notably article 21 of the Dutch Constitution, regional law, including articles 2 and 8 of the ECHR, as well as international treaty law and legal principles. The Dutch state contested these allegations, arguing that such an intervention in policymaking by the courts would violate the separation of powers. They also noted that the climate targets were in line with EU policy, and that the Dutch contribution to climate change was rather insignificant on a global scale. This final argument would suggest that the correct solution should be found through multilateral talks, in which the Dutch government's negotiation position would allegedly be weakened by a judgement in Urgenda's favour (Ibid., para 4.100). On 24 June 2015, the Hague District Court ruled in favour of the plaintiffs, finding that the state had violated a duty of care under Dutch law and ordering it to readjust its targets to at least 25 percent reduction by 2020 (Ibid., para. 5.1). All other claims, including the argument under the ECHR, were dismissed. The Dutch government has launched an appeal and, accordingly, the District Court's decision will be reviewed by the Hague Court of Appeal, and potentially the Dutch Supreme Court.

The Court's reasoning merits some further discussion. The prevailing claim was ultimately that the Dutch government had breached a duty of care pursuant Book 6, Section 162 of the Dutch Civil Code, which was informed inter alia by article 21 of the Dutch Constitution, and various international obligations and legal principles (Ibid., para. 4.89). Significantly, whereas NGOs or individuals before national courts cannot usually invoke international obligations between states, this approach permitted the inclusion of international law through the so-called 'reflex effect' (de Graaf & Jans, 2015). The Court found a duty of a 'high level' of care, resulting in the required establishment of a satisfactory statutory framework to reduce emissions. Interestingly, the environmental rights approach did not meet such success,

as Urgenda itself could not rely on articles 2 and 8 of the ECHR on the right to life and private and family life, and the Court found that there was insufficient information to assess the separate claim put forward on behalf of the 886 individual plaintiffs (Urgenda Foundation v. State of the Netherlands, 2015, para. 4.109). Thus, even though the Court stopped short of confirming the validity of the ECHR argument, it also did not explicitly reject it. Internationally, this judgement was the first to hold the state responsible for climate change, and it certainly constituted a significant breakthrough in the Dutch context. Furthermore, it could be argued that this ruling indicates the onset of a broader global trend. The case studies that follow appear to suggest that such a trend may indeed be underway.

Another notable climate change public interest case that was inspired by the example of Urgenda is currently taking place in Belgium. The Belgian case, which mirrors the Dutch case in its arguments, was initiated by the NGO 'klimaatzaak vzw', established by 11 Belgian celebrities, with a parallel claim by a large number of individuals. The plaintiffs argue that the Court should order the Belgian government to reduce emissions by 40, or at least 25 percent compared to 1990 levels by 2020, and 87.5, or at least 80 percent by 2050 (Summons of the Belgian climate case, 2015, para. 14). The claim is that the current government policy is in violation of human rights, specifically article 2 and 8 of the ECHR, as well as article 7bis, 22, and 23 of the Belgian Constitution on sustainable development, the protection of public health, and the right to the protection of a healthy living environment. Additionally, it is argued that the Belgian government is in violation of the principle of prevention, the precautionary principle, and a duty of care under Belgian law (Ibid., para. 43). The proceedings are momentarily delayed due to a language dispute over whether the case should be heard in French or Dutch.

In September 2015, the Lahore High Court became the second to hold the state responsible for climate change in Ashgar Leghari v Pakistan (2015). It is noteworthy that Pakistan, like its neighbour India, also has a long history of public interest litigation (Razzaque, 2004). In this particular case, Ashgar Leghari filed suit against the government for its inaction in relation to climate change, especially its failure to implement the National Climate Change Policy (NCCP). The argument was that the government had violated the fundamental rights to life and dignity under articles 9 and 14 of the Constitution (Ashgar Leghari v Pakistan, 2015, p. 2, para. 1). The Court found in favour of the plaintiff, ordering the government to take numerous specific actions to remedy this offence. Several government ministries were ordered to appoint a 'climate change focal person' to monitor the implementation of the NCCP. Additionally, the Court even went so far as to create a Climate Change Commission (Ibid., p. 5, para. 7).

The reasoning in Leghari v Pakistan is interesting in that it differed from Urgenda on a number of points. Notably, Leghari concerned an omission by the state. Moreover, public interest litigation and judicial activism are more accepted in the Pakistani legal system than in the Dutch context. It is thus not surprising that, in some ways, the Pakistani judgement appears even more progressive than Urgenda. The Lahore court expressly accepted the fundamental rights argument, from which the judges shied away in the Netherlands. Additionally, the Dutch judges went out of their way to exercise some degree of restraint, by choosing the lower bound of the 25-40 percent standard as an obligation, and refraining from prescribing specific tasks for the government to perform (Urgenda Foundation v. State of the Netherlands, 2015, para. 5.1). The Lahore court, on the other hand, determined the specific actions that the government was required to take, and even named the 21 individuals to be appointed to the Climate Change Commission (Ashgar Leghari v Pakistan, 2015, p. 7, para. 8(iii)). Ultimately, however, the central difference between the cases comes down to two different legal arguments with potential for future litigation, the duty of care argument and the fundamental rights argument.

On 8 April 2016, another interesting development took place in Kelsey Cascade Rose v the United States of America. In this case, the plaintiffs are 21 children from around the US aged 9 to 18, and climate scientist Dr. James Hansen on behalf of future generations (Kelsey Cascade Rose v the United States of America, 2016, p. 1, para. 2). In its order denying the defendant's motion to dismiss, the Oregon District Court found that the plaintiffs' claims could move forward to trial. The plaintiffs allege that the government's actions and omissions in relation to climate change amount to a violation of their substantive due process rights, their right to equal protection under the fifth amendment of the US Constitution, as well as an implicit right to a stable climate under the ninth amendment. The claim is that the government's policy 'has resulted in a danger of constitutional proportions to the public health' (Kelsey Cascade Rose v the United States of America, 2016, p. 10, para. 1). Thus, as in the aforementioned Leghari case, the claim is firmly rooted in rights rhetoric. However, the judge also explicitly mentions the Urgenda case in this order, rejecting the argument that the fact that the GHG emissions only form a portion of the global whole meant that the claim should be dismissed in this instance (Kelsey Cascade Rose v the United States of America, 2016, p. 11, para. 2). Thus, even though it is questionable whether the plaintiffs' arguments will succeed at trial, this case study does go to show that climate change public interest litigation is also gaining traction in the US context.

In Norway, a similar case, aiming to hold the government responsible for its allegedly unconstitutional oil exploration in the Arctic, is underway. In the People v. Arctic Oil, The claimants, Greenpeace Nordic Association and Natur og Ungdom

(Nature & Youth), argue that the Norwegian government's Licensing Decision, which opened up new acreage to oil and gas companies in the Arctic Barents Sea, is illegal under Norwegian law. Specifically, they claim a violation of Article 112 of the Norwegian Constitution on the right to a healthy environment. Additionally, it is argued that a procedural irregularity occurred, as the impacts of the decision were not properly assessed (Writ of Summons in the People v. Artic Oil, p. 5-7). The case presents another example of environmental rights being mobilised in the public interest.

The case studies described above seem to suggest that public interest litigation seeking to hold states responsible for climate change may be taking hold as a legal mechanism. Before dismissing these examples as context-specific, it must be noted that the cases stretch across three continents, and have occurred in both common and civil law jurisdictions. Nonetheless, though they share like features, the respective courts' reasonings differ. Especially interesting in this regard is the distinction between the clear fundamental rights approach in Leghari, and the duty of care method that prevailed in Urgenda. The following section will attempt to deepen the analysis of public interest litigation as a possible driver for climate change mitigation on the basis of a number of evaluative questions.

## IV. Discussion

The emergence of this new type of climate change public interest raises important questions. Significantly, does this development constitute a global trend? and, if so, can these climate cases really bring about the necessary social change? Additionally, are these cases (dangerous) examples of judicial activism? Finally, the distinction between the duty of care approach endorsed in the Urgenda case and the fundamental rights argument accepted by the Lahore court in Leghari merits some further scrutiny. The question here is which legal argumentation has more potential for climate change litigation?
The cases mentioned in the analysis above do seem to suggest a global trend in the making.

In the Netherlands and Pakistan, claimants already successfully held the state responsible for climate change. Similar ongoing cases can be identified in the US, Belgian, and Norwegian national contexts. The diversity of the domestic jurisdictions in which these cases occur seems to deny the argument that this kind of public interest litigation is context-specific. The cases cut across continents and involve both common and civil law systems. Notably, the Netherlands shares common roots with a number of European legal systems, and Pakistan's neighbours, India and Bangladesh, have similar traditions of public interest litigation and judicial activism (Razzaque, 2004). However, the dismissal of some of the

ongoing cases could dull the enthusiasm surrounding this new technique. In this regard, the outcomes of other ongoing climate cases will be important in determining whether this emerging global trend solidifies into more established international practice.

Regarding the potential for encouraging social change, it has been argued that public interest litigation cannot bring about institutional reform per se, and can draw attention away from more effective (political) strategies (Cummings & Rhode, 2009). In this regard, it must be stressed that these climate cases are insufficient to resolve the dilemma of climate change on their own. Ultimately, it is up to political decision-making to address this global challenge. However, public interest litigation can contribute to tackling climate change in a number of ways. Firstly, the courts can encourage policymakers to act, and comply with their existing obligations. Secondly, climate change public interest litigation can contribute to awareness-raising. High profile climate cases against the state bring climate change into the public eye, enhancing the visibility of this issue. Finally, the potential for legal mobilisation is tremendous, as illustrated by the Belgian climate case, which involves over 10,000 individual co-plaintiffs (Belgian climate case website, n.d.). Mobilising citizens in the struggle against climate change can be essential in refocusing the priorities of society. Particularly striking is the new Chinese environmental protection law, which recognises the urgency of the air pollution problem, and seeks to mobilise citizens by taking a relatively liberal approach to environmental public interest litigation, reflecting the Chinese state's increased focus on sustainability in view of the current economic slowdown (Carpenter-Gold, 2015).

As explained in the concept-ualisation section, public interest lawsuits are often linked to judicial activism, which broadly entails judges pushing the boundaries of existing law for political purposes. Judicial activism may take on varying meanings depending on the context of a commentator's observations, or the jurisdiction in which a lawsuit occurs. Though it is not always clear whether a ruling constitutes judicial activism, the progressive climate change cases discussed above, particularly the Urgenda case, have been labelled as such. Specifically, the Dutch government position is that the Court did not respect the separation of powers in its decision, a claim that was dismissed by the Hague District Court in its ruling (Urgenda Foundation v. State of the Netherlands, 2015, paras. 4.94-4.102). In this regard, it is important to note that, whereas the Dutch court's interpretation was certainly progressive, it was based in existing principles of law (Heringa, 2016, p. 3). Loth and van Gestel (2015) also gave a more positive appreciation of Urgenda, placing the ruling in the context of multi-level governance, and noting that, in light thereof, judges seek to contribute to providing solutions for complex transboundary problems. Essentially, the

approach of the Hague District Court can be likened to civil rights cases in the US, where the courts found underlying legal principles, which were interpreted in a new way (The Guardian, 2015). Thus, while the Court may have exercised a fair degree of interpretative freedom, it is not clear-cut that this case would amount to judicial activism as such. The question, which will be addressed on appeal, is whether the Court only pushed the boundaries of existing law, or transgressed them, in its ruling. It must also be noted that, where conservatives in the US often describe judicial activism as something used by liberals to circumvent the requirements of the law, it is not only a liberal tactic. A recent example would be the Supreme Court's stay of the implementation of the Obama administration's Clean Power Plan (CPP) pending judicial review (Ryan, 2016).

The cases discussed in this paper seem to employ two different legal arguments. In Urgenda, the Court upheld the claim that there was a duty of care under Dutch law informed by constitutional and international law. By contrast, in the Leghari case, the Pakistani court found that the fundamental rights of the claimant had been violated. The relative power of these two arguments depends largely on the jurisdiction. It is noteworthy that, in the Urgenda case, the claimants also put forward a fundamental rights claim. The argument that article 2 and 8 of the ECHR had been violated, was not explicitly rejected by the Court, and these rights were used to inform the duty of care (Urgenda Foundation v. State of the Netherlands, 2015, para. 4.52). Certainly, the environmental rights approach has a number of advantages. Significantly, rights rhetoric has tremendous potential for the mobilisation of citizens for a cause (Hilson, 2015). Additionally, human rights are universal in scope, and therefore this argument is applicable beyond the national boundaries of a single state. Hence, it could be employed in cases before regional courts such as the European Court of Human Rights (ECtHR). There are however some drawbacks. The concept of environmental rights does not enjoy broad recognition, and this approach is likely to face difficulties in domestic jurisdictions that have a more restrictive traditional conception of human rights as civil and political rights. Thus, where rights claims are more ambitious, they may also be more challenging.

The above analysis seems to suggest that this new breed of climate change public interest litigation cases constitutes an emerging global trend that could have enormous potential as a driver of social change. However, this technique can only encourage governments to take more effective action, and does not suffice in itself. Ultimately, it is the policymakers who must implement measures to tackle climate change. Therefore, though a progressive interpretation of the law does not necessarily amount to judicial activism, it would be wise for courts to exercise some judicial restraint, since it is not for judges to define policy. Restraint is

especially important as judicial activism is a double-edged sword, and can also be employed to curtail climate change mitigation policies, as illustrated by the US Supreme Court's CPP stay. Finally, though environmental rights claims have a more universal applicability and a high propensity for legal mobilisation, they may also face severe challenges, particularly in jurisdictions with a more restrictive conception of human rights. The following section will attempt to shed some light on what these developments could imply for the future prospects of public interest litigation as a tool for encouraging climate change mitigation.

## V. Future prospects

There are numerous threats and opportunities with regard to the future potential of climate change public interest litigation. Notably, continued enthusiasm over this technique depends on the outcome of certain ongoing cases. Substantial momentum could be gained by a victory on US soil in Kelsey Cascade Rose, or another successful European case in Norway or Belgium. However, a dismissal could have the opposite effect. Additionally, the problem of standing, particularly standing of NGOs, could present an obstacle. In assessing the future potential of this technique, some special attention should also be paid to the prospects of public interest litigation in the Chinese context, and before the ECtHR.

One obstacle that can pose a threat to future climate change public interest litigation is the problem of standing in environmental cases. In the Dutch legal system, there is an established, though not uncontested, practice of granting standing to NGOs, but this practice may not be as well accepted in some other jurisdictions (Broek & Enneking, 2014). Proving the interest of the individuals or legal persons involved can cause difficulties, considering that climate change litigation often concerns future harm. These challenges were all too apparent in the Urgenda case where, with regards to the human rights argument, the judges denied Urgenda standing, and refrained from assessing the individual claims. The difficulty of establishing a causal link for potential future harm is also of particular relevance in cases of this nature. Furthermore, it is often unclear what portion of the damage can be attributed to the conduct of the defendant, especially considering the plurality of third parties that often contribute to the emissions. These obstacles, along with the challenge of relying on international obligations in a domestic context, can hinder climate change public interest litigation. However, the successes of the Urgenda and Leghari cases suggest that they may be overcome.

References to the ECHR in the Dutch and Belgian climate cases raise the question of whether a state could be held responsible for climate change before the ECtHR. It must be noted that, as the Hague District Court reiterated, NGOs cannot themselves be considered victims of

individual rights violations. However, the potential standing of the individual claimants was essentially left unanswered. Certainly, some ECtHR case law appears to suggest that a climate case before the Court could have some potential of succeeding. However, there are also numerous obstacles that have to be considered. For instance, there is no actio popularis under the ECHR, and, in general, there is need for a clear link in order to receive victim status (Loucaides, 2005). Additionally, states are given a substantial margin of appreciation to pursue environmental objectives under the ECHR, and there is a requirement to exhaust local remedies (Boyle, 2006). Finally, it must be noted that the Court may opt to exercise judicial restraint in this regard with a view to political considerations.

In the Chinese context, there have also been some instances of environmental public interest litigation. Considering its status as the largest polluter globally, the potential for environmental public interest lawsuits in China is of particular interest. China's new environmental protection law, which came into force on 1 January 2015, has opened some doors in this regard by, for instance, granting standing for NGOs to bring cases on behalf of the public, if they satisfy certain conditions (Liu, 2015). It also enhances liability regimes for polluters and public officials who act in dereliction of their duties, leading ClientEarth CEO James Thornton to suggest that some of the law's provisions are more advanced than those applicable in the UK context (Thornton, 2015). Under this new legislation, which seeks to involve citizens in the struggle against pollution, an increase in public interest litigation is to be expected. However, it is unclear whether the shift is merely symbolic, or if it will have a more concrete impact. Additionally, bringing suit against government authorities in China is marred with difficulties, with cases often disappearing into a so-called 'black hole' (Botsford, 2016). Significantly, judicial independence is lacking, and the socialist rule of law means that there is no clear hierarchy between the law and political practice (Peerenboom, 2015). Thus, where the new law is likely to enhance the effectiveness and frequency of environmental public interest litigation in China, much is dependent on how it is implemented, and there are limits to its potential.

The future prospects of public interest litigation as a tool to tackle climate change merit some cautious optimism. Despite numerous obstacles, including the problem of standing and proving causation in climate change cases, other ongoing cases are already attempting to hold the state accountable for climate change, following the successes of Urgenda and Leghari. Climate change public interest litigation could also be used to bring cases before regional courts, particularly the ECtHR. However, it is unclear whether such claims would succeed. Significantly, public interest litigation has some potential as a mechanism in the Chinese context,

especially under the new environmental protection law, though it seems unlikely that a claim seeking to hold the state responsible for climate change would be successful in the Chinese context.

## VI. Conclusion

The emerging trend of public interest cases holding the government responsible for climate change is an important breakthrough in climate litigation. This paper has sought to deepen the understanding of this phenomenon by elaborating on its historical context, analysing the present emergence of climate change public interest litigation, and assessing the future potential of this technique. It was found that these cases, which have revolutionised attitudes towards climate litigation, represent a trend in the making. The successful Urgenda and Leghari cases can serve to embolden the efforts of civil society pushing for climate action worldwide. Essentially, these examples demonstrate that it is possible for non-governmental actors to hold states responsible for climate change, something that seemed impossible or at least highly unlikely before. Perhaps this development alone can be presented as evidence of shifting attitudes, which in themselves indicate that social change is underway. Nonetheless, much depends on the outcomes of ongoing cases, particularly in Belgium, the US, and Norway, to ensure that this emerging trend solidifies. If this solidification occurs, climate change public interest litigation could also be taken to the regional level at, for instance, the ECtHR, in addition to various national jurisdictions. These findings suggest that the potential impact of this new method to address the widespread political intransigence with regard to climate change is significant. However, only the future can tell to what extent these climate cases will actually succeed in stimulating action, and effectuating meaningful social transformation.

# Footnotes

1 US Supreme Court Justice John Paul Stevens remarked in relation to a series of cases viewed as activist that, "[…] with the benefit of hindsight I can say that I now agree with each of these examples of judicial activism" (Stevens, 2002, p. 26), and former Indian Chief Justice A. H. Ahmadi noted that judicial activism forms a necessary adjunct of the judicial function, seen as the main concern is the public as opposed to the private interest (Sathe, 2001, p. 30).

2 The Court defined public interest litigation in para. 19A as "[…]litigation undertaken for the purpose of redressing public injury, enforcing public duty, protecting social, collective, 'diffused' rights and interests or vindicating public interest […]".

3 Other jurisdictions that have seen environmental public interest litigation include Pakistan, Bangladesh, the UK, and China.

4 See the Dutch government website for an up-to-date overview of developments in the *Urgenda* case: https://www.rijksoverheid.nl/onderwerpen/klimaatverandering/inhoud/klimaatrechtszaak.

5 See the Belgian climate case website for an up-to-date timeline of the proceedings: http://www.klimaatzaak.eu/nl/de-rechtszaak/#klimaatzaak.

6 For legal arguments against Norwegian oil exploration in the Arctive see: Sjåfjell, B., & Halvorssen, A. M. (2015). The Legal Status of Oil and Gas Exploitation in the Arctic: The Case of Norway. *Oil, Gas and Energy Law (OGEL), Special Issue September*.

7 For a more extensive coverage of the argument for climate change liability under the ECHR see: Cox, R. H. J. (2014). The Liability of European States for Climate Change. *Utrecht Journal of International and European Law, 30*(78), 125-135.

# References


**Legislation**

Restatement (Second) of Torts § 821B (1979).

**Case law**

Ashgar Leghari v Federation of Pakistan, W.P. No. 25501/2015.

Comer v. Murphy Oil, 585 F.3d 855 (5th Cir. 2009).

Kelsey Cascade Rose Juliana v. the United States of America, 6:15-cv-01517-TC. Order denying the government's motion to dismiss (2016).

Massachusetts v EPA, 549 US 497 (2007).

M.C. Mehta (CNG buses) v. Union of India, AIR 2002 SC 3696.

Native Village of Kivalina v. ExxonMobil Corp., 696 F.3d 849 (9th Circ. 2012).

SP Gupta v. Union of India, AIR 1982 SC 149.

Urgenda Foundation v. State of the Netherlands, ECLI:NL:RBDHA:2015:7145, Rechtbank Den Haag, C/09/456689 / HA ZA 13-1396.

**Scholarly articles**

Boyle, A. (2006). Human Rights or Environmental Rights-A Reassessment. Fordham Environmental. Law Review, 18, p. 471-511.

Broek, B. V. D., & Enneking, L. (2014). Public Interest Litigation in the Netherlands: A Multidimensional Take on the Promotion of Environmental Interests by Private Parties through the Courts. Utrecht Law Review, 10, p. 77-90.

Carpenter-Gold, D. (2015). Castles made of sand: public-interest litigation and China's new environmental protection law. Harvard Environmental Law Review, 39, p. 241-567.

Cox, R. H. J. (2014). The Liability of European States for Climate Change. Utrecht Journal of International and European Law, 30(78), p. 125-135.

Cummings, S. L., & Rhode, D. (2009). Public interest litigation: Insights from theory and practice. Fordham Urban Law Journal, 36, p. 9-19.

de Graaf, K. J., & Jans, J. H. (2015). The Urgenda Decision: Netherlands Liable for Role in Causing Dangerous Global Climate Change. Journal of Environmental Law, 27(3), p. 517-527.

Deva, S. (2009). Public interest litigation in India: A critical review. Civil Justice Quarterly, 28, p. 19-40.

Gupta, J. (2007). Legal steps outside the climate convention: litigation as a tool to address climate change. Review of European Community & International Environmental Law, 16(1), p. 76-86.

Heringa, A.W. (2016). Rechter en politiek: verzaakt de politiek/wetgever of dient de rechter juist het belang van de wetgever? Milieu en Recht. 3(34), p. 203-206.

Hershkoff, H. (2005). Public interest litigation: selected issues and examples. Washington, DC: The World Bank.

Hester, T. (2013). Private Claims for a Global Climate: US and Indian Litigation Approaches to Climate Change and Environmental Harm. Journal of the Indian Law Institute.

Hilson, C. (2015). The Curious Invisibility of Environmental Rights in the EU Legal Order. Paper presented at the 22nd International Conference of Europeanists.

Hussain, F. (1993). Public Interest Litigation in Pakistan. Sustainable Development Policy Institute, Work Paper Series, (5).

Liu, T. (2015). China's Revision to the Environmental Protection Law: Challenges to Public Interest Litigation and Solutions for Increasing Public Participation and Transparency. George Washington Journal of Energy & Environmental Law, 6(2), p. 60-70.

Kmiec, K.D. (2004). The Origin and Current Meanings of "Judicial Activism". California Law Review, 92(5), p. 1441-1477.

Loucaides, L. (2005). Environmental protection through the jurisprudence of the European Convention on Human Rights. The British Year Book of International Law, 75(1), p. 249-267.

Peerenboom, R. (2015). Fly High the Banner of Socialist Rule of Law with Chinese Characteristics! Hague Journal on the Rule of Law, 7(1), p. 49-74.

Peters, G. P., Andrew, R. M., Boden, T., Canadell, J. G., Ciais, P., Le Quéré, C., Wilson, C. (2013). The challenge to keep global warming below 2 C. Nature Climate Change, 3(1), p. 4-6.

Ryan, E. (2016). The Clean Power Plan, the Supreme Court's Stay, and Irreparable Harm. FSU College of Law, Public Law Research Paper No. 798.

Sahu, G. (2008). Implications of Indian Supreme Court's Innovations for Environmental Jurisprudence. Law Environment & Development Journal, 4(1), p. 1-19.

Sathe, S.P. (2001). Judicial Activism: The Indian Experience. Washington University Journal of Law and Policy, 6, p. 29-107.

Siegel, N. (2010). Interring the Rhetoric of Judicial Activism. DePaul Law Review, 59(2), p. 555-600.

Sjåfjell, B., & Halvorssen, A. M. (2015). The Legal Status of Oil and Gas Exploitation in the Arctic: The Case of Norway. Oil, Gas and Energy Law (OGEL), Special Issue September, Tina Hunter (ed.).

Stevens, J.P. (2002). Judicial Activism: Ensuring the Powers and Freedoms Conceived by the Framers for Today's World. Chicago Bar Association Record 16(2002), p. 25-33.

Welti, T. (2008). Massachusetts v. EPA's Regulatory Interest Theory: A Victory for the Climate, Not Public Law Plaintiffs. Virginia Law Review, 94(7) p. 1751-1785.

Loth, M., and van Gestel, R. (2015). Urgenda: roekeloze rechtspraak of rechtsvinding 3.0? Nederlands Juristenblad, 37, p. 2598 - 2605.

**Books**

Razzaque, J. (2004). Public interest environmental litigation in India, Pakistan, and Bangladesh (Vol. 7): Kluwer Law International.

**Other**

About Public Interest Litigation. The PILS Project. Available at: http://www.pilsni.org/about-public-interest-litigation.

Botsford, P. (2016). China's War on Pollution. International Bar Association. Available at: http://www.ibanet.org/Article/Detail.aspx?ArticleUid=d4101ee7-fb0b-41cf-b1d1-936a075382d5.

Environmental Protection Agency. Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act. 74 FR 66496-66546 (2009).

Greenpeace Nordic Association and Natur og Ungdom. (2016). Writ of Summons in the People v. Arctic Oil. Available at: http://www.greenpeace.org/norway/Global/norway/Arktis/Dokumenter/2016/legal_writ_english_final_20161018.pdf.

Hague climate change judgement could inspire a global civil movement. (2015). The Guardian. Available at: http://www.theguardian.com/environment/2015/jun/24/hague-climate-change-judgement-could-inspire-aglobal-civil-movement.

Klimaatzaak vzw. (2015) Summons in the Belgian climate case. Available at: http://www.klimaatzaak.eu/wp-content/uploads/2015/04/Dagvaarding.pdf.

The Supreme Court of India. Guidelines to be followed for entertaining letters/petitions received in the court as public interest litigation. Available at: http://supremecourtofindia.nic.in/circular/guidelines/pilguidelines.pdf.

Thornton, J. (2015). Can We Catch-Up? How the UK is falling behind on Environmental Law. Garner Lecture 2015.

# How good products make you feel: The underlying emotions of ethical consumerism

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**Abstract**

*Ethical consumerism describes a more conscious way of consumption embracing products which are produced in a fair and/or environmentally positive manner. This paper investigates this growing market by explaining which emotions are evoked by these ethical products. It is argued that the psychological fundament for purchasing green products is "feeling good", "feeling moral" and "feeling powerful". First, "feeling good" embraces positive emotions and effects on one's own health and well-being. Secondly, "feeling moral" describes evoked feelings of morality and altruistic concerns about human, animal, and environmental welfare. Thirdly, "feeling powerful" focuses on ethical consumerism as means to increase one's own power and social status. Each of these emotions is analyzed by psychological theories and a practical example. At the end of the paper, the effect of the negative emotions such as fear and anger, and the possibility to combine various emotional strategies are discussed.*

In the last decade there has been a steadily increasing trend in purchasing green and fair products (Hunt & Dorfman, 2009; Loureiro & Lotade, 2005). This growing market embraces various products ranging from fair-trade coffee and organic meat in the supermarket to environmentally-friendly cars. This whole trend can be seen underneath the umbrella of "ethical consumerism". Ethical consumerism describes a conscious way of consumption that incorporates sustainability, but also human rights, animal welfare, and fair working conditions (Tallontire, Rentsendorj, & Blowfield, 2001). This includes green products that benefit sustainable production, such as organic agriculture, and fair and social products that benefit the working conditions of humans. In line with this trend, in 2003 the

World Bank formulated that for sustainable development three aspects have to be addressed: economic, social and environmental factors (World Bank, 2003). In order to foster sustainable development it is necessary to understand ethical consumerism holistically without excluding one or more aspects. Additionally, the focus on ethical consumerism allows this paper to analyze brands which are difficult to categorize as either "social" or "green". For example, fairtrade coffee mainly focuses on fair labor conditions and fair payment, but many brands are also concerned about environmentally friendly bean cultivation and production (Ethical Bean Coffee, n.d.).

As climate change is one of the major challenges of our time and as the labor conditions in many third world countries fail to improve, ethical consumerism is not only a fad but a necessity. In order to attract more consumers to ethical products, marketers have to understand the consumer's motivation to purchase an ethical product. As emotions provide a strong guidance of actions and goals (Bagozzi, Gopinath & Nyer, 1999), it is of high importance to comprehend the underlying emotions of ethical consumerism to foster its effective marketing. Therefore, this paper aims to approach the research question, in which way ethical products influence consumer's emotions leading them to purchase the actual product. The following analysis first focuses on "feeling good", which includes the positive emotions and effects on one's own health and well-being. Secondly, "feeling moral" is analyzed, which concentrates on the evoked feelings of morality and altruistic concerns about human, animal, and environmental welfare. The third analysis will elaborate on "feeling powerful", that is how ethical consumerism is a mean to increase one's own power and social status. For each emotional category, one product or brand is analyzed which uses the specific emotion as a marketing strategy. In consideration of these outcomes, the effect of the negative emotions fear and anger, and the possibility to combine various emotional strategies are discussed.

## I. Feeling good

Positive emotions such as happiness are often used as a marketing strategy for green and fair trade products. Evoking positive emotions does not only lead to higher levels of physiological arousal, attention and recall, but also evokes a shift in orientation from a self-centered to other-centered orientation. In other words, this means that positive emotions lead to higher levels of friendliness and helpfulness, thus fostering an altruistic mindset. On an individual level, positive emotions also lead to actions that savor these emotions and nourish the positive rewards (Bagozzi, Gopinath, & Nyer, 1999). Based on these characteristics, positive emotions can serve as an excellent marketing strategy for ethical consumerism. This paper argues that the combination of having an other-centered

orientation and the urge to savor one's own positive emotions, can lead consumers to purchase products which are advertised as increasing well-being (health, positive affect) but also foster pro-social and pro-environmental goals. In line with this argumentation, research by McCarty and Shrum (1994) examined the relationship between personal values and environmentally-friendly habits, such as recycling. In this study, a higher value of fun/enjoyment (excitement, warm relat-ionships with others, etc.) was positively correlated with attitudes regarding the importance of sustainable behavior. In sum, the usage of positive emotions which promote happiness, quality of life, enjoyment, fun and enjoyment appears to be an adequate strategy for ethical consumerism.

One environmentally-friendly com-pany, which bases their success on the strategy of "feeling good", is the American tea company "YogiTea" (YogiTea, n.d.). YogiTea is a company which produces ayurvedic herbal and spiced tea, only using ingredients which originate from organic agriculture. Their brand is closely connected to the beliefs of the yoga movement and well-being, which can be noticed in their teas names such as "Wellbeing", "Positive Energy" and "Heartwarming". Each tea has another effect on the human well-being (calming, energizing, vitality, inspiring, etc.). In accordance to the desired effect of the particular tea, a description of a yoga pose and ayurvedic information is given. The descriptions of the tea sorts are always highly positive and focus on a healthy mind, soul and body. An example is the "Ginger Lemon" tea, which is advertised by the following:

*"The spicy taste of ginger warms the heart and lifts the spirit. The fruity, tart taste of lemon refreshes the mind and invigorates the soul. Hints of lemongrass, liquorice and black pepper add a light, spicy sweetness. Always delicious, this tea refreshes in the summer and warms in the winter. The essence of this tea is: 'Optimistic new beginnings.'"*
(YogiTea, n.d.).

As can be seen in this example YogiTea evokes highly positive emotions through its tea advertisement. In order to reach or maintain these positive states of well-being, the consumer should have the intention to purchase this product (Bagozzi, Gopinath, & Nyer, 1999). One feature which distinguishes YogiTea from other organic teas might not only be the focus on well-being and yoga, but also the little "YogiTea wisdoms": Little positive saying are attached to the string of every tea bag, such as "Happiness is taking things as they are" (YogiTea, n.d.). Besides the evoked positive emotions while purchasing YogiTea, these little wisdoms provide the consumer with additional positive emotions while consuming the product. As can be seen an ethical product, such as organic tea, can be very successfully advertised by evoking positive emotions.

## II. Feeling Moral

Besides the feeling of happiness and positivity, another strong emotion that needs to be examined is morality. As normative and environmental concerns can highly influence behavioral intentions (Bamberg, 2003), it is of high importance to understand the extent to which they influence ethical consumerism. Moral norms are also closely linked to the personal value of collectivism, which incorporates the welfare of the community, cooperation and helpfulness. Collectivistic values can direct actions and connect decisions to emotional intensity (Schwartz, 1994). It has been shown that consumers scoring high on collectivistic values, have a higher tendency to purchase sustainable products (Laroche, Bergeron, Barbaro-Forleo, 2001). In line with collectivism, research also found that people who score higher on universalism, defined as the engagement in the welfare of humanity and nature, are more inclined to protect the environment and buy more environmentally-friendly products (Vermeir & Verbeke, 2006). Interestingly, a study by Mazar and Zhong (2010) challenges the view that "green products make us better people". According to their findings, the mere exposure to green products made participants more inclined to act altruistic and pro-social. However, after the purchase of these green products, people were more inclined to act less altruistic compared to people who purchased conventional products. According to Mazar and Zhong (2010) a possible explanation is that the moral self is boosted while people purchase a green product. After the purchase, this good deed can "license" non-altruistic and unethical behavior leading to more self-interested acts (Marzar & Zhong, 2010). Although this view challenges the connection between ethical consumerism and moral values, there has to be more research done to affirm these results.

Marketers for various ethical products have made use of these moral values, for example the brand "Ethical Bean Coffee" (Ethical Bean Coffee, n.d.). Ethical Bean Coffee is a company based in Vancouver, that buys their coffee beans produced under fair working and trade conditions and with respect to sustainable agriculture. Their marketing strategy is to stress their ethical values, e.g. one of their main slogans is "better for workers, better for communities, better for the environment". On each coffee package, information is given about their social and environmental commitment. By buying Ethical Bean Coffee, the consumer does not only buy conventional coffee but also helps to promote fair and environmentally-friendly labor conditions. For each bought package of coffee it is possible to track down the particular farmer via a QR code (Ethical Bean Coffee, n.d.). This transparency allows for a concrete link between the purchase of Ethical Bean products and the support of one particular individual. By stressing these social and altruistic values, the consumer's moral values is addressed which might lead him

to make a favorable consumer decision (Vermeir & Verbeke, 2006). On the homepage more detailed information can be found about various projects and background stories, e.g. more information on the company's pillars of being "Fair trade. Organic. Community-minded. Environmentally-aware." or on Ethical Bean Coffee's low emission headquarter: "Our coffee may be black, but our building is green". Research (Dodds, Monroe & Grewal, 1991) has shown that additional positive information about a brand can strengthen the perceived value and quality of the brand, which leads to a higher intention to buy its products. The success of this marketing strategy is easily noticeable as Ethical Bean's coffee has gotten more and more successful over the last few years and is about to provide its coffee all across Canada. But not only feelings of morality but also of power can make you buy an ethical product, as the next paragraph will highlight on.

## III. Feeling powerful

Besides the aforementioned emotions of feeling moral and good, another emotion can motivate consumers to buy ethical products: feeling powerful through conspicuous consumption. Generally, "conspicuous consumption" refers to the preference to purchase expensive branded products than cheaper non branded products although both are of equal quality (Nelissen & Meijers, 2010). From a rational economic perspective, it seems to be irrational to spend more money on a luxury good which has the same functional utility as another less expensive good. But why do some consumers act so irrational? It can be argued that the phenomena of conspicuous consumption can be described by the "costly signaling theory". According to this theory, conspicuous consumption can be a costly signal to others, indicating positive and desirable characteristics of the owner (Nelissen & Meijers, 2010). One reason why ethical products can serve as costly signal is their high price (Griskevicius, Tybur & Van den Bergh, 2010). Most ethical products are more expensive than the conventional items, beginning with organic meat in the supermarket to fair trade clothing in the mall. The fact that one is able to purchase these products signals financial wealth, which is, in our society, a highly desirable characteristic. This means that obtaining more expensive goods can act as costly signals to others indicating a high social status (Plourde, 2008). Another reason why ethical consumerism can also be promoted by conspicuous consumption is a perceived high moral status by others. By buying ethical products, others can perceive the buyer as a person with high moral standards and values, which can generate a positive social reputation (Griskevicius, Tybur & Van den Bergh, 2010).

This explanation is also true for well-known case of the Toyota Prius, which has been the most sold hybrid car in the world (Toyota Prius, n.d.). The car's technology is not immensely different

from other hybrid cars, but Toyota's marketing has been decisive. According to Heffner, Kurani and Turrentine (2007) a car is not only a mean to get from A to B, but can also serve as a symbol to communicate beliefs and values. Which symbols does the Toyota Prius embody? The Toyota Prius is a car which signals environmentally-friendliness, and more generally pro-social and altruistic values. Drivers of the Toyota Prius can communicate to others that they inherit all these positive values. A survey by CNW Marketing Research, showed that more than a half of the Toyota Prius customers claim that they bought the Toyota Prius as it "makes a statement about me", whereby "low emissions" was only on the fifth place of named reasons (Maynard, 2007). In an article by the New York Times a Prius customer explains his motivation to buy a Toyota Prius with the following:

*"I really want people to know that I care about the environment. I like that people stop and ask me how I like my car."* (Maynard, 2007).

Many Prius commercials do not only feature the environmental benefits of the car, but they are also slightly different from conventional car commercials. An example is the TV commercial in 2010, showing the Toyota Prius driving through a colorfully animated world, with children dressed up as flowers, and happy singing in the background (CarlockToyotaTupelo, 2012). In a study by Laroche, Bergeron and Barbaro-Forleo (2001) it has been shown that being slightly different from the majority can address individualistic values which are linked to social status. This means that the purchase of a product like the Toyota Prius does not only serve to make a positive statement about its owner, but also shows the world that its owner is an individual with high status.

## IV. Feeling afraid and angry

In the earlier sections it has been outlined that positive, moral and powerful emotions can be linked to ethical consumerism and that they can be used as a successful marketing tool. On the other hand, it is important to note that negative emotions, such as fear and anger, might be an obvious but not a suitable marketing strategy. For example, a commercial for organic vegetables could advertise its products by evoking fear of the possible consequences of synthetic pesticides and chemical fertilizers. Or producers of fairtrade clothing could highlight the horrible working conditions in the producing countries. Hereby, anger could be evoked by showing that conventional brands deliberately exploit workers. Both negative emotions focus on preventing the buying of non-ethical products, in this case the non-organic vegetables or conventional clothing. However, this marketing strategy is relatively risky as it could easily backfire. Being faced with these negative emotions, the consumer might generate one of the two following coping-strategies: The first coping strategy is being problem-focused, which would lead a person to

identify the source of stress and alleviate it (Bagozzi, Gopinath, & Nyer, 1999). For ethical consumerism, this could mean that the evoked fear or anger could lead to a more favorable purchase decision for ethical products instead of conventional products. In this way, the consumer could alleviate the negativity of conventional products. The second coping strategy is emotion-focused coping. Here, the person changes the problem's meaning (trying to convince oneself that it is not a problem/threat at all, etc.) or just tries to ignore the problem (Bagozzi, Gopinath, & Nyer, 1999). In this case, the consumer could simply ignore the negative consequences and continue buying conventional products. Additionally, the consumer could also try to completely avoid the source of his negative emotions, which is the negatively advertised ethical product. Using negative emotions as a marketing strategy could predispose the consumer towards emotion-focused coping, it is advised to focus on the aforementioned positive, moral and powerful emotions without the risk of backfiring.

## V. Discussion

The aim of this paper was to analyze the underlying emotions of ethical consumerism, consumerism that in-corporates socially and ecologically produced products. The emotions that are evoked by ethical products, can be categorized as "feeling good", "feeling moral", and "feeling powerful". Feeling good embraces positive emotions about health and well-being. Positive emotions can cause actions which nourish the emotion, but they can also trigger an other-centered orientation. Taken together, evoked positive emotions lead to an increased motivation to buy ethical instead of conventional products. The second examined emotion was "feeling moral," which focuses on altruistic and collectivistic values. Moral emotions can lead a consumer to prefer an ethical product over a conventional one. The third emotion of morality is triggered by conspicuous consumption, which takes account for buying luxury and high status articles in order to signal economic power. In the case of ethical consumption, conspicuous consumption of ethical products can also serve to make a positive statement about the buyer by increasing his social reputation. All in all, the practical examples of YogiTea, Ethical Bean Coffee and Toyota Prius showed that using certain emotions as marketing techniques can be a very powerful tool.

With this knowledge, is it advisable for an ethical marketer to combine all three emotions in one single communication strategy? A study by Kaptein and Duplinsky (2013) examined the effect of several influential strategies combined in one message versus the effect of a single strategy in the message. The results of this research clearly indicated that combining several strategies is less effective as there is a higher risk that the communication becomes less clear to the possible buyer (Kaptein & Duplinsky, 2013). Applying

these results to the emotions of ethical consumerism, it should be argued that it is better to focus on one concrete emotion rather than combining them. Together with the previous analysis of positive, moral and powerful emotions, this paper can provide a first guideline for effective and non-effective emotions in ethical marketing.

## VI. Conclusion

Environmental protection is undoubtedly one of the main challenges of the 21st century in which everyday actions of individuals, such as their shopping behavior, have a huge impact. In order to effectively master this ecological challenge, the cause itself has to be tackled.

This paper investigated the research question on how emotions influence the purchase of ethical products. It is stated that emotions of positivity, morality and power do have a major effect on our ethical purchasing, and that using negative emotions such as fear and anger should be avoided. If marketing techniques will make more use of the presented academic knowledge, effective advertisement could significantly increase ethical consumption and, thereby, positively contribute to the protection of our environment.

# References


Bagozzi, R. P., Gopinath, M., & Nyer, P. U. (1999). The role of emotions in marketing. Jour-nal of the academy of marketing science, 27(2), 184-206.

Bamberg, S., Hunecke, M. & Blöbaum, A.. (2007). Social context, personal norms and the use of public transportation: Two field studies. Journal of Environmental Psychology, 27(3), 190-203.

CarlockToyotaTupelo. (2012, July 16). 2010 Toyota Prius Harmony TV Commercial – Car lock Toyota of Tupelo [Video File]. Retrieved from https://www.youtube.com/watch?v=k9LqWd3kkkM

Dodds, W. B., Monroe, K. B., & Grewal, D. (1991). Effects of price, brand, and store infor mation on buyers' product evaluations. Journal of marketing research, 307-319.

Ethical Bean Coffee (n.d.). Retrieved from http://www.ethicalbean.com

Griskevicius, V., Tybur, J. M., & Van den Bergh, B. (2010). Going green to be seen: status, reputation, and conspicuous conservation. Journal of personality and social psychol ogy, 98(3), 392.

Heffner, R.R., Kurani K.S. & Turrentine T.S. (2007). Symbolism in California's early market for hybrid electric vehicles, Transportation Research Part D: Transport and Environ ment,12 (6), 396–413.

Hunt, N., & Dorfman, B. (2009, January 28). How green is my wallet? Organic food growth slows. Reuters. Retrieved February 20, 2009, from http://www.reuters.com

Kaptein, M., & Duplinsky, S. (2013). Combining multiple influence strategies to increase consumer compliance. International Journal of Internet Marketing and Advertis ing, 8(1), 32-53.

Laroche, M., Bergeron, J., & Barbaro-Forleo, G. (2001). Targeting consumers who are willing to pay more for environmentally friendly products. Journal of consumer marketing, 18(6), 503-520.

Loureiro, M. L., & Lotade, J. (2005). Do fair trade and eco-labels in coffee wake up the con sumer conscience?. Ecological Economics, 53(1), 129-138.

Maynard, M. (2007, July 4). Say 'hybrid' and many people will hear

'Prius.' The New York Times. Retrieved from http://www.nytimes.com

Mazar, N., & Zhong, C. B. (2010). Do green products make us better people?. Psychological science.

McCarty, J.A. and Shrum, L.J. (1994), ``The recycling of solid wastes: personal values, value orientations, and attitudes about recycling as antecedents of recycling behavior'', Journal of Business Research, Vol. 30 No. 1, pp. 53-62.

Nelissen, R. M., & Meijers, M. H. (2011). Social benefits of luxury brands as costly signals of wealth and status. Evolution and Human Behavior, 32(5), 343-355.

Plourde, A. M. (2008). The origins of prestige goods as honest signals of skill and knowledge. Human Nature, 19(4), 374-388.

Schwartz, S. H. (1994). Are there universal aspects in the structure and contents of human values?. Journal of social issues, 50(4), 19-45.

Tallontire, A., E. Rentsendorj, and M. Blowfield (2001), Ethical Consumers and Ethical Trade: A Review of Current Literature, Policy Series 12, Natural Resources Institute, Kent

Toyota Prius (n.d.). Retrieved from http://www.toyota.com/prius/

Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer "attitude–behavioral intention" gap. Journal of Agricultural and Environmental Eth ics, 19(2), 169-194.

World Bank (2003), ''World Development Report 2003'', in, Sustainable Development in a Dynamic World, Transforming Institutions, Growth and Quality of Life, New York: Oxford University Press for World Bank.

YogiTea (n.d.). Retrieved from http://www.yogitea.co

# Navigating healthcare systems: Is there a solution to healthy ageing?

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**Abstract**

*Across cultures and countries, people have different understandings of what health entails, so improving the health of the elderly would also mean improving different health factors. Universal health as a notion is an illusionary idea, because it is context-dependent. Countries face different issues with elderly populations, and so they have different objectives for their healthcare systems. Even when elderly populations have similar problems, the social, political and cultural differences between countries make the implementation of universal health measures impossible. Countries' healthcare systems are already different due to the different circumstances, and so healthy ageing should be promoted in a more localised fashion. Healthcare systems are not efficient in addressing local issues when the different understandings of health are not respected. For a healthcare system to work to its full potential, measures have to be adapted to local needs, local values, and local priorities. Healthy ageing might be a universal problem, but it has no universal solution.*

Health is essential to living. The international community acknowledges the importance of health by including health as a basic Human Right (Art. 25). Every community in the world needs to provide health to its members in some form of healthcare, addressing especially those vulnerable in society: the elderly and the young. As we have to deal with a growing elderly population, healthcare systems need to be increasingly adept at tackling issues that this proportion of our population faces. Healthy ageing is a term that has recently been coined to point at these issues. The term especially hints at the fact that adding extra years to our lives does not necessarily equate with being more active during those years (WHO, 2015b). One cannot say, however, that healthy ageing can be promoted in similar

ways across the world. After all, healthcare systems already differ between countries, and even defining what one regards as universal health is difficult. This paper investigates the struggle of localised universal health, and examines to what extent a universal approach to promoting healthy ageing is appropriate.

Health is a controversial topic because of its universal need, and its variety of implementations (Huber et al., 2011; "What is Health?", 2009). Due to changing views of political parties, cultural norms, values and social habits, countries address health issues in ways that fit their societies. Even though most countries face ageing populations, the health of these populations is addressed differently. Therefore, this paper argues that universal healthcare is problematic or even illusionary because of cultural, social and political circumstances. Every country needs an adapted programme to promote healthy ageing. The need for specific care is even strengthened by countries' diverse demographics. Naturally, universal programmmes do exist, and they will differ in practice (WHO, 2012; WHO, 2015a), but this paper argues that the very idea of universality is debatable. This paper regards healthcare as intrinsically local: the functioning of healthcare, its prioritisation of certain treatments and its response to critical situations depend on specific circumstances. Therefore, according to this viewpoint, healthy ageing cannot be promoted in the universal manner programmes like the Millennium Development Goals (MDGs) or Sustainable Development Goals (SDGs) advocate health.

There has been some criticism by scholars on the standard definitions of health (Huber et al., 2011; "What is Health?", 2009), but there has been little research on structural differences in conceptualising health and how these differences in turn affect the functioning of healthcare systems. This paper thus attempts to reconsider healthcare systems as structures that cannot be taken for granted, focussing on health of the elderly as a niche topic. Furthermore, the paper aims at challenging the reader on their belief in universal healthcare, because universality seems to be an assumption that is criticisable, yet often overlooked. First, the notion of health will be analysed. The concept of health can refer to different things, and so its conceptualisation influences prioritisation and implementation of healthcare policies regarding healthy ageing (Hurst, 1991; Kraaijvanger, 2014). In the second section the appeal of a universal healthcare system will be discussed, followed by an investigation of whether similar problems lead to similar solutions. Lastly, different healthcare systems will be elaborated upon, focussing especially on the Netherlands, the United States of America, Canada and Uganda. The different ways in which their healthcare systems are organised can shed light on how different conceptualisations lead to different approaches in healthcare systems, while also offering different roadmaps for addressing healthy ageing.

## I. The 'health' in healthy ageing

Health is a basic necessity of life, yet its meaning is not as clear-cut as one might assume. The seemingly universal concept is applied so diversely in different places that one is inclined to think that the meaning attached to the concept depends on context and culture. It seems that people in a certain place or a certain environment define health according to their necessities and values, indicating that health would be dependent on geographic location ("What is Health?", 2009). Moreover, when people rate their health, they are subjective in how they perceive their condition. In Idler and Benyamini's study, participants stated that their health depended on many things, and that how healthy they felt depended on the day and on what body part they were talking about (1997, p. 27). Health is thus not a state that can be decided upon externally, nor a state that is unchangeable. A universal notion of health, in similar sense, can hardly exist.

Initially, health was understood as a "state of being free from illness or injury" while also referring to "[a] person's mental or physical condition" ("Health", 2016). These are two different things, since being free from illness or injury might not necessarily mean one is in perfect health (Huber et al., 2011). Therefore, one might favour a broader definition such as the one the World Health Organisation (WHO) uses:

> *"[h]ealth is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"*
> (WHO, 2006, p. 1).

The WHO's definition was so broad that even though it was criticized on its open interpretation, the definition has not been amended since its formulation (Huber et al., 2011). However, this notion of health has its own problems, because it is unclear how it differs from well-being or quality of life (Peter, 2001). The WHO's definition might capture every person's understanding of health, but it might be less useful when implementing health policies, as a meaning so broad does not give a clear direction (Huber et al., 2011). The definition has also been criticised on the word "complete", because it medicalises health in the sense that many people who normally consider themselves healthy may be categorised as unhealthy (Kraaijvanger, 2014; "What is Health?", 2009). Ageing populations have chronic diseases that might not make the elderly very ill per se, but that do contribute to the elderly's medical histories.

When looking at health on a more local level, one can see that different communities have different understandings of what is means to be healthy (Farmer, Kleinman, Kim & Basilico, 2013). Communities' notion of health possibly includes spiritual health, mental health or group (social) health (Kraaijvanger, 2014; Maastricht University, 2014). What conception of health one prioritizes for a healthcare system should then depend on

the community, because a healthcare system addresses the problems that a community regards as detrimental to health (Frenk, 2010). If a community does not perceive depression as a problem of mental health, the solution should not be sought in the medical sphere. How a health problem is defined is thus related to how it is solved, as the health treatment should correspond to the health problem. Improving the elderly's health is dependent on the community in a similar way: health measures should treat those issues that the community regards as most pressing, or in other words, issues that the elderly regard as part of the healthcare system. Therefore, health and healthcare are intrinsically tied to and dependent on social surroundings ("What is Health?", 2009).

## II. Universal healthcare programmes

Healthcare mostly refers to the treatment of a large variety of diseases. The question is whether it is possible to implement one set of health measures that adequately responds to all diseases all over the world, or whether such a health system would be so elaborate and unspecific that implementation would never function. Organisations like the United Nations (UN) present health as an issue that can be addressed on a global scale: the MDGs and SDGs are the visible proof. Health is to be tackled by a global community, and the WHO has set a guideline of ways by which to approach it (WHO, 2015a). The way in which these health measures are implemented will differ in practice, but the idea behind them is universal none the less. It can be questioned why health measures are advocated in this universal manner when healthcare implementation is so different in different countries.

Universal healthcare measures seem appealing because of their global possibilities: the belief is that because they are universal, they can be implemented worldwide. These measures are specific enough to be attractive but vague enough to leave their practical implications up to governments and NGO's. Organisations like the UN strive for universal systems because it simplifies the task governments often face: pushing through changes in countries' healthcare systems. Publicised universal health measures to health problems should be solutions, exactly because the UN has promoted them as universal. They are designed to work everywhere, and so healthcare improvement seems easier: governments merely have to implement what the UN has set out for them. One such a project that did seem to be effective was the programme 'Health for All'. This programme did not involve governments, but it did, in contrast to most projects, take differences in health conceptualisations into account. The programme was by developed by the WHO and has been ongoing since 1979. The project views health as a flexible concept, thus taking local wishes and restraints into account

when implementing measures (Taylor, 1992). Inequality and access to health services are viewed as part of the basic health necessary for citizens to enjoy life. Another action the WHO took to ensure the project's success was the project's response to situational changes and epidemics, thus shifting the priorities of the project to what was urgently needed (Taylor, 1992). Whereas 'Health for All' did take social contexts into account, usually healthcare measures are not localised. Even governments tend to ignore this basic step when organising their public healthcare systems, in the name of unification and ease of administration (Taylor, 1992). Accordingly, adequate responses to growing elderly populations are often lacking.

Just as much as anyone else, the elderly want and need to be in good health too. As people age, a variety of problems loom: memory loss, heart problems, dementia, and many more. Even though many of these problems are seen on a wider span of time and space, it does not seem like all elderly are affected by the same set of diseases. Whereas in developing countries elderly are still feeling the burden of infectious or communicable diseases such as lung infection or malaria, elderly in first world countries mainly face diseases such as diabetes, cancer and Alzheimer's (WHO, n.d.). Nevertheless, these diseases have also reached the developing world, creating a double burden – as elderly have to treat them next to communicative diseases that are typical for the mostly tropical regions (WHO, n.d.). The double burden does mean that elderly across the world face similar diseases coupled with ageing – the chronic diseases-, at least next to illnesses specific to regions or developmental status (WHO, n.d.). This realisation means that certain measures could be effective beyond country boundaries: different healthcare systems could possibly implement similar measures advocating healthy ageing. However, implementing measures across borders does not immediately mean a universal system would also be appropriate. This assumption is crucial, because it means measures that are country specific can be implemented elsewhere, yet they are not universal.

The solution for promoting healthy ageing is thus not simple in the sense that one can design a universal measure and implement it afterwards. One can only start local and relatively small, after which, if successful, the measure can be transported to another region facing a similar problem. Even then, the measure cannot be implemented right away – taking a health measure to another region does not mean implementing it without adaptation to local values. Social, political and cultural values in which a healthcare system functions cannot simply be ignored ("What is Health?", 2009). A health measure taken from another region can be used as inspiration, or as a role-model, but it will have to be remodelled to local values in order to be most effective (Frenk, 2010). Healthcare systems are not different without a reason; therefore, governments

cannot simply take a WHO advice on a measure and implement it directly. The argument is that local differences will make health measures intrinsically local, because even if the healthcare system's target group (the elderly) is facing similar diseases as the elderly in another region, the success of the health measure will depend on how well local needs are catered to.

## III. Similar problems, similar solutions?

Improving the increasingly longer life of the increasingly larger older population seems to be an issue many countries are facing. Often quoted is the (approaching) burden healthcare systems have to bear, pointing at the strain that elderly are likely to bring to healthcare systems regarding their capacities and needs. A larger proportion of the population being older explains why: the working force decreases in size, while the amount of people that needs care increases (WHO, 2015b). Fewer people have to generate the capital to pay for the healthcare of a larger amount of older people, diminishing the resilience and productivity of healthcare systems. The WHO points out that current healthcare systems are often not adept to the increasing elderly population, and already-stressed healthcare systems in developing countries cannot carry the abovementioned double burden that is currently taking its toll on vulnerable populations (Huber et al., 2011; WHO, 2015b). Yet, as mentioned before, many populations in the world are ageing, and so many countries in the world will have to find ways to promote healthy ageing.

Surprisingly, where one would think that countries with similar health problems would have similar healthcare systems, nothing seems to be less true than that. Canada and the Netherlands, for example, foster very different healthcare measures even though they have experienced similar economic growth and socio-political development (Hurst, 1991). This contradiction indicates that there might be other reasons than developmental status for the diversity in healthcare provision: whether that is social, political or cultural (Hurst, 1991). There does not seem to be one clear answer to why the differences persist. Is it because of their political ideologies or because of a different understanding of health (Farmer, Kleinman, Kim & Basilico, 2013)? An answer might be found when comparing the different healthcare systems concerning their applications of health and their objectives (Frenk, 2010). What is clear, though, is that because of these differences, healthy ageing cannot be promoted in a universal fashion, simply because each 'universal' method would have to be tailored to every country's specific healthcare system in order to be implemented effectively.

Universally advocated measures do not only need to be implemented differently between countries, also within countries inequalities exist that diminish the effectiveness of healthcare measures.

Countries that struggle with inequality, such as the United States of America (USA), often see differences between groups reflected in different demands and needs for healthcare (Van Ginneken, Swartz & Van der Wees, 2013). In order to solve this problem of inequality, the USA started to look at Western European countries such as the Netherlands (Van de Ven & Schut, 2008). Every healthcare system has a particular understanding of health that forms its foundation, yet most countries do not address this foundation when looking at each other as examples. What is included and excluded by a healthcare system is strongly influenced by this foundation, and thus this ignorance is problematic (Huber et al., 2011; Kraaijvanger, 2014). The problematic shows when one country adopts measures used in another country: the copied measures do not work out well because circumstances are not alike.

## IV. Country-specific healthcare

Healthy ageing thus needs to be addressed country-specific, still, there are countries that inspire others with their healthcare models (Frenk, 2010). The Dutch healthcare system is interesting because it is an "efficient, universally-accessible system that has successfully integrated a strong competitive market component into it" (Tunstall, 2014, "Overview"). The Netherlands is the only country in the world that has integrated Alain Enthoven's theory of managed competition into its basic healthcare system. This theory has set out a competition of healthcare insurers according to the free market principle, however, the insurers are ultimately regulated by the state (Enthoven, 1978; Tunstall, 2014). The insurance companies cannot turn new applicants down: they must accept every one, and demand a set price per region that cannot be changed personally. This means that the Dutch healthcare system is relatively accessible (Tunstall, 2014). Furthermore, there is financial help provided by the government for those with an income too low to afford health insurance (Tunstall, 2014). Finally, a small percentage of a worker's salary is deducted to contribute to the long term care and risk adjustment system that is used for vulnerable groups such as elderly (Van de Ven & Schut, 2008). This means that the cost of elderly care is a shared responsibility of the entire working force, as is typical of a welfare system. Hence, a stability or potential reduction of costs will be enjoyed by everyone, meaning that healthy ageing is likely to be promoted nation-wide.

When comparing the Dutch healthcare system to the American system, opposite strengths and weaknesses can be witnessed (Davis, Stremikis, Squires & Schoen, 2014; Van de Ven & Schut, 2008). When one looks at access to healthcare and consumer choice, the Dutch system performs better, because the USA is severely lagging behind on basic health insurance coverage (Davis, Stremikis,

Squires, & Schoen, 2014). However, the challenge of the Dutch system is "to create integrated delivery systems that provide high-quality care in response to consumers' preferences" whereas in the US this integration is well-developed (Van de Ven & Schut, 2008, p. 780). Whether these systems could be combined to create a healthcare system that scores high on all aspects remains an open question (Van de Ven & Schut, 2008). For now, it seems to be a question of prioritizing. According to Kapiriri and Norheim, "[p]riority setting is one of the most important issues in healthcare policy because no health system can afford to pay for every service it wishes to provide" (2004, p. 172). Scandinavian countries try and do indeed perform quite well, but their health services are expensive in return, and thus those countries must compromise on other public expenses (Davis, Stremikis, Squires, & Schoen, 2014). Canada's health indicators show that the Canadian government prioritises equity (Canadian Institute for Health Information, 2011, p. ix). Yet, the country is lacking in several other aspects of health, such as patient-centred care, safe care and efficiency (Davis, Stremikis, Squires, & Schoen, 2014).

These different ways of providing healthcare may be assigned to the different objectives that countries foster for their healthcare systems (Hurst, 1991). The basic goals of health services may be shared – such as accessibility, adequacy and efficiency- but the main health concerns differ, especially between developing and developed countries (Farmer, Kleinman, Kim & Basilico, 2013; Hurst, 1991). It might therefore be no surprise that Uganda's healthcare system is very much focussed on sanitation and communicable diseases such as AIDS and tuberculosis, which can be concluded from the main programs run by the Ministry of Health of the Republic of Uganda (Ministry of Health, 2015; Kavuma, 2009). On the contrary, the Netherlands is mainly concerned with smoking, excessive drinking and sport; health issues that are of a very different dimension than those in Uganda (Meessen, Van Damme, Tashobya & Tibouti, 2006; Rijksoverheid, n.d.). Promoting health at an older age will thus also concern these issues that are deemed important by the population and the government, with health measures targeting those issues that elderly are particularly weighed down by. Consequently, healthy ageing might need to be stimulated in Uganda by installing AIDS-related programmes, while this would hardly be necessary in the Netherlands.

Instead of looking at the rather obvious differences in healthcare systems between Uganda and the Netherlands, one might find it interesting to look at two developed countries, such as the Netherlands and Canada. These countries, quite similar in terms of life expectancy, income, equality and quality of living, nevertheless have different healthcare systems (United Nations Development Programme, 2014). There are many reasons that could be lying at the origin of the divergence: the history of the countries, their political ideologies or their number

and involvement of inhabitants. What the differences do show are the different mind-sets regarding healthcare, across countries with different development levels, logically, but also across countries with similar levels of prosperity. What follows is that measures of healthy ageing are as context-dependent as is healthcare in general. The Dutch system is successful in addressing different needs within this context – and thus scores high on accessibility - yet it does not provide the ultimate solution.

## V. Conclusion

Whereas healthy ageing is a relatively recent point of interest, our healthcare systems have had time to develop. Yet, this paper has seen that even developed countries like Canada or the Netherlands have difficulties in designing a holistic healthcare system that does justice to all. Healthy ageing is thus likely to become a challenge, forcing the systems to cater to the needs of more elderly when working forces are declining, and the systems already under stress. Universal health measures like the UN advocates under banners of MDG's or SDG's are not the solution, however. Healthcare systems need to locally respond to diseases or issues the elderly are facing, depending on what is considered part of healthcare treatment, and how health is locally conceptualised. Similarly, promoting healthy ageing will only be effective if health measures are adapted to local values, and measures can thus not be extended across social, cultural and political boundaries without tailoring to local systems.

People in different countries perceive health differently, their healthcare systems work differently, and their systems prioritise different diseases and set different objectives. Hence, a universal approach to healthy ageing is hardly possible, despite organisations' advocates of health measures on a global scale. Measures that might work in one country need not be extendable into other countries, even when both are facing an ageing society. The differences in development of countries like Uganda and the Netherlands help to explain why their healthcare systems differ, but more research is needed to clarify how these differences change the implementation programmes concerning for example healthy ageing. These differences show that universal health is an illusionary idea, even though the basis on which it rests remains its global importance: health as a human right. For promoting healthy ageing one cannot rely on this foundation, because healthy ageing is an issue that is to be promoted through an existing system: the healthcare system. For this system, social, political and cultural context are determining factors of the functioning and effectiveness, and so should be taken into account.

This paper has addressed differences between healthcare systems, but future research could look into what exactly causes these differences, especially

if it concerns differences between two developed countries. Finding out why these deviations occur might also act as a guideline for tailoring health measures concerning healthy ageing. Research on these differences is important because healthcare services make up a significant part of countries budgets, so policy makers will find it helpful to know how healthcare measures can be made as effective and efficient as possible. In line with the needed response to ageing populations, health measures will have to become integrated in local systems, in order to alleviate the burden on the working force. For happy and healthy elderly, healthcare should be considered in its local context, because that is where all contextualisation of health begins.

# References


Canadian institute for Health Information. (2011, June). Health Indicators 2011: Definitions, Data Sources and Rationale. Retrieved from http://publications.gc.ca/site/archiveearchived.html?url=http://publications.gc.ca/collections/collection_2011/icis-cihi/H118-65-2011-eng.pdf

Davis, K., Stremikis, K., Squires, D., & Schoen, C. (2014). Mirror, mirror on the wall. How the Performance of the U.S. Health Care System Compares Internationally. New York: CommonWealth Fund. Retrieved from http://www.commonwealthfund.org/publications/fund-reports/2014/jun/mirror-mirror

Enthoven, A.C. (1978). Consumer-Choice Health Plan: A National-Health-Insurance Proposal Based on Regulated Competition in the Private Sector. New England Journal of Medicine, 298(13), 709–720.

Farmer, P., Kleinman, A., Kim, J., & Basilico, M. (Eds.). (2013). Reimagining global health: an introduction (Vol. 26). University of California Press.

Frenk, J. (2010). The global health system: strengthening national health systems as the next step for global progress. PLoS Med, 7(1), e1000089. doi: 10.1371/journal.pmed.1000089

Flood, C. (n.d.).Why Canada shouldn't compete with the U.S. for the worst performing health system in the developed world. Retrieved from http://umanitoba.ca/outreach/evidencenetwork/archives/19414

"Health." (2016). In Oxford Dictionaries [online]. Retrieved from http://www.oxforddictionaries.com/us/definition/english/health

Huber, M., Knottnerus, J. A., Green, L., van der Horst, H., Jadad, A. R., Kromhout, D., ... & Schnabel, P. (2011). How should we define health?. British Medical Journal, 343, 1-3. doi: 10.1136/bmj.d4163

Hurst, J. W. (1991). Reforming health care in seven European nations. Health Affairs, 10(3), 7-21. doi: 10.1377/hlthaff.10.3.7

Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: a review of twenty-seven community studies. Journal of health and social behavior, 21-37.

Kapiriri, L., & Norheim, O. F. (2004). Criteria for priority-setting in health care in Uganda: exploration of stakeholders' values. Bulletin of the world Health Organization, 82(3), 172-179. Retrieved from http://www.scielosp.org/scielo.php?pid=S0042-96862004000300006&script=sci_arttext&tlng=e

Kavuma, R. K. (2009, April 1). Uganda's healthcare system explained. Retrieved from http://www.theguardian.com/katine/2009/apr/01/uganda-healthcare-system-explained

Kraaijvanger, C. (2014). Definitie van gezondheid luidt vanaf vandaag anders. Retrieved March, 21, 2017 from https://www.scientias.nl/definitie-van-gezondheid-luidt-vanaf-vandaag-anders/

Maastricht University. (2014). Nieuwe definitie van gezondheid ontwikkeld. Retrieved April, 20, 2016 from http://www.maastrichtuniversity.nl/web/Main1/SiteWide/SiteWide4/NieuweDefinitieVanGezondheidOntwikkeld1.htm

Meessen, B., Van Damme, W., Tashobya, C. K., & Tibouti, A. (2006). Poverty and user fees for public health care in low-income countries: lessons from Uganda and Cambodia. The Lancet, 368(9554), 2253-2257. Retrieved from http://dx.doi.org/10.1016/S0140-6736(06)69899-1

Ministry of Health (2015). Ministry of Health Programs. Retrieved from http://www.health.go.ug/programs

Peter, F. (2001). Health equity and social justice. Journal of applied philosophy, 18(2), 159-170. doi: 10.1111/1468-5930.00183

Rijksoverheid. (n.d.). Organisatie. Retrieved from https://www.rijksoverheid.nl/ministeries/ministerie-van-volksgezondheid-welzijn-en-sport/inhoud/organisatie

Taylor, A. L. (1992). Making the World Health Organization work: a legal framework for universal access to the conditions for health. Am. JL & Med., 18, 301. Retrieved from http://heinonline.org/HOL/Page?handle=hein.journals/amlmed18&div=24&g_sent=1&collection=journals

Tunstall, L. (2014, November 10). Fiche d'information : Le système de santé des Pays-Bas. Retrieved from http://umanitoba.ca/outreach/evidencenetwork/archives/21543

United Nations Development Programme. (2015). Human Development Report 2015: Work for Human

Development. Retrieved from http://hdr.undp.org/en/2015-report/download

Van Ginneken, E., Swartz, K., & Van der Wees, P. (2013). Health insurance exchanges in Switzerland and the Netherlands offer five key lessons for the operations of US exchanges. Health Affairs, 32(4), 744-752. doi: 10.1377/hlthaff.2012.0948

Van de Ven, W. P., & Schut, F. T. (2008). Universal mandatory health insurance in the Netherlands: a model for the United States?. Health Affairs, 27(3), 771-781. doi: 10.1377/hlthaff.27.3.771

Wagstaff, A., Van Doorslaer, E., Van der Burg, H., Calonge, S., Christiansen, T., Citoni, G., ... & Johnson, P. (1999). Equity in the finance of health care: some further international comparisons. Journal of health economics, 18(3), 263-290. doi:10.1016/S0167-6296(98)00044-7

"What is health? The ability to adapt." (2009). [editorial]. The Lancet, 373, 781. Retrieved from http://www.download.thelancet.com/pdfs/journals/lancet/PIIS0140673609604566.pdf

WHO. (n.d.). The global burden of chronic. Retrieved from http://www.who.int/nutrition/topics/2_background/en/print.html

WHO. (2006). Constitution of the World Health Organization. Retrieved from at www.who.int/governance/eb/who_constitution_en.pdf

WHO. (2012). Health: essential for sustainable development. United Nations resolution on universal health coverage. Retrieved from http://www.who.int/universal_health_coverage/un_resolution/en/

WHO. (2015a). MDGs: progress made in health. Retrieved from http://www.who.int/topics/millennium_development_goals/post2015/en/

WHO. (2015b). Number of people over 60 years set to double by 2050; major societal changes required. Retrieved from http://www.who.int/mediacentre/news/releases/2015/older-persons-day/en/

# Renewable energy transition Australia 2040

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**Abstract**

*This paper examines the transition to renewable energy within the context of a nation-state using Australia as case study. Both the Australian government and independent energy agencies have the potential to drive the transition as forerunner, with societal support. After determining currently ongoing initiatives, a framework is established for carrying out a hypothetical Integrated Sustainability Assessment. Both the theoretical framework and practical guide to implementation are presented in several stages: Stakeholder Analysis, Public Consultation, Modelling, Stakeholder Conference, Scenario analysis and lastly Monitoring and Evaluation. Finally, insights from the case study are translated into a synthesis of ideas for promoting country level renewable energy transitions.*

The Australian government is among the most ambitious with regard to renewable energy targets. Currently, ten per cent of Australia's energy comes from renewable energy sources (RES). By 2020, this should reach twenty per cent according to the Renewable Energy Target, or RET (Australian Government Department of the Environment and Energy, n.d). Research teams, both governmental and independent, have concluded that a complete transition is technically achievable and economically feasible (Elliston et al., 2013; The Greens, n.d.; Hugh et al., 2006). A Roadmap report of the Australian Greens concludes that this transition is possible. Its costs would be similar to the cost of replacing ageing fossil fuel plants. Several governmental institutions have been established to guide the transition from conventional to renewable energy sources. Their main aim is to build the energy infrastructure that is going to determine the energy market in several decades' time. Two of these agencies, the Australian Energy Market Operator (AEMO) and Clean Energy Finance Corporation (CEFC), are the

problem-owners of the case study outlined in this paper.

Strikingly, the Abbot government has recently halted the progress to meet the RET for 2020. There are considerations to scrap the target and accompanying financial assistance (Su, 2014). The proposal in this paper is set in a hypothetical situation: two of Australia's largest independent energy agencies have called for a complete Integrated Sustainability Assessment of plausible pathways to a fully renewable energy sector by 2040. The primary stakeholders of both agencies are investors and energy companies. Secondly, researchers and consumers can also be considered stakeholders. Even without further government initiative, the agencies are interested in a feasibility assessment which does not only assess economic benefits, but also social and environmental risks. In a country already affected by climate change, there is a strong intention to become more sustainable. Furthermore, Australia's climatic and geographic situation promise extremely high potential for a variety of profitable RES (Hearps & Wright, 2010). Existing wide scale solar plants have proven to be a success; Australia is ready to scale up RES as long as the benefits outweigh social or environmental disadvantages. This paper proposes steps of an ISA based on the Australian case study. Without carrying out the actual ISA a theoretical framework is provided.

First, the main question of the Integrated Sustainability Assessment proposal is discussed in context. Secondly, the proposed ISA stages are described. A knowledge basis for executing the different stages is included per stage. Finally, the proposal is concluded with a synthesis of ideas working towards a framework for country level RE transition.

## I. Outline context

Climate change and the resulting consequences are among the biggest challenges of this era. Mitigation and adaptation are increasingly becoming priorities of governments worldwide. Environmental NGOs sound the alarm as the scenarios in IPCC reports become more alarming with each publication. The emission reduction targets (ERT) under the Kyoto protocol are not expected to result in the two degree global warming target as agreed upon during the COP in Copenhagen. Some countries take measures into their own hands, setting themselves higher targets and actively promoting the transition to more sustainable practices, especially in the energy sector.

It is expected that these trends will lead to increasing carbon pollution costs, while renewable energy is getting cheaper. According to the Australian Greens' Roadmap report, another desired side effect is the creation of jobs, because renewables employ more people on average. However, the report does not take into account citizens that will have to live with RE installations in their backyard.

Also, environmental compatibility is not assessed. The report does not give a complete overview of the three pillars to assess RE potential as defined in the World Energy Council Report, namely geographical potential, technical potential and economic potential (De Vries et al., 2007). The ISA outlined in this paper loosely works within these three definitions and relating mathematical formulas in order to create backcasting scenarios. The end point of the scenarios is identical, namely a 100% domestic renewable energy production. Different pathways to this end, from 2014 to 2040, are explored.

As the assessment of technical and economic potential of RES in Australia is already thoroughly documented, existing research can be used in the ISA. New knowledge is generated in the area of social and ecological implications of a large scale energy transition. Thus, the ISA is meant to identify possible constraints of scaling up RES, constraints which may not previously have been considered. A challenge frequently named is the vast amount of land required to produce alternative energy. Renewables must compete with humans, nature and agriculture. Other key variables are disturbances to ecosystems or settlements, the use of water, materials and possible negative impacts on the global climate system. These and other issues are included in five to ten scenarios using a combination of stakeholder dialogue, observational data and mathematical modelling. Consumption and transportation is not taken into account. The focus is on the process of production, extraction, storage, maintenance and replacement of machines.

Thus, this case study aims to assess plausible pathways towards a 100% renewable energy target by 2040 as well as the respective consequences for Australia's quality of life, environmental quality and economic vitality. Sub questions of the problem description are to be refined by the research team during the execution of the proposed ISA.

## II. Stage I. Stakeholder analysis

Crucial stakeholders in the energy sector are the two problem owners, AEMO and CEFC. AEMO is the body advising on planning and operating the National Energy Market (NEM). As independent agency it ensures the long-term security and quality of the NEM in the interest of its members, the Australian consumers. By commission of the national government AEMO has conducted a study on energy transition (AEMO, 2013) including a Working Group for scenario development (See Appendix I). Similar in status, CEFC is an independent, commercially oriented agency initiated by the national government. Its main stakeholders are investors, businesses and scientists in the field of Research and Development (R&D) of clean technology. The CEFC prioritizes investment that

generates social, environmental and economic benefits, accelerating a transformation in the energy sector.

In reaction to the government's diversion from its initial renewable energy target, the two clients wish to show commitment to the intentions of the 2011 Clean Energy Future Plan. Their main aim is to raise awareness and understanding in diverse fields of actors. Ultimately, the process of envisioning alternative futures should inspire thought, debate and action on all levels of society. Therefore, the widest variety of stakeholders must be mapped and involved in the ISA. Stakeholders are distinguished according to the five categories defined by Grosskurth and Rotmans (2005), namely businesses, interest groups, citizens, government and scientific experts. In Appendix II, critical actors on the list of relevant Australian entities are underlined. During the research process, until Stage IV, stakeholders are mapped in an interest-power matrix in order to identify players, subjects, context setters and 'the crowd'.

Due to the interesting possibilities of small-scale RES in a smart grid, any Australian citizen is a potential player. The group of citizens can be represented in two ways. Stage II focusses on individual citizens from different parts of society, whereas later stages only involve consumer interest groups. Taking an imperative approach, citizens are identified as actors who feel strongly enough about the issue to act on their feelings, whereas others may be guided by rational considerations such as economic interest (Enserink et al., 2010). The category 'businesses' includes energy producers (including transmission) and their associations as well as investors and their associations. Following the 'positioning approach', the government and related independent agencies such as AEMO are identified as actors with a formal position in policymaking (Enserink et al., 2010). The current Abbot government has a role of opinion leadership. 'Scientific experts' include R&D scientists as well as scientists in the fields of environment and social sciences. 'Interest groups' represent the interest groups which are not in one of the four other categories. A division can be made between environmental NGOs, regional NGOs and NGO's representing, to a certain extent, the interest of future generations, namely youth NGOs.

The list of actors is to be revised and completed during the research process. Critical actors are invited to the conference in Stage II. Special cooperation may be appropriate in the case of the Clean Energy Regulator, the agency which administers the National Renewable Energy Target. Furthermore, assistance during the ISA process may be required from the Southern Australian initiative called Renewables SA and an energy modelling company called Roam Consulting.

## III. Stage II. Public consultation

At the start of the ISA, the researchers reach out to the general population to brainstorm about drivers, actors and critical uncertainties with reference to the framework established in this proposal. The initial focus is relatively local, with the aim of mapping fears and expectations of communities. This stage is important for the creation of ambassadors and possible buy-in. The research team accesses local and specialized knowledge. Even though formal power rests with the government, the citizens elect the executives and select energy providers. Commitments of civil society can bring about major changes, in which case citizens can be identified as actors rather than subjects. In this case, it is in the power of citizens to act by using rooftop solar power and solar hot water, for example.

Public consultation meetings are hosted by local organizations contacted by the researchers for collaboration and promotion purposes. An open, friendly and creative environment is necessary. This could be achieved for example by involving schools. The youngest children could be asked to draw their neighbourhood in 20 years; the results can be used for promotional material. Other educational projects could include small modelling or scenario building exercises, possibly under the umbrella of a regional competition. An inclusive approach gives the project a human face.

Thus, the interest of children and parents could be triggered. At the meetings, three steps are made. Firstly an actor analysis is done. This includes power-interest matrixes on the basis of resource inventories, subjective involvement and interdependencies. Secondly, drivers, critical uncertainties and indicators are identified in an interactive manner, which may result in simple causal models. In stage II, finally, the initial problem as defined by the researchers is altered using the meeting's findings. This step also functions as a partial baseline survey to explore the consequences of the introduction of the MET in 2001 until today. Experiences of the people living in the area affected by the RES are documented this way. This baseline survey functions as starting point for the research team to update an existing Reference Scenario from AEMO (AEMO, 2014). This reference scenario then forms the baseline of the different scenarios developed in later stages.

In this public consultation stage, participation is used for mapping out diversity and exploring tacit knowledge. The main aim is inspire, raise awareness and equip dedicated citizens with the tools, knowledge and network to initiate further action. Empowerment and involvement of energy users creates a common ground for possible changes, as well as understanding of the final results of the ISA. It is important to include also the next generations of citizens, sparking the curiosity of younger age groups or students. This aspect contributes to the

long-term 'sustainability' of the project as a whole. In this context, possibly one or two local experts are invited for a presentation with Q&A session. The domains of UNEP 'GEO-3' scenarios are introduced to the public in order to provide ideas, respectively: Socio-political frameworks and institutions, demographics, markets and trade, value systems, and lastly scientific innovation. The approach of this stage is unique in the sense that the general public is given the opportunity to be part of the research, whereas oftentimes the balance of representatives is on the side of economic interests.

Outcomes can have all sorts of formats, varying according to the scope of each local meeting. The local organizations then summarize the conclusions by filling out a standardized online questionnaire. The results are visualized in tables and graphs after statistical analysis. In the extraordinary case of crucial information lacking in the survey, this is noted in the last question which provides room for comments. This format of simplification is necessary to process the data efficiently in the research. Nevertheless, the most important results of Stage II are ideas, visions, contacts and the possible (educational, community etc.) projects being set up. An executive summary of the ISA is handed out to all local organizations who hosted the public consultation. During the consultation progress, possibly groups could be formed who commit themselves to communicating the final results in a parsimonious manner to the participants. These groups elect representatives for a 'citizen focus group' in Stage IV.

## IV. Stage III. Modelling

The results of the statistical analysis in Stage II are part of the subsequent study, both theoretical and practical, which prepares a basis of information for later focus groups. At this stage, the researchers may refer to the reading list (see Appendix IV) and explore both existing models and case studies of other countries. Earlier empirical work and data from current large-scale RE projects are searched for data in all three domains. In case of existing large-scale RES, effects on local nature and wildlife are assessed by a visiting team if such data is missing. Expectations of this stage are now discussed to establish a framework.

The potential of six categories of renewables is assessed, respectively biomass, hydroelectricity, solar-, marine-, wind-, and geothermal power. Existing empirical work is analysed to identify generalized numbers with regard to material inputs and socio- environmental implications per kilowatt hour of energy produced. In the domain of environmental impact, the focus is on air pollution, water pollution, water use, waste generation, greenhouse gas emission and land requirement. Environmental degradation and climate change are inputs. The economic variables are market prices, national energy stability and security, stranded assets and overall economic

vitality. The institutional dimension covers both regional and local policies regarding energy, ETS, carbon pricing, environmental protection, RET etc. Social effects include health effects, possible undesired disturbances in surroundings of inhabited areas, employment and possible (cultural) benefits for local communities. Inputs are lifestyle and consumer behaviour.

The researchers collaborate closely with representatives from AEMO and CEFC. AEMO annually publishes National Electricity Forecasting reports including extensive analysis of input assumptions (AEMO, 2013) and a number of 2014 scenarios (See Appendix II). However, these scenarios focus only on the economic domain. The outcomes were mainly limited to the rise and fall of GreenPower sales, not including wider environmental or societal impacts. The ISA partly builds on findings of these reports. It includes assumptions regarding both large-scale renewable energy targets (LRET) and small-scale renewable energy targets (SRET). The LRET is defined by AEMO as main policy driver, while the carbon price has less impact on investment (AEMO, 2014). Next to annual reports, findings from AEMO's public consultation program can be used (AEMO, 2012).

In a first attempt to model interdependencies in the energy market, all four dimensions of uncertainty as identified by Rotmans and Van Asselt (2001) are integrated, respectively social, economic, environmental and institutional uncertainties (See figure 1). This model should be further extended and deepened by the research team. In addition, data from the International Futures Model can prove helpful (See Appendix III). This online scenario development software functions as example to translate the causal model into a simple, static, interactive computer model. This can be categorized as 'modelling for vision-building', to structure the problem and identify possible measures. When completed, the created program is peer-reviewed by a group of modelling experts. The computer model embodies a scenario framework which the consequent ISA stages are building on.

In order to assess the potential of RES, the focus of the model is determined three concepts, namely geographical potential, technical potential and economic potential. De Vries et al. (2007) define geographical potential as the energy flux that is theoretically extractable in areas considered available and suitable. The formula of technical potential takes into account also losses of the conversion, see figure 2 (De Vries et al., 2007). This formula serves as guideline for input variables in the model. Furthermore, it can be used to establish input numbers per RES which are run through the models in order to create scenarios.

The variables fi and Di include social and socio-geographical factors, respectively location, acceptability and social constraints, such as wind park density. Moreover, physical- geographical parameters, such as terrain, habitation and biomass yields complement these factors. Thus, the interactive computer

model includes all possible RES that have enough potential for scaling up by 2040. As input, it is possible to select any combination of RES percentages, always adding up to 100% RE. The abstract consequences of different scenarios can be explored in a strictly quantitative manner. This is done in stage IV. The model can be considered a policy optimization model (Rotmans & Van Asselt, 2001), as it explores different pathways to a set goal. It has hybrid characteristics in the sense that it combines biophysical models with social models. The economic supply and demand system is not elaborated on. On the level of individual RES, new insights from modelling can be used for energy transition planning projects in different world regions. The complex model that integrates the feedbacks between the different RES and other variables is specific to Australia.

## V. Stage IV. Stakeholder Conference

The 'envisioning stage' of the ISA starts in Stage IV, continuing in stage V. The modelling exercises in the previous stage can be used to identify and analyse possible pathways to achieve a 100% renewable energy target in Australia by 2040. This stage brings together tacit and explicit knowledge, powerful companies and smaller interest groups, in order to eliminate risks. The expectations of stakeholder participation in this stage should be clearly communicated to the various groups by the researchers. Simpson and Clifton (2014) conclude that extensive consultation of agents in Australia regarding the MET may lead to negative externalities such as a loss of investor confidence; this should be reduced, primarily through transparency. Since the government is currently reconsidering its plans regarding the NRET, there may not be direct results in policymaking. This stage is aims at creating a shared understanding among stakeholders.

Upon finalisation of the model, it is presented to several national focus groups consisting of maximum twenty individuals representing an interest group. The various focus groups arrive at a conference together, but are split part of the time. During this full day program, experts are asked to explain the key considerations of the region in a small presentation with Q&A possibility. Experiences from existing RE production methods are mentioned to get an overview of specific effects on the local population, flora and fauna. If research and development is currently in an early phase, then experts are asked to summarise findings and explore the probability of opportunities. Although these insights are considered by participants, the general model at the basis of the program is stochastic. The main outcomes from the public consultation are presented and evaluated. Definite critical uncertainties are defined per focus group, possibly including technology, energy prices and policies.

This stage develops narratives for different backcasting scenarios using the knowledge presented during the conference as well as the interactive computer model developed in the previous stage. The development of scenarios of Australia's RES by 2040 builds on a workshop prepared by the research team. In this 'experimenting stage', scenarios clarify the potential interactions between the three pillars. The model and summary of assumptions serve as communication tools in stakeholder dialogues. Participants can then try different combinations of scaled up renewables and discuss the consequences of these pathways more elaborately in order to choose one scenario.

Each focus group presents the scenario it has chosen and elaborations on the reasoning behind it. Clear instructions are given on the content and format of this presentation. It should include a comparison of the impact of the chosen scenario versus the others. Why did the group believe the total impact of a certain pathway was most convincingly positive and for whom? The primary concern is that of direct, regional impacts such as biodiversity loss. In the later stage, scenario narratives are finalised by fitting the initial 'complicated' model into a more 'complex' and dynamic one, dealing with feedbacks in a local as well as a global context.

After the different groups have presented their chosen pathway, a debate is organized to select with five to ten final scenario frameworks. The participants will then write a concise report per scenario in mixed groups. This forms the basis for the research team to build detailed versions and thoroughly analyse the scenarios. In this stage, participation is used to a certain extent to reach consensus regarding medium-term regional scenarios.

## VI. Stage V. Scenario analysis

Modelling experts are consulted to integrate the scenario frameworks from Stage IV into more extensive quantitative backcasting scenarios. Scenarios are necessary because of high uncertainties, such as behavioural variability, techno-logical development and policymaking decisions. Formal, complex decision support scenarios are necessary for this multi- dimensional, multi-scale tangled web of problems (Van Notten et al., 2003). The main task is to combine newly generated knowledge with already existing models and the updated reference model. In all cases, validation through model performance tests is required. The NUSAP method is used for the management of uncertainty and quality of quantitative information. GAINS and PROMETHEUS are used to simulate influences from the earth system impacting the region Australia. At this point, scenarios should include both biophysical and socio-economic models, with a hybrid result. The outcome is less comprehensible for the wider public than the models and

scenarios used and developed until this point in the ISA.

As with all ISA projects, difficulties arise with the transgression of time-scales, spatial scale- levels and domains. Scenarios are not predictions. Models are mostly deterministic. As for the scenarios, key expectations are discussed here. Renewables are expected to cover a larger surface area than the conventional energy sources they replace, emit less greenhouse gases and produce less waste. The least cost scenarios of Elliston et al. (2013) rely mostly on wind and solar power, as do AEMO scenarios (AEMO, 2014). Zahedi (2010) identifies a trend of fast growth of these RES in Australia. If technology furthers, Australia's climate is particularly suited for algae production and solar power, two highly efficient types of RES. Commercial-scale solar power plants are a reality in Australia today, roof top PV is increasingly popular among the population. In terms of consequences, algae are interesting due to high yields and the possible use of waste heat, waste fertilizers and wastewater, reducing use of water, nutrients and energy.

The task of the research team is to translate the quantitative scenarios into visually attractive narratives, while clearly addressing input assumptions. The scenario analysis should be presented as appropriate to guide decisions of investors, companies and eventually the government. This includes a report, an executive summary and an explainer video for all who participated in the conference. These resources are also received by the regional organizations hosting the public consultation. It is left to them to spread this knowledge, stimulating engagement in the process of change that was triggered during Stage II. It is in this way that the two ultimate aims of scenarios are achieved.

## VII. Stage VI. Evaluation and Monitoring

In this final stage, a framework for monitoring is established, which can be used to administer national planning and reliability. The baseline for this framework is the Reference Scenario. Parsimonious policy evaluation scenarios until 2040 are defined. It is not the task of the research team to regularly update these scenarios, only to establish the quantitative computer model. In essence, this is a simplified version of the extensive model developed in Stage III, refined with the experiences that were shared during the stakeholder conference and expert scenario analysis. Its format is similar to the International Futures Model, notwithstanding less comprehensive. It resembles a regional input-output model. The data has to be updated by an agency with a grasp of nationwide trends, the most obvious being AEMO, CEFC or a governmental department. The outcomes are to be made public to ensure continued stakeholder engagement.

With regards to evaluation of the ISA, the details of the process will have

been documented in every stage. This is used as a basis for a critical, reflective report which is then presented to the clients. It includes an overview of all stages, evaluates the outcomes in comparison to expectations and provides recommendations for future research.

## VIII. Conclusion and recommendations

This case study has delved into the current status of Australia's policy environment, with a particular interest in initiatives aiming to expand the country's renewable energy production and use. The main goal of the ISA was to raise awareness, understanding between stakeholders and finally to catalyse action. Recommendations for conducting an ISA are now summarised. First, establish the main drivers, actors and critical uncertainties in the case. This stage can lay the foundation of expectation management in local communities. Classify all relevant stakeholders in five categories: Scientific experts, businesses, interest groups, citizens and government. Map the actors in a power-interest matrix.

In the public consultation stage, the research team can save time and effort by collaborating with existing local organisations - or national organisations with local branches - who take it upon themselves to host a meeting. The key to success of a spread out large-scale public consultation is preparation. Test the format of the meeting first, find out which tools facilitate the group process and how to most effectively raise interest. In the hyper-connected era it can be beneficial to take advice from experienced social media managers in order to position the ISA online as national campaign, clearly communicating the mission and bigger picture. Utilise the public consultations to establish a baseline; a reference scenario incorporating the people's experiences with renewable energy up until that point. Next to this, the public consultation aims to involve and empower stakeholders, thus creating a common ground for understanding the ISA results at a later stage. The outcomes of this stage can be fed to the central agency carrying out the ISA by means of standardised questionnaires.

The modelling stage has a theoretical focus, mostly consisting of research and complementing existing knowledge by possible field visits. This paper gave an overview of environmental, economic and social variables to take into account in this stage. In the process of 'modeling for vision-building', integrate social, economic, environmental and institutional uncertainties. The theoretical framework used in this paper works with the three concepts geographical potential, technical potential and economic potential. This policy optimisation model can be used to explore several backcasting scenarios.

The subsequent two stages are part of an 'envisioning' process. Firstly, the stakeholder conference gathers national focus groups. It is the aim of the

conference to develop narratives for the different backcasting scenarios presented. In other words, participants ask themselves which changes would have to take place for a certain scenario to become reality? What are the likelihood and consequences of these changes? The presence of experts is vital to ensure that the conversation does not reach a deadlock due to a 'technical' question in a focus group. In contrast to the broad focus of the public consultation, this conference narrows down the focus of the ISA in a democratic process. The outcomes of the conference are used to create complex, dynamic, highly quantitative models which will have a status of authority for investors, companies and government institutions. Moreover, it is vital to communicate the resulting conclusions and actions to all participants.

The extensive process described in this paper can be scaled-down and used as a guide for ISA's in any region. Future research into other case studies is recommended.

# References


AEMO (2014, February 11). 2014 Scenarios description. Planning & forecasting scenarios.Retrieved from: http://www.aemo.com.au/Electricity/Planning/Forecasting

AEMO (2012). AEMO report on 100% renewable energy scenarios. Retrieved from: http://www.climatechange.gov.au/reducing-carbon/aemo-report-100-renewable electricity-scenarios

AEMO (2010, March 2). Stakeholder Survey Report. Retrieved from: http://www.aemo.com.au/About-AEMO/Services/StakeholderEngagement/AEMO Stakeholder-Survey-Report

AEMO (2013, December 12). Executive Summary. National Transition Network Development Plan For the National Electricity Market. Retrieved from http://www.aemo.com.au/ Electricity/Planning/National-Transmission-NetworkDevelopment-Plan

Australian Government Department of the Environment and Energy (n.d.). The Renewable Energy Target (RET) scheme. Retrieved from: http://www.environment.gov.au/climatechange/renewable-energy-target-scheme

Curran, G. (2012). Contested energy futures: Shaping renewable energy narratives in Australia. Global Environmental Change, 22(1), 236-244.

De Vries, B. J., van Vuuren, D. P., & Hoogwijk, M. M. (2007). Renewable energy sources: Their global potential for the first-half of the 21st century at a global level: An integrated approach. Energy Policy, 35(4), 2590-2610.

Elliston, B., Macgill, I., & Diesendorf, M. (2013). Least cost 100% renewable electricity scenarios in the Australian National Electricity Market. Energy Policy, 59, 270-282.

Elliston, B., Diesendorf, M., & MacGill, I. (2012). Simulations of scenarios with 100% renewable electricity in the Australian National Electricity Market. Energy Policy, 45, 606-613.

Enserink, B., L. Hermans, et al (2010) Actor Analysis. In: Enserink, B., L. Hermans, et al. Policy Analysis of Multi-Actor Systems (Chapter 4)

Evrendilek, F., & Ertekin, C. (2003). Assessing the potential of renewable energy sources in Turkey. Renewable Energy, 28(15), 2303-2315.

Grosskurth, J., J. Rotmans (2005). The scene model: getting a grip on sustainable development in policy making. In: Environment, Development and Sustainability, Vol. 7, pp. 135-145.

Pimentel, D., Rodrigues, G., Wang, T., Abrams, R., Goldberg, K., Staecker, & Boerke, S.(1994). Renewable energy: economic and environmental issues. BioScience, 536-547.

Rotmans, J., M.B.A.V. Asselt (2001). Uncertainty management in integrated assessment modeling : towards a pluralistic approach. In: Environmental Monitoring and Assessment, Vol. 69, pp. 101-115 & 123-130.

Saddler, H., Diesendorf, M., & Denniss, R. (2007). Clean energy scenarios for Australia. Energy Policy, 35(2), 1245-1256.

Simpson, G., & Clifton, J. (2014). Consultation, Participation and Policy-Making: Evaluating Australia's Renewable Energy Target. Australian Journal of Public Administration, 73(1), 29-33.

Su, R. (2014, May 26). Scrapping Renewable Energy Target Will Cost Australia's Economy Billions. International Business Times Australia. Retrieved fromhttp://au.ibtimes.com/articles/553675/20140526/australia-renewable-energy-clean investments.htm#.U4Wr6fmSwvw

The Greens (n.d.). Clean energy roadmap. Retrieved from: http://greensmps.org.au/sites/default/files/clean_energy_roadmap_long.pdf

Van Notten, P. W., Rotmans, J., van Asselt, M., & Rothman, D. S. (2003). An updated scenario typology. Futures, 35(5), 423-443.

Yusaf, T., Goh, S., & Borserio, J. A. (2011). Potential of renewable energy alternatives in Australia. Renewable and sustainable energy reviews, 15(5), 2214-2221.

Zahedi, A. (2010). Australian renewable energy progress. Renewable and Sustainable Energy Reviews, 14(8), 2208-2213.

# Appendix

| | Environmental variables | Economic variables | Social variables |
|---|---|---|---|
| **Outputs** | Air pollution | Market prices | Health effects |
| | Water pollution | National energy stability and security | Disturbances |
| | Water use | Stranded assets | Employment |
| | Waste generation | | Cultural |
| | Greenhouse gas emissions | | |
| | Land requirements | | |
| **Inputs** | Environmental degradation | Economic vitality | Lifestyle |
| | Climage change | | Consumer behaviour |

*Table 1. Overview of environmental, economic and social variables in the modelling stage.*

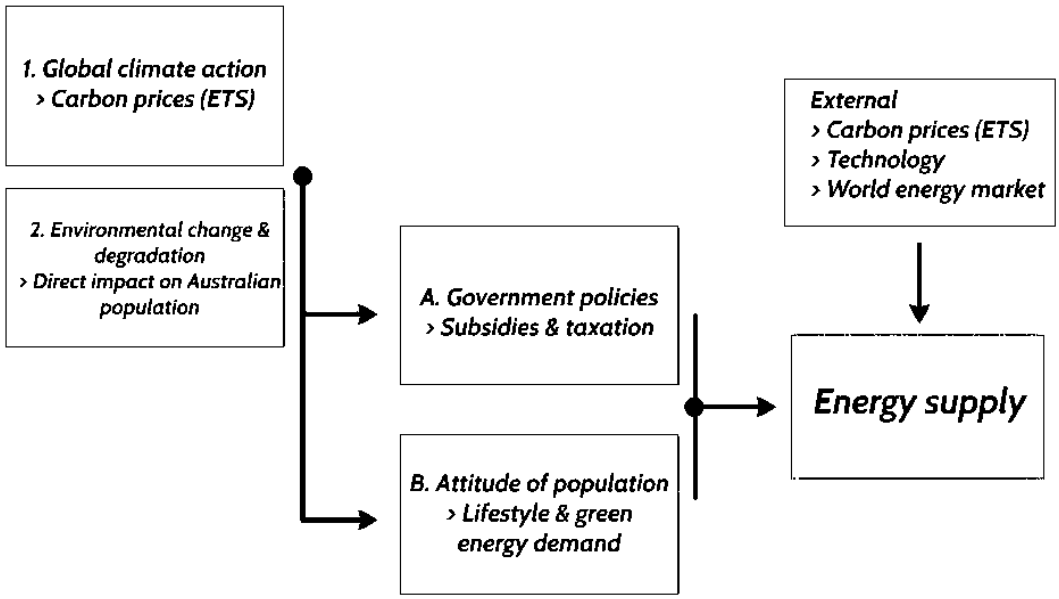



*Figure 1. Model of key inputs and outputs in the energy market*

$$ETi = fiAi\Phi[\eta i, Di, \lambda i]Ei\,(\mathrm{W})$$

$E_i$ = Theoretically extractable energy output per unit surface area in W $m^{-2}$

$A_i$ = Area surface in $m^2$

$f_i$ = Suitability/availability factor

$\Phi$ = over-all conversion efficiency

$\eta_i$, = technology characteristics

$D_i$ = *power density,*

$\lambda_i$ = aggregate of other parameters such as operational details

*Figure 2. Formula for technical potential by De Vries et al. (2007).*

**Appendix I. AEMO Scenarios**

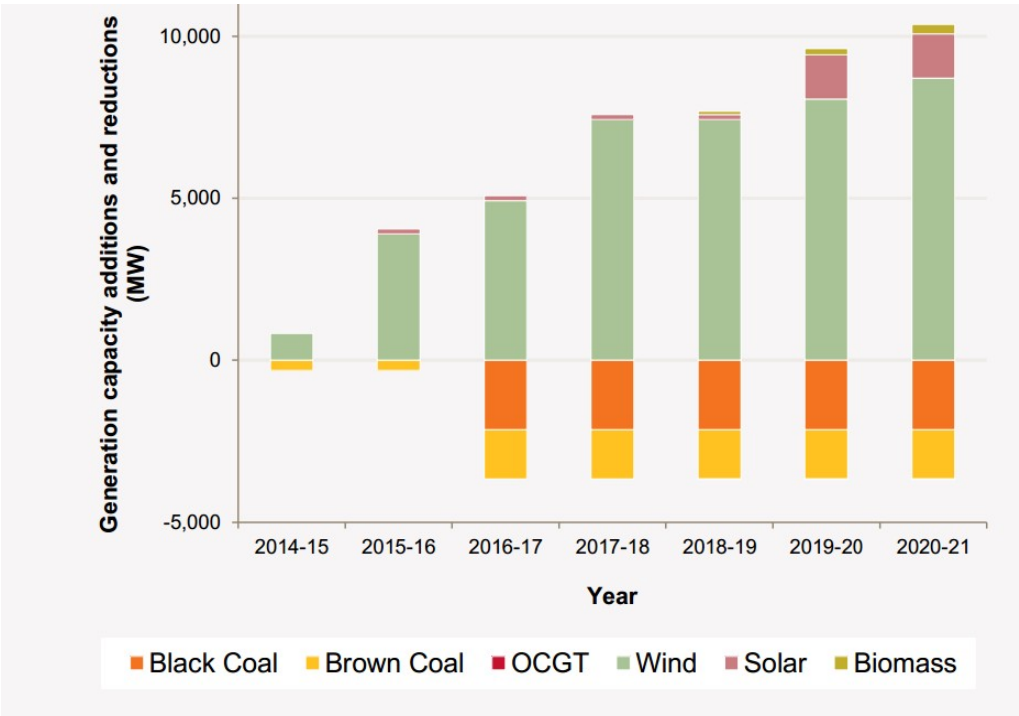
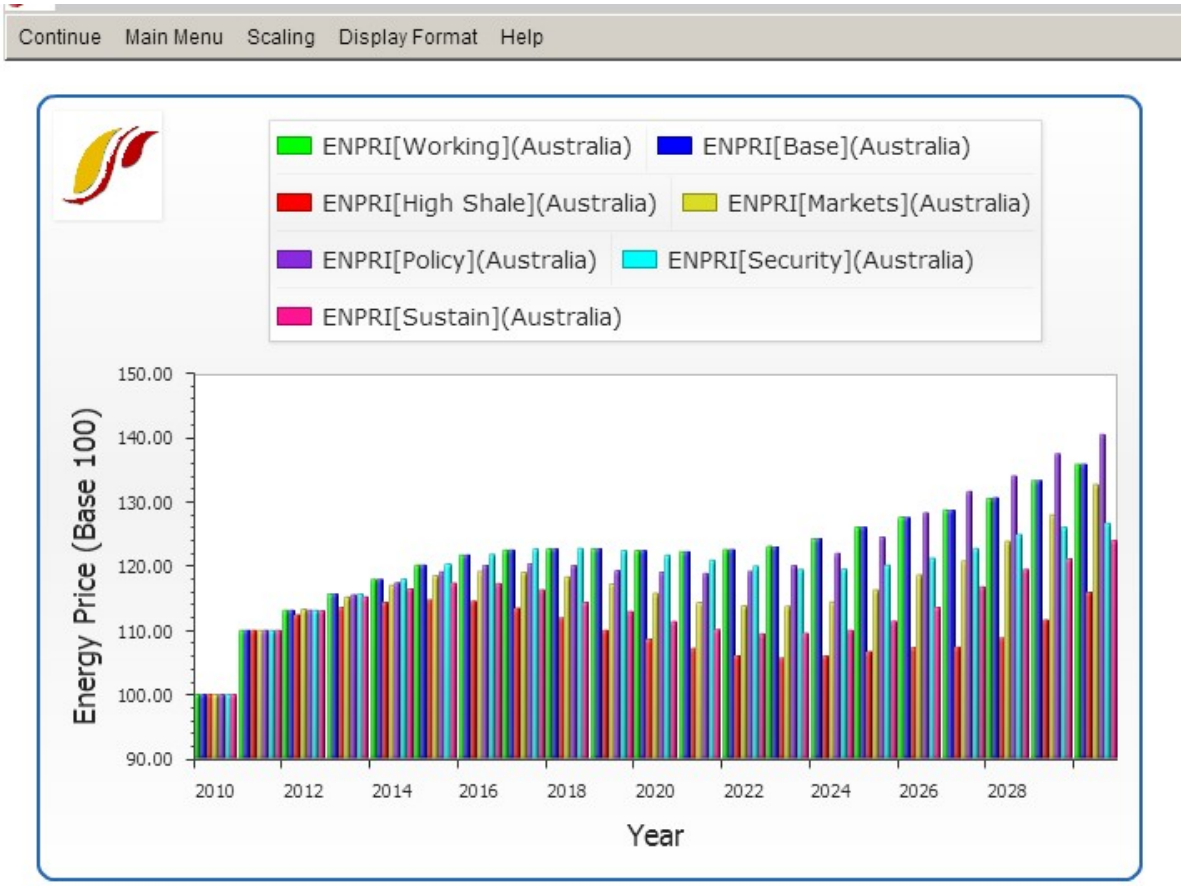


*Table 1 - 2014 Scenarios*

| | High energy consumption from centralised sources | Medium energy consumption from centralised sources | Low energy consumption from centralised sources |
|---|---|---|---|
| Energy consumption | High | Medium | Low |
| Type of consumer[2] | Low engagement | Highly engaged | Highly engaged |
| Economic activity | High | Medium | Low |

## Appendix II. International Futures Model scenario Australia example



**Appendix III. Stakeholder list**

1. **Government**

*Australian Energy Market Commission*
*Australian Council of Social Services Australian*
*Government Treasury*
*Clean Energy Council*
*Clean Energy Regulator*
*Department of Climate Change and Energy Efficiency*
*Department of Manufacturing, Innovation, Trade, Resources and Energy*
*Department of Sustainability, Environment, Water, Population and Communities*
*Economic Development Board*

2. **Citizens**

*Energy Users Association of Australia; Consumer Advocacy Panel#*

3. **Interest groups**

*Australian Student Environment Network Australian*
*Youth Climate Coalition*
*Banksia Environmental Foundation*
*Northern Alliance for Greenhouse Action Townsville*
*Enterprise*
*Total Environment Centre*
*World Wildlife Fund*
*South Australia Farmers Federation*

4. **Business**

Production
*Australian Geothermal Energy Association*
*Australian Sugar Milling Council*
*CSR Sugar*
*ElectraNet*
*Energy Networks Association*
*Energy Retailer's Association of Australia Energy*
*Supply Association of Australia EnergyAustralia*
*Grid Australia*
*Independent Market Operator WA Intergen*
*Major Energy Users*
*National Generators Forum*
*Origin Energy*
*PowerCor*
*Powerlink*
*Private Generators Group*
*Queensland Generators Group*
*Southern Generators Coalition*
*Sucrogen; Transpower NZ; Transend; and Western Power*
Investor*AEMO*
*CEFC*
*Renewables SA*
*Synergies Economic Consulting*

**5. Scientific experts**

*Australian Photovoltaic Institute*
*Australian Solar Institute*
*Academy of Technological Sciences and Engineering*
*Commonwealth Scientific and Industrial Research Organisation (*CSIRO*)*
*Roam consulting*
*The Bureau of Resources and Energy Economics*

**Appendix IV. Reading list**

- AEMO public consultation results (AEMO, 2012)
- Potential of renewable energy alternatives in Australia (Yusaf, Goh, & Borserio, 2011)
- AEMO Stakeholder Survey Report, (AEMO, 2010)
- Least cost 100% renewable electricity scenarios in the Australian National Electricity Market (Elliston, Macgill, & Diesendorf 2013)
- Clean Energy Roadmap (The Greens)
- Executive Summary National Transition Network Development Plan For the National
- Electricity Market (AEMO, 2013)
- Case study: Assessing the potential of renewable energy sources in Turkey. (Evrendilek, & Ertekin, 2003)
- Case study: Renewable energy: economic and environmental issues. (Pimentel et al., 1994).
- Comparing least cost scenarios for 100% renewable electricity with low emission fossil fuel scenarios in the Australian National Electricity Market **(**Elliston et al., 2013)
- Simulations of scenarios with 100% renewable electricity in the Australian National Electricity Market (Elliston, et al., 2012)
- Contested energy futures: Shaping renewable energy narratives in Australia. (Curran, 2012)
- AEMO report on 100% renewable electricity scenarios (AEMO, 2014)

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