Basic Income and Working Time Reduction: what is their environmental impact?
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Abstract

This paper looks at Basic Income (BI) and Working Time Reduction (WTR), as two policies targeting employment, and their environmental impact. Its focus is on social and environmental aspects of the two policies, with the aim of determining whether they might have a positive environmental impact if implemented on a large scale, at a national level, in the Global North and Global South.[1] The social and environmental aspects have been chosen as the focus of this paper since BI and WTR are seen as mainly social policies but given that environmental aspects have become a central aspect to examine at present, these aspects have been linked to the social dimension. Each of the two policies is illustrated by case studies examining their implementation in various countries in both the Global North and Global South. The variety of case studies highlights the conditions in which the two policies were implemented and how this implementation was undertaken to show what could be learned from their outcomes. This paper has started looking at degrowth generally and at its policies, which encompass ideas about reducing environmental impact, and then looked at BI and WTR as prominent policies that emerged from the degrowth literature. However, the case studies do not make it possible to clearly state that those two policies help in transitioning towards environmental sustainability, given that positive environmental impacts were not among the main targets of the case studies. However, raising awareness towards a positive link between BI and WTR and their environmental impact is important for future research.

Keywords: degrowth, basic income, working time reduction, climate change, sustainability

[1] The Global North encompasses developed countries while the Global South refers to developing nations (Therien, 1999: 723).

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1) Introduction

a)General aspects of degrowth

At the core of this research paper is the idea of sufficiency as an organising principle for society (Princen, 2005). "Consumers and citizens are central in innovations that promote sufficiency, and hence have the potential for disruptive innovation, which can change the logic of the dominant consumption-production systems" (Lorek and Fuchs, 2013:40). Transitioning to social and ecological sustainability is about inventing new ways of living, with the aim to create the conditions for a harmonious coexistence between people and their environments. There is a stringent need for new approaches to organising society that consider environmental limits while still allowing people to live a decent life. Degrowth was initially launched as "a project of voluntary societal shrinking of production and consumption aimed at social and ecological sustainability" and later "developed into a social movement" (Demaria et al., 2013: 192).

Degrowth as a term comes from the French *décroissance* and it was first introduced by Andre Gorz as part of a debate at *Le Nouvel Observatoire* in 1972, which represented a follow-up to *The Limits to Growth* report published by the Club of Rome (Asara et al., 2015: 376). Gorz's use of the term reunited the ecologist and culturalist critiques of economics; the ecologist critique is based on the Georgescu-Roegen's bio-economical approach and challenges classical economics through ecological science while the culturalist critique originates from post-development theory and political ecology and criticises the worldwide use of technologies and consumption models developed in the Global North (Asara et al., 2015: 376). Degrowth builds on ecological economics, which has as its foundations in Georgescu-Roegen's ecological limits to growth, Boulding's thesis on the biophysical limitations of economic activity, and Kapp's rethinking of environmental externalities as an in-built feature of modern consumption and production (Asara et al., 2015: 376). The concept of degrowth emerged before any mention of sustainable development, the latter being rooted in the 1987 Brundtland Report (Asara et al., 2015: 379).

Since its beginnings, degrowth has come to include more concepts such as democracy, wellbeing, meaning of life, and justice; now it is being defined by some scholars and activists as a downscaling movement (Asara et al., 2015: 377). A voluntary contraction of the economic system linked to the shrinking of GDP is an idea comprised in degrowth; this idea refers to individuals opting to quit the high-consumption market model (Foster, 2011: 27). In Latouche's view, degrowth is equated to a large-scale change in society: a switch to an economy dominated by downshifting and contraction, from a previous one which had growth as its central objective (Foster, 2011: 27). "Degrowth challenges the hegemony of growth and calls for a democratically led redistributive downscaling of production and consumption in industrialized countries as a means to achieve environmental sustainability, social justice and well being" (Demaria et al. in Kothari et al., 2014: 369). Degrowth paves the way towards a society that will employ fewer natural resources and in which sharing, simplicity, conviviality, care, and the commons are some

of its core principles (Kothari et al., 2014: 369). Therefore, degrowth could offer an answer to "how to be able to enjoy a 'good life' within ecological limits" (Koch, 2013: 8).

By challenging the mainstream growth-oriented narrative, this work looks at some of the potential links between the social and the environmental dimensions of degrowth. Degrowth promotes sufficiency and has the potential for disruptive innovation. Are there any links between lower per capita demands on the environment and achieving sufficiency through BI as well as less, meaningful, and shared work? This paper examines how "the satisfaction of genuine human needs and the requirements of ecological sustainability could become the constitutive principles of a new, more communal order" (Foster, 2011: 33).

Economic growth continues to be the main goal pursued by most governments (Victor, 2012: 207). Assessing environmental or other policies through the effect they have on growth is the norm (Victor, 2012: 207). What if a sharp fall in economic growth is imperative for preventing disastrous climate change? (Victor, 2012: 207). The current economic system is a long way from disconnecting itself from its material throughput (van Griethuysen, 2010: 590). In fact, the current economic system is all the more reliant on "the exploitation of human and natural resources", augmenting both environmental damage and social injustice to the stage where both people and ecosystems are at risk (van Griethuysen, 2010: 590). However, as van den Bergh (cited in Schneider et al., 2010: 512) states, in the current society individuals should be sceptical of growth and implement equitable, efficient social and environmental policies without accounting for their impact on economic activity. Therefore, abandoning growth involves the increased use of regulation and the fostering of ethical progress, as observed since the *Limits to Growth* report (Martinez-Alier et al., 2010: 1744).

Then how can policy makers make ends meet? Governments are expected to safeguard social and common goods while remaining within ecological limits, despite the fact that "institutional path-dependency and technological lock-in effects bind governments to the pursuit of economic growth" (Koch, 2013: 2). There are three scenarios that explain how governments aim to attain these goals (Gough in Koch, 2013: 2). The first scenario corresponds to the mainstream Republican position of the US and is called "irrational optimism" (Koch, 2013: 2). According to Koch (2013: 2), Gough describes this scenario as based on the idea that more rapid growth will "equip future populations to cope with climate change, mainly through adaptation". A second scenario comprises "green growth or ecological modernization to which most European countries subscribe" while a third scenario of "no-growth or degrowth questions economic growth itself" (Koch, 2013: 3).

In Finland's case, for instance, interviews done with members of the Finnish Committee on sustainable consumption and production (SCP), showed how "it is common even among business and ministry representatives to criticize the current growth-bound economic system" (Berg and Hukkinen, 2011: 151). Still, growth criticism is an older occurrence; both Adam Smith and John Stuart Mill voiced their doubts about it (Berg and Hukkinen, 2011: 152). The individuals interviewed by Berg and Hukkinen (2011: 157) stress the essential role of citizens in

pushing for change to a simplified, careful, and conscientious consumption and aiming for an economy built on "needs". Still, even if most of the interviewees personally supported alternatives to growth, there was no continuity in their narrative from some point onwards, meaning that they could not come up with a degrowth narrative that had a beginning, middle, and end (Berg and Hukkinen, 2011: 157). Berg and Hukkinen (2011: 158) argue that the degrowth narrative has the potential of becoming a counterstory. However, in its present state, this narrative is not seen as a coherent policy alternative given that many of its elements are still debatable (Berg and Hukkinen, 2011: 158). As long as the degrowth narrative is not completely developed, the growth narrative will be strengthened (Roe in Berg and Hukkinen, 2011: 158). The institutional stance of degrowth policies needs to be considerably consolidated for the counterstory of degrowth to become a viable alternative to the growth narrative (Berg and Hukkinen, 2011: 158). This could happen, for instance, by allocating financial support to non-governmental and governmentally-independent organizations to manage degrowth experiments (Berg and Hukkinen, 2011: 158). However, Koch (2013: 19) argues that "there appears to be sufficient common ground for combining, complementing and unifying the as yet fragmented policy proposals and for formulating a coherent strategy for the economic, political and ecological restructuring of the advanced capitalist countries".

Sustainability can be achieved through three prevailing strategies: eco-efficiency, sufficiency, and decommodification (Boulanger, 2009: 2). Examples of policies from the degrowth literature comprise both macro-solutions such as impact caps and rations, changes targeting work-time and social security, as well as small to medium-scale solutions such as shared housing systems and mobility facilities, community currencies, and alternative credit institutions (eg. timebank) (Schneider et al., 2010: 515).

A sustainable future for all individuals needs to encompass a decent or sufficient lifestyle as one of its core objectives (Lettenmeier et al., 2014: 681). According to a social sustainability perspective a decent lifestyle represents "the minimum level of consumption ensuring an acceptable quality of life" while an ecological sustainability perspective describes it as "a lifestyle that does not exceed the carrying capacity of nature in terms of natural resource use" (Lettenmeier et al., 2014: 681). A decent lifestyle ought to fulfil the physiological, psychological, and social needs of an individual and allow them to fully participate in society (Borgeraas in Lettenmeier et al., 2014: 682). Moreover, this sufficient minimum, seen as essential to all individuals in society, does not encompass goods that individuals aspire to but are not necessary (Bradshaw et al. in Lettenmeier et al., 2014: 682). According to Koch (2013: 6), John Maynard Keynes distinguishes two categories of human needs: absolute needs that must be met "whatever the situation of our fellow human beings may be" and relative needs, that arise "only if their satisfaction lifts us above, makes us feel superior to, our fellows". Still, it is important to stress that environmental policies addressing the protection of natural resources ought not to result in the lowering of life quality: "an ecological maximum and socially decent minimum have to meet each other's requirements" (Lettenmeier et al., 2014: 682).

Daly points out the difference between growth and development, the first referring to quantitative rise in GDP and the second to qualitative change (Koch: 2013: 8). For Daly in Boulanger (2009: 4) the three principles of sustainable development are sufficiency, equity, and efficiency. Still, the way in which sustainable development is typically employed at the moment in policy implementation does not incorporate all of these aspects. In most situations concerning the Global North, the goal of attaining growth at no matter which costs is disguised in the concept of sustainable development.

In both Global North and Global South countries the growth paradigm is an imperative (Asara et al., 2015: 375). According to Asara et al. (2015: 375), Swyngedouw states that presently capitalism seems to be "the only reasonable and possible form of organization of socionatural metabolism". Capitalism is a system that structurally calls for exploitative behaviours given the core of its economy which "has to grow or die" (Kallis, 2011: 875). Mainstream economic thinking argues that "unlimited economic growth is both possible and desirable" (Kerschner, 2010: 544). The predominant economic model favours more as opposed to better consumption and private instead of public investment in man-made versus natural capital (Martinez-Alier et al., 2010: 1741).

Georgescu-Roegen underlines the enjoyment of life as the genuine outcome of the economic process (Cattaneo and Gavalda, 2010: 581). Previously, "Aristotle defined *oikonomia* as the art of living well - where goods had a use value - and which was morally superior to *chrematisticae* – the art of making money out of money – where goods only had an instrumental exchange value" (Cattaneo and Gavalda, 2010: 581). In this context, *chrematisticae* can be seen as capitalism and degrowth as *oikonomia*. The ultimate goal of *oikonomia* is the fulfillment of human subjective needs which are typically not material but which ought to be perceived as central as opposed to focusing on the competitive production and exchange of goods and services (Cattaneo and Gavalda, 2010: 582).

Kropotkin points out how in society, similar to the way they work in nature, cooperative behaviours are a crucial aspect of evolution, despite the social Darwinist concept of competition and survival of the fittest being central to market economics (Cattaneo and Gavalda, 2010: 581). Moreover, individual well-being is more central in economic systems founded on cooperative behaviour rather than in those dominated by competition, hierarchy, exploitation, and exclusion (Koch, 2013: 13). However, it is crucial for economic and material degrowth to take into account power, democracy, and the role of corporations and States so that implementing degrowth would not result in an eco-dictatorship (Cattaneo and Gavalda, 2010: 588).

Fundamental "no-growth" ideas can be traced back to the classics of political economy; the economic growth obsession in monetary terms is rather a new addition (Koch, 2013: 4). Still, the current fixation with growth is at the root of overlapping social-ecological-economic crises in society, since growth is aimed for at all costs (Asara et al., 2015: 377). Similarly, Kallis (2011: 877) states that the commodification of nature and labour is at the centre of economic and social crises. Furthermore, Hamilton in Schneider et al. (2010: 514) emphasises how, currently,

consumption is no longer used to meet material needs but instead has become a way to create a personal identity. Moreover, individuals in high income countries are acquiring and owning goods because of the meaning of those acts in themselves: people behave in this manner to establish their identity and to show their social positioning in society (Koch, 2013: 11). Also, through their interactions with other individuals in society, citizens develop an idea of what is considered to be a good income and display the latter by purchasing "so-called provisional or status goods" (Pullinger, 2014: 13). "Pressures from social and cultural norms to value and pursue high levels of paid work and income also point to a role for other kinds of intervention to change working patterns and the leisure activities engaged in" (Pullinger, 2014: 17).

There is increased skepticism regarding the efficiency of a sustainable development approach, which has led to the same or even worsened problems compared to its beginnings (Martinez-Alier et al., 2010: 1745). Georgescu-Roegen in Martinez-Alier et al. (2010: 1743) and Kothari et al. (2014: 366) argue that the idea of sustainable growth is an oxymoron; sustainable growth is part of the sustainable development narrative. Even concealed as sustainable development, degrowth supporters argue that economic growth will still result in social and ecological failure (Martinez-Alier et al., 2010: 1745). The interests of governments and private sector leaders are typically not compatible with a no-growth narrative at the moment and this would justify why there are currently few institutional actors supporting degrowth (Martinez-Alier et al., 2010: 1745). In these circumstances, there is a need for institutions to intervene and impose limitations in various domains of individuals' life, since voluntary simplicity adopted by individuals cannot guarantee a sustainable downscaling, even if it is one of the necessary requirements for transitioning to a sustainable lifestyle (Kallis, 2013: 95). Through government intervention, reinvestment in further capital accumulation would be prevented (Kallis, 2013: 95).

The green economy and sustainable development approaches have not been successful and will keep being unsuccessful in meeting their objectives: to stop environmental damage, end poverty, and decrease inequality (Kothari et al., 2014: 362). Sustainable development led to the belief that economic growth would decouple itself from its environmental impact through advances in eco-efficiency (Kothari et al., 2014: 363). Some of the flaws of the green economy and sustainable consumption approaches include limited discussion on controlling and limiting irresponsible corporate behaviour, harming both individuals and the environment, as well as sustained trust in market mechanisms (Kothari et al., 2014: 365). Moreover, one of the other weaknesses of these approaches is represented by the lack of a specific goal to lower the present consumption levels in the rich Global North, which implies that individuals in the rest of the world will not get the chance to "become more secure and genuinely prosperous" (Kothari et al., 2014: 365).

Market approaches and technological optimism represent the basis of weak sustainable consumption, while strong sustainable consumption stresses the importance of social innovation and comprises a pessimistic view regarding technology (Lorek and Fuchs, 2013: 37). The weak

sustainable consumption strategy states that sustainable consumption is possible using energy efficiency improvements that over time will disseminate into markets through consumer demand; this concept is presently named sustainable consumption and production (Lorek and Fuchs, 2013: 37). The strong sustainable consumption strategy advocates that sustainable consumption can be reached through changes in consumption levels and patterns; the need for a reduction in overall resource consumption is highly stressed by this strategy (Lorek and Fuchs, 2013: 38). Moreover, this approach emphasizes non-material additions to human well-being, thus going beyond consumption and economic activity (Lorek and Fuchs, 2013: 38).

Foster (2011: 29) states that one should not destroy all parts of capitalism but rather keep the social institutions (currency, markets, even wages) it created, and rethink them according to distinct ideas which aim to find another way out of the growth-oriented society. Even though financial and social institutions that are already part of capitalism would be kept, they need to be reformed (Schneider et al., 2010: 516).

Degrowth would be an authentic solution to the criticism of capital accumulation and as a shift towards a sustainable, equitable, and collective society, in which the interactions between individuals and nature are managed in the interest of the planet itself, as well as future generations (Foster, 2011: 32). Therefore, a sustainable future could become reality through a "democratic and redistributive downscaling of the biophysical size of the global economy" (Asara et al., 2015: 375). For instance, Cattaneo and Gavalda (cited in Schneider et al., 2010: 515) look at grassroots efforts, such as the semi-autonomous, small-scale collective economic systems established on the hills of Collserola in Barcelona, to emphasize how degrowth should not only be measured in terms of shrinking material and energy flows but should involve a democratizing process (collective choice for better living).

Romano (2012: 582) argues that, despite the fact that implementing degrowth is perceived as urgent, the strategy for dissemination of degrowth typically promotes voluntary adoption of degrowth principles which could only result in slow changes. However, this paper argues that the past couple of years have seen an increased awareness of top-down ways of implementing degrowth.

Implementing degrowth is not being planned at a national scale in any country at the moment. Current trials of BI and WTR have rather limited samples of participants (e.g. by regions/city councils, just unemployed participants, individuals with low incomes). Applying degrowth policies would probably lead to a decrease in GDP in its current form and a shrinking of large-scale, resource-intensive forms of consumption and production (Schneider et al., 2010: 512). Kothari et al. (2014: 372) agree that "the possibility of radical well-being notions [...] becoming prevalent, and replacing the currently mainstream model of 'development' is clearly dim in the current scenario" while Koch (2013: 1) states that "the prospects for globally decoupling economic growth and carbon emissions are very low".

One degrowth critic, Tokic (2012: 49), argues that envisioning degrowth as a policy alternative is unsustainable since implementing degrowth globally will result in an economic

implosion or a sudden fall in global GDP over a short time period and then a fresh growth cycle will take place which would imply renewed environmental anxieties. GDP growth is typically associated with an increase in individual and social welfare (Koch, 2013: 4). However, GDP does not encompass several activities that are pertinent for human welfare such as voluntary work, unpaid housework, as well as illegal trades, environmental destruction, and the exhaustion of natural resources (Koch, 2013: 5). Moreover, it has been found that once certain levels of satisfaction of basic needs have been reached, an increase in GDP per capita does not equate with more happiness; this is called the Easterlin paradox (Schneider et al., 2010: 512). Further, according to Victor (2012: 210), Schneider et al. state that "what happens to GDP is of secondary importance; the goal is the pursuit of well-being, ecological sustainability and social equity [...] GDP can go down and nevertheless other dimensions of life can improve". In most cases, high income countries did not succeed in decoupling their economic growth from ecological impact while they succeeded in decoupling it from their citizens' happiness (Pullinger, 2014: 13). In their case, the link between per capita income or GDP and happiness appears to grow weak or completely vanish (Pullinger, 2014: 13). Once individuals have reached a decent material living standard, a lot of what is needed for their well-being and flourishing is non-material. This level of wellbeing will become attainable at much lower levels of energy and material compared to the present (Koch, 2013: 18). In fact, extra income results in increased happiness for the poorest individuals in society and leads to a gradual decrease in happiness as individuals accumulate wealth (Koch, 2013: 10).

Eco-efficiency means minimizing energy and the level of material needed for both commodity production and consumption (Boulanger, 2009: 2). Even though eco-efficiency might fuel the hope for infinite growth, "the promise of green technology has proven false" (Foster, 2011: 27). The Jevons Paradox has shown how increased efficiency in the employment of energy and resources does not result in conservation but in higher economic growth and, therefore, more strains on the environment which serve to cancel out previously-achieved advances in efficiency (Foster, 2011: 27; Asara et al., 2015: 376). Since continuous growth cannot be sustained within our planetary limits, there is an urgent need to look into alternative systems which have the wellbeing of both people and the environment at their core. This is one of the main reasons why degrowth is worth considering when looking at social and environmental sustainability.

Despite a relative decoupling between growth in consumption and increase in environmental strains becoming a possibility due to eco-efficiency, this will not automatically imply absolute decoupling (Boulanger, 2009: 4). Therefore, according to Foster (2011: 27), Paul Sweezy argues that there is no other option but a turnaround in the economy's environmental pressures, given that there are no means for expanding the planet's carrying capacity in terms of economy and population. Similarly, in his stationary state discussion, John Stuart Mill (cited in Foster, 2011: 27) argues that, assuming that economic growth stays at the same level, the society's economic goal might switch to qualitative features of human existence, thus replacing quantitative growth.

Some academics perceive degrowth as a political program encompassing specific ideas such as local currencies, basic income, and work-sharing (Berg and Hukkinen, 2011: 152). This paper uses the concept of degrowth to select policies that have the potential the reduce individual environmental impact and evaluates their efficiency at reducing environmental impact in practice.

In an ecological-economic view, sustainable degrowth is a socially sustainable and equitable contraction of society's throughput, where throughput represents the materials and energy individuals employ and give back to the environment in a waste form (Kallis, 2011: 874). In this paper, the term degrowth refers to sustainable degrowth which is a voluntary, smooth and "equitable downscaling of production and consumption that increases human well-being and enhances ecological conditions at the local and global level, in the short and long term" (Schneider et al., 2010: 512). Unsustainable degrowth equates with economic recession or depression which involves a deterioration of social conditions (Schneider et al., 2010: 512).

Sustainable degrowth is different from the sustainable development narrative given that it stresses that throughput reduction cannot happen alongside a growing GDP (Kallis, 2011: 874). The term sustainable implies an environmentally and socially beneficial implementation of the concept (Schneider et al., 2010: 512). Van den Bergh (cited in Kallis, 2011: 874) argues that throughput shrinking does not necessarily imply lower GDP, instead it will inevitably happen as one of the results of sustainable degrowth. Lowering GDP is not the main objective of sustainable degrowth; rather, sustainable degrowth aims to boost welfare and ameliorate environmental conditions (Kallis, 2011: 876).

Kallis (2011: 875) emphasizes the need for "selective degrowth", a concept found in Latouche's work, which implies the redistribution of resources between public and private use as well as within and between generations; moreover, this process cannot be done solely by market forces since markets are prone to discriminate and lead to chaos rather than a step-by-step transformation. Decreasing throughput and conducting a balanced adjustment to a smaller economy can happen through reforms that focus on redistribution (of work and leisure, wealth, and natural resources), social security, and step-by-step decentralisation and relocalisation of the economy (Kallis, 2011: 876).

Steady state economy and degrowth are compatible and even complementary concepts, despite their so-called clash (Martinez-Alier et al., 2010: 1744). Implementing degrowth could be the transition period leading to a steady state economy. According to Foster (2011: 28), Daly defines steady state economy as "an economy with constant stocks of people and artefacts, maintained at some desired, sufficient levels by low rates of maintenance throughput".

Sustainable degrowth as a concept has not yet been "seriously considered or embraced by politicians, not even mainstream environmental NGOs, because many people find taboo to discuss it openly, even while agreeing with many of the ideas behind it, not least the impossibility and unsustainability of eternal economic growth" (Sekulova et al., 2013: 5). However, degrowth should be "an open invitation for debate and action, an invitation to think

and act outside of the box" (Sekulova et al., 2013: 5). Degrowth is generally perceived as a temporary transitionary solution to shrink the economy's size to a stage that can be preserved continuously in a steady-state model; this could imply a reduction of Global North economies by a third of their current size (Foster, 2011: 28; Martinez-Alier et al., 2010: 1744). In order to achieve this reduction, a wide range of policies have been proposed and they are part of the sustainable degrowth narrative.

In this paper, Basic Income and Working Time Reduction are referred to as degrowth policies since they "have been proposed as part of the degrowth debates" found in the academic literature (Petridis et al., 2015: 195). Petridis et al. (2015: 187) classify Basic Income and Reduced Working Hours (Working Time Reduction) as social policies which constitute practical examples of degrowth, alongside maximum income and social security guarantee. Moreover, the author considers that BI and WTR classify as degrowth policies since they have recurrently come up in the degrowth literature. Other degrowth policies include restrictions to advertising, awareness campaigns on how to degrow efficiently within the household, maximum income, social security guarantees, resource and CO2 caps, extraction limits, environmental taxation, social enterprises and cooperative firms, ethical banks, and the creation of commerce-free zones (Petridis et al., 2015: 195; Kallis, 2011: 873).

According to the Basic Income Earth Network (2017), BI is defined as "a periodic cash payment unconditionally delivered to all on an individual basis, without means-test or work requirement" and has the following five characteristics:

1. *"Periodic: it is paid at regular intervals (for example every month), not as a one-off grant.*
2. *Cash payment: it is paid in an appropriate medium of exchange, allowing those who receive it to decide what they spend it on. It is not, therefore, paid either in kind (such as food or services) or in vouchers dedicated to a specific use.*
3. *Individual: it is paid on an individual basis—and not, for instance, to households.*
4. *Universal: it is paid to all, without means-test.*
5. *Unconditional: it is paid without a requirement to work or to demonstrate willingness-to-work.".*

Working time reduction (WTR) is defined as "a reduction in the total levels of paid working time over the life course" (Pullinger, 2014: 11). This implies that an individual will be working less than 40 hours per week and that, in this manner, more jobs will be made available in the society (Raposo and Van Ours, 2008: 2). Moreover, this policy "could contribute to reducing the environmental impacts of the economy whilst maintaining and improving levels of wellbeing" (Pullinger, 2014: 11).

Proposition of hypotheses:

a) Basic Income has the potential to reduce individuals' environmental impact.

b) Working time reduction has the potential to reduce individuals' environmental impact.

c) BI and WTR could be two degrowth policies leading to a more environmentally sustainable and socially equitable society.

The relevance of BI and WTR are context-dependent, especially when dealing with geographical differences (Global North/Global South) and with overall policy coherence.

2) Literature review

a) BI and WTR in the Global North and Global South

Given that high income countries have already exceeded sustainable limits, the transition towards degrowth is imperative (Kerschner, 2010: 548). Through the gradual use of this strategy, a globally equitable steady state economy will be reached which entails a "mutually agreed upon sustainable level of throughput" for both Global North and South (Kerschner, 2010: 548). "Economic de-growth is not a goal in itself, but the rich North's path towards a globally equitable SSE" (Kerschner, 2010: 544).

It is crucial to have a critical perspective regarding the "widespread adoption of particular technologies, and consumption and production models experienced in the Global North" (Kothari et al., 2014: 366). This is crucial given that, in the Global North, "the natural limits to growth have been already surpassed" (Garcia, 2012: 546). Countries in the Global South need to be allowed to find their own path towards reaching a sustainable society without being forced to adopt technology and ideas promoted by the Global North. There is more than one way through which a decent and sustainable lifestyle can be attained. However, this does not exclude the possibility that some degrowth policies such as Basic Income could prove beneficial for countries in the Global South. Degrowth emerged in the Global North and "is being developed for that context, though the questioning of a one-way future consisting only of economic growth is also inspired by - and relevant for - the Global South" (Demaria et al. in Kothari et al., 2014: 368). An improved economic system and an equitable way of life in the Global South coupled with economic downscaling in the Global North would prevent a rise in environmental liabilities (Schneider et al., 2010: 516; Kothari et al., 2014: 365).

Degrowth cannot be applied to the Global North and Global South in the same way since many countries in the Global South cannot afford to implement degrowth but should instead employ a kind of sustainable development to a certain point (Foster, 2011: 32). There is a complementarity between the concepts of degrowth and steady state given that degrowth can pave the way to a steady-state economy in the Global North while allowing growth to happen in the Global South (Schneider et al., 2010: 513). Consumption rates in the Global North need to lower considerably to allow individuals in the Global South to experience a progress in their living standards (Koch, 2013: 16). High income countries need to tackle their economic growth dependency; in the situation where they lead the way in this aspect, it would be smoother and fair for low income countries to "come to terms with ever more pressing local, regional and global environmental problems and possible resource shortages" (Victor, 2012: 206).

Working Time Reduction is less likely to be successful in reducing individual environmental impact in the Global South, on one hand, due to the fact that "workers with lower wages in developing economies prefer to earn overtime pay, or to find a part-time job with which to support their families" (Shao and Rodriguez-Labajos, 2016: 233). On the other hand, WTR is

less likely to be successful due to "the blurred boundary between working hours and non-working hours" (Shao and Rodriguez-Labajos, 2016: 233).

Basic Income and Working Time Reduction are some of the main proposals of the degrowth community which would smoothen the transition to a degrowth society (Spangenberg in Schneider et al., 2010: 514). A new society would be purposefully organised if it did not only offer income - through a basic income scheme - and leisure - through working time reduction measures - but also focus on the human requirement for purposeful, imaginative, and involved work (Foster, 2011: 31).

b) Basic Income

Economic growth is presently legitimized due to the fact that it is one of the requirements for the production of jobs and holding a job is the main means of earning a living; in cases where BI is introduced, there will be far less pressure to create jobs and, if need be, additional consumption could be obtained through the sharing of existing jobs, as well as engagement in non-market activities and exchanges (Boulanger, 2009: 5). As long as BI satisfies the basic needs of individuals in a society founded on less materialistic values, they will not have to seek supplementary income in a paid job (Boulanger, 2009: 5).

GDP should not be used as a reference point in designing policies, given its limited reliability and its capacity to advance individual well-being (D'Alisa and Cattaneo, 2013: 77). The unpaid work sector provides individuals with things such as encouragement, recognition, and closeness, which cannot be purchased with capital and are not accessible on the market (D'Alisa and Cattaneo, 2013: 77).

The link between BI and ecology is underlined by Andersson (2009: 2) who states that a society which provides individuals with BI would not be urged to expand its economy simply in order to provide sufficient jobs. This type of society would oppose the mainstream consumerist and productivist approach. In order for this type of society to function, there would be only a small amount of work required to be done by individuals (Andersson, 2009: 2). Low income countries might experience higher ecological and social results from the introduction of a BI (Andersson, 2009: 6).

High income households need more natural resources compared to low income ones which consume a relatively low amount of natural resources; nonetheless, this disputes the mainstream belief that solely rich individuals have the financial means to "be green" (Lettenmeier et al., 2014: 682). In fact, "low-income households might be more environment-friendly" (Lettenmeier et al., 2014: 682). Yet, in the current society, individuals relying on the minimum level of social security generally do not have the means to enjoy a socially acceptable lifestyle (Lettenmeier et al., 2014: 682).

Another manner in which BI could be linked to a positive environmental impact is represented by Basic Income schemes being funded through environmental taxes: "high ecological taxes would be morally and politically acceptable if combined with a compensating

BI transfer" (Andersson, 2009: 4). A BI scheme funded through taxation of energy, raw materials, pollution, and emissions would lead individual consumption patterns towards more environmentally friendly goods and services (Boulanger, 2009: 3). Moreover, others argue that BI could be "co-financed from general revenues, an increasingly progressive income tax, eco-taxes and/or from depletion and emissions certificate auctions" (Koch, 2013: 15).

Funding BI through environmental taxes is likely to have double benefits for the environment. Firstly, the obligation to pay environmental taxes would "orient consumption toward the more environmentally benign goods and services" (Boulanger, 2009: 3). Secondly, the beneficiaries of a Basic Income scheme might engage in activities with a lower environmental impact given that they might not have to work as much as before to secure their incomes. However, this second effect is highly uncertain. Individuals might not necessarily choose to spend their time outside of work engaging in activities that will lower their environmental impact; it is strictly a matter of personal choice. Still, this could be achieved if there are policies that create incentives for individuals to spend time in activities that would lower their environmental impact, which suggests that BI and WTR would work best as part of policy coherence being in place.

c) Working Time Reduction

A change in values and perceptions could result from individuals doing less paid work; social norms and power relations are prone to change too, thus leading to a shift in the distribution of wages which do not solely depend on supply and demand (Kallis, 2013: 95). Therefore, a decrease in GDP per capita does not necessarily equate in a drop in wages at a 1:1 rate (Kallis, 2013: 95). Individuals might improve their welfare using leisure or unpaid work since they might be content with less material goods and compensation form paid work, in an energy-scarce society (Kallis, 2013: 95).

In the employees' case, reduced working hours and their effect on greenhouse gas emissions can be classified in two categories: **income effect** ("the reduction in an employee's income and thus purchasing power from working fewer hours") and **time effect** ("the impact from employees having more time for activities other than work due to the change in their lifestyle patterns") (King and van den Bergh, 2017: 128).

Regarding the time effect of WTR, one of the benefits of work is the fact that it is the least energy intensive use of time; however, through WTR individuals will get to increase the time they devote to more energy intensive tasks like domestic work, cultural events, and hobbies and therefore this will result in a rise in energy consumption in the economy (King and van den Bergh, 2017: 128). Spending time at home increases individuals' energy needs as compared to them sharing an office together and using the same light and heat appliances (King and van den Bergh, 2017: 129). Therefore, the way in which WTR is implemented is crucial. For instance, if individuals take free time in the middle of the week or if they take a workday off they are more prone to spend it at home, whereas if free time is added to the weekend or as a holiday then there will be an rise in taken trips (King and van den Bergh, 2017: 129).

Concerning the income effect of WTR, according to Lettenmeier et al. (2014: 682), "there is a strong connection between the income level and the use of natural resources: the level of natural resource use can be expected to rise along with the income" in the case of low-income households in the Global North (Finland, specifically). For instance, even though low income households' resource consumption in Finland is well under those of a mediocre household, from a global sustainability standpoint, they consume a relatively high quantity of resources (Lettenmeier et al., 2014: 684). From a global sustainability perspective, it is clear that a low income household in the Global North will have a disproportionately higher environmental impact than a low income household in the Global South. "The role of households in reducing resource use to a sustainable level is vital, since the way households live is an important driver of overconsumption of natural resources" (Laakso and Lettenmeier, 2016: 184). Still, it is important to consider the crucial differences between Global North and Global South. "Existing infrastructure and prevailing services determine a basic level of resource use that exceeds sustainability limits even among minimum income receivers in an industrialised country such as Finland" (Laakso and Lettenmeier, 2016: 185). However, given that low-income households in Global North countries such as Finland find it difficult to further decrease their consumption through their choices and activities alone, there is a stringent need for states and companies to better conditions and technologies to allow such households to have a more sustainable lifestyle (Lettenmeier et al., 2014: 684). The situation of low-income households in the Global North is also applicable to those in the Global South. Global South low-income households cannot afford to lead a more sustainable lifestyle since they lack the financial means to do so. A more sustainable individual consumption level is attainable through a couple of adjustments in their everyday life (Laakso and Lettenmeier, 2016: 184-185). Nonetheless, systemic changes concerning technology, policy, markets, infrastructure, cultural meaning, and scientific knowledge are also needed to reach a one-planet use of material resources (Laakso and Lettenmeier, 2016: 184-185). "The results also show, however, that achieving remarkable absolute reductions requires cooperation between end-users and product and service suppliers" (Laakso and Lettenmeier, 2016: 190).

In high income countries, WTR has the potential to have positive effects on both environmental and human wellbeing. However, its practical aspects need to be further clarified in order to reach the desired results (Pullinger, 2014: 17). According to previous studies investigating WTR, Shao and Rodriguez-Labajos (2016: 232) predict that environmental strains in high income countries will fall while low income countries will continue to face environmental problems. Incomes are crucial in determining the impact of work time policies since an increase in leisure time in countries with larger than average incomes would allow citizens to be involved more in expensive and energy intensive activities (Shao and Rodriguez-Labajos, 2016: 233).

Rosnick (2013: 3) finds that an average annual reduction in working hours of 0.5% over the rest of the century could remove approximately one-quarter to one-half of the global

warming which is not previously locked in (meaning, warming that would be created by 1990 levels of greenhouse gas concentrations already in the atmosphere). New research predicts that a 1% growth in annual hours worked per worker is linked to a 1.5% increase in carbon footprint (Knight in Rosnick, 2013: 8).

Working time reduction as a policy alternative in countries with growing or already high inequality will be much more problematic, since most individuals in paid employment would experience a steep decrease in their living standards if they work less hours (Rosnick, 2013: 7).

When working time reduction also implies decreased incomes, this will result in a dematerialisation of the economy and a reduction in energy use due to declining consumption (Nassen et al. in King and van den Bergh, 2017: 124). One prediction argues that a 20% decline in working hours might lead to a reduction of up 16% in national energy use (Nassen et al. in King and van den Bergh, 2017: 124).

King and van den Bergh (2017: 125) underline some of the benefits of working time reduction: increased happiness due to a better work-life balance, taking part in more leisure activities, and allocating more time to family and friends. As a result, working time reduction might be beneficial for lowering emissions in order to cap global warming to 2 °C (King and van den Bergh, 2017: 124). Victor in King and van den Bergh (2017: 125) points out other advantages of WTR which include ensuring a low level of unemployment and poverty and, at the same time, having a decline in greenhouse gas emissions.

King and van den Bergh (2017: 127) take five scenarios where each contains a 20% reduction in working hours which would correspond to a four-day work week. The agriculture, health, education and waste management economic sectors are vital and are not included in the studied scenarios; retail and leisure services are not expected to reduce their opening hours since they will aim to benefit from the extra leisure time individuals are getting (King and van den Bergh, 2017: 127). A decrease in the energy consumption and therefore lower carbon emissions of businesses and public sector organisations are expected since it is likely that they will be capable of cutting down office opening hours or the size of their office space (King and van den Bergh, 2017: 127). When the office space is reduced there is a "reduction in the total office space requirement for the whole economy, resulting in less demand for new construction projects" (King and van den Bergh, 2017: 127). Similarly, in all scenarios, business trips and logistical services are predicted to decrease, which would lower greenhouse house emissions due to less fuel usage (King and van den Bergh, 2017: 128).

A study done by Pullinger (2014: 12) shows that longer working hours are linked to higher spending on high energy intensive products such as hotels and transport. "If employees have more free time, but less income, they are less likely to spend their free time on trips abroad than if their income had remained stable, so from a climate change perspective there are likely to be positive synergies from the two effects" (King and van den Bergh, 2017: 130).

The ideal working time reduction scenario is the one that leads to decreases in office energy consumption (due to closing the office for a day or scaling down office space), coupled

with cutbacks in commuting (King and van den Bergh, 2017: 131). Furthermore, implementing WTR will show the best results only of the whole economy has switched to a different set of values than the present one which is based on material aspirations. There needs to be policy coherence within society. A gradual transition to a schedule comprising less working hours rather than a sudden 20% cut in hours would allow workers to adapt to the circumstances (King and van den Bergh, 2017: 132).

Society-wide implementation of WTR could have long term impacts such as rising health levels throughout the society due to reduction in working time and therefore a shrinking of health care service usage and its corresponding carbon footprint (King and van den Bergh, 2017: 132). On the other hand, better health results in higher life expectancy (King and van den Bergh, 2017: 132). Even though smaller incomes might discourage some from having children, others might be encouraged to do so, due to the impact of WTR on time allowed for childcare (King and van den Bergh, 2017: 132). These two factors imply that population growth may cancel out the environmental benefits resulting from a diminished per capita consumption (King and van den Bergh, 2017: 132). Thus, the design of the WTR policy needs to be carefully considered since this might strengthen or cancel out the positive environmental impacts of the whole policy (King and van den Bergh, 2017: 132).

Pullinger (2014: 16) proposes a new, innovative approach called the green life approach, which aims to decrease an economy's environmental footprint as quickly as possible. The main aim of this approach would be not only to encourage important and rising amounts of voluntary time reduction, but also to offer increased support for leisure activities that have a low environmental impact, or are associated with improved wellbeing (Pullinger, 2014: 16). Such activities include volunteering in environmental and social projects, as well as participation in arts, crafts and cultural projects (Pullinger, 2014: 16).

3) Methodology

a)Scope of this research topic

This paper aims to explore how the wellbeing of both humans and the environment could be assured through the use of two degrowth policies, Basic Income (BI) and Working Time Reduction (WTR). Organisers of trials of these two policies have been interviewed to provide an insight on how alternative ways of organising companies, cities, or countries have been implemented and what is their environmental impact. In more general terms, this paper aims to explore whether BI and WTR can help individuals live in a more socially equitable and environmentally sustainable society and, at the same time, explore how the transition from the current growth-focused society to a degrowth one would be possible in practice.

The choice of this paper to focus on top-down policies addresses a gap encountered in the literature: detailed examples on how degrowth could work have been analysed thoroughly from a bottom-up perspective but rarely from a top-down one. The literature more frequently provides detailed examples of grassroots efforts (bottom-up), such as the rurban squats analysed by Cattaneo and Gavalda (2010), rather than instances in which degrowth policies could work on a larger scale, at a national level (top-down). In the context of this paper, top-down degrowth policies imply that the government is "the major driver of change", while bottom-up approaches are "advocated by degrowth proponents" on a local level (Cosme et al.; 2017: 321).

Furthermore, this paper has chosen to link Basic Income and Working Time Reduction, two policies emerging from the degrowth literature, to their environmental impact because there is a clear gap in the literature with regards to this question. Past papers did experiments to measure the environmental impact of these policies but none of them looked at past and ongoing trials of these policies that happened in different high and low income countries.

Basic Income and Working Time Reduction have been chosen from the range of degrowth policies available due to the fact that they are social policies stemming out of the degrowth movement that have individuals at their forefront; moreover, these two policies are part of a movement that has become stronger in the last couple of years around the world.

One of the first Basic Income trials was run in 2008-2009 in **Namibia** by the Basic Income Grant Coalition (Basic Income Grant Coalition, 2009).

Then, the Self Employed Women's Association together with India Network for Basic Income (INBI) conducted a major pilot study in **India** on Basic Income between 2011 and 2014 (SEWA Bharat, 2014).

In **Germany**, Mein Grundeinkommen represents a "micro version of a basic income" which was started in September 2014 and has been going on ever since; this project raffles one-year basic incomes of 1000 euros per month (West, 2016: np).

In **Kenya**, the GiveDirectly's Basic income experiments were started in October 2016 and some recipients will be receiving payments for up to 12 years (McFarland, 2017: np).

In **Finland,** the Finnish Social Insurance Institution (Kela) conducted a BI experiment from January 2017 to December 2018 (McFarland, 2017: np).

In **Canada** the Ontario Basic Income Pilot was started in June 2017 and will go on for three years (McFarland, 2017: np).

In **Scotland**, the government committed to fund and support BI experiments in September 2017; the Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA) is working with the government to prepare the experiments (McFarland, 2017: np).

In **Spain,** the B-MINCOME pilot was started in October 2017 by the City of Barcelona and will run for a period of two years (McFarland, 2017: np).

In **the Netherlands**, social assistance experiments have been launched in October 2017 and will go on for two years (McFarland, 2017: np).

Moreover, these policies have been chosen because they might prove to be beneficial for both people and the environment, and this represents one of the main hypotheses that this paper is aiming to test.

Reviewed papers for this article can typically be divided into 3 categories, referring to the economic, social, and nature (or environmental) aspects of degrowth. The majority of papers were focused on the economic aspects of degrowth, followed by papers looking at social aspects, and then the fewest number of papers looking at the environmental aspects. This paper aims to add to this gap of the degrowth literature.

The main focus of this paper is primarily on the environmental aspects of BI and WTR, while acknowledging that they are as important as the social and economic ones for achieving sustainability. This represents an intentional focus. One of the potential biases of this paper might be created by the fact that there were few papers in the literature on recent, current, or upcoming trials of BI or WTR. Therefore, the author aims to somewhat narrow the identified gap by conducting interviews with relevant trials to add new knowledge in this area. The author is aware that her questionnaire is done from a high-income country perspective which could be a bias created by the fact that the academic literature looking at the environmental impact of these policies usually adopted a high-income country standpoint and there is limited knowledge about low-income countries on this subject. This shows that, typically, academic articles in the literature that draw the link between BI and its environmental impact have rarely looked at low income countries. Representatives of trials from both high and low income countries have been interviewed by the author. Therefore, the questionnaire employed by the author has been adapted to the circumstances of each trial.

Most of the research in the academic literature on the environmental impact of these two policies is done from a high income country perspective. This paper includes case studies from both high and low income countries and is aware of how each of the interviewed trials has been adapted to the context in which it was, is, or will be implemented. The fact that this research project has interviewed representatives of trials from both high and low income countries can be considered one of its strengths.

It is during her six-month internship with Future Earth during the second half of 2017, in the Paris Global Hub, that the author has completed this research project. Therefore, this research project reunites ideas from both of Future Earth's Systems of Sustainable Consumption and Production (SSCP) Knowledge-Action Network and its Natural Assets Knowledge-Action Network. This paper aligns with the emphasis of the Systems of Sustainable Consumption and Production (SSCP) Knowledge-Action Network on "the need for more resolute action based on strong SCP perspectives and to build and disseminate knowledge on how this can be done in practice" (Future Earth Systems of Sustainable Consumption and Production Knowledge-Action Network, 2017). According to Future Earth's Natural Assets Knowledge-Action Network, "the challenge lies in achieving a scientifically-based, sustainable and fair stewardship of terrestrial, freshwater and marine natural assets underpinning human well-being by (a) understanding relationships between biodiversity, ecosystems and their benefits to societies and (b) developing effective management and governance approaches" (Future Earth Natural Assets Knowledge-Action Network, 2017). This paper is at the intersection of these two Knowledge Action Networks since it explores how the wellbeing of both humans and nature could be assured through the use of degrowth policies, BI and WTR. **The aim is to therefore explore whether BI and WTR can help individuals live in a more socially equitable and environmentally sustainable society and, at the same time, explore how the transition from the current growth-focused society to a degrowth one would be possible in practice.**

b)Data collection

This research project uses both secondary and primary sources. Secondary sources from academic research and grey literature have mainly been used to gather information on the topic. Few press articles have also been consulted in this research. For the purpose of providing specific examples of how Basic Income and Working Time Reduction policies impact the environment, several countries have been picked as case studies. The criteria stated in the definition of BI included in the introduction represent the requirements that a trial would have to meet to be classified as a genuine Basic Income trial. However, not all of the interviewed trials meet all the above criteria, therefore they cannot be considered Basic Income trials per se. Still, given that they have some of the characteristics comprised in the BI definition and given the fairly limited numbers of past, ongoing, or planned BI trials, the paper is using this strategy in order to have a wider sample and have a broader view for policy discussions and recommendations.

Case studies are a favoured research strategy when the researcher has little control over events and the emphasis is on a current phenomenon within some real-life context (Yin, 1994: 1). Using case studies has benefits and limitations. Considering that case studies involve a focus on personal experience and individuals might attribute different meanings to events and act dissimilarly at one time from another, generalization regarding the social world is not possible and, also, the prospective of generalised theoretical development is questionable (May, 2011:

221). Therefore, theoretical recommendations concerning the way in which employment degrowth policies could be implemented at a large scale may not be universal to all countries. A case study might even disprove a theory as it could be the exception (Stake, 1978: 5).

Data collection for the case study has been done using secondary academic sources as well as primary qualitative research. Primary sources include the following: one *email* (through SurveyMonkey) questionnaire with a company from Sweden currently having WTR in place and six semi-structured Skype/telephone questionnaires with Kela (Finnish Social Insurance Institution), Universitat de Barcelona/Barcelona City Council, India Network for Basic Income/Self Employed Women's Association, the Royal Society for the encouragement of Arts, Manufactures and Commerce Scotland (RSA), Deventer City Council, and the Basic Income Grant Coalition Namibia which have implemented, are currently implementing, or planning to implement Basic Income. The interviews have been conducted in English with representatives from the above-mentioned institutions/organisations/think tanks in Finland, Spain, India, Scotland, the Netherlands, and Namibia. A couple of the advantages of email questionnaires are: low distribution and processing costs as well as interviewer time not being required (Johnson and Reynolds, 2010: 312). Moreover, respondents are allowed to complete the interview at their convenience and social pressure or visual cues to create judgment are reduced (McCoyd and Kerson, 2006: 396-397). One of the difficulties encountered in collecting data through interviews was the limited number of countries in which trials of the two policies are done. Moreover, some of the organisers of ongoing experiments were not willing to be interviewed given that they have not collected any data on the link between the two policies and environmental impact.

Not all of the interviewed trials meet all the points comprised in the definitions of Basic Income or Working Time Reduction. The case studies for each policy will include both experiments with all the characteristics of BI or WTR and the trials that have some characteristics of these policies. This approach has been preferred to doing separate case studies for each country and the respective policy, which would have limited the number of experiments targeted since not all of the interviewed trials fill all of the criteria present in the definitions of BI or WTR. Also, by including several experiments from different countries in each of the case studies, this research project will have a larger sample of respondents and input that would make its policy recommendations relevant for future experiments in a wider selection of countries.

4) Results and Discussion

A.Case studies for each policy

The author has interviewed six institutions/organisations which have implemented, are currently implementing, or planning to implement Basic Income trials or pilots: Kela (Finnish Social Insurance Institution), Universitat de Barcelona/Barcelona City Council, India Network for Basic Income/Self Employed Women's Association, the RSA Scotland (Royal Society for the encouragement of Arts, Manufactures and Commerce), Deventer City Council, and the Basic Income Grant Coalition Namibia. She also interviewed a company from Sweden which implemented a Working Time Reduction scheme.[2]

Moreover, the author has contacted and got responses from Ontario's Basic Income Pilot in Canada, Eight (a Belgian development organisation currently implementing basic income pilots in Uganda), Mein Grundeinkommen (in Germany), the Common Weal, and the Svartedalen residential home in Gothenburg, Sweden, which had a WTR experiment in place as well as the researcher Dr Bengt Lorentzon who monitored the experiment there. The Basic Income Pilot in Ontario did not confirm that they will be looking at any environmental aspects. At the time they were contacted, Eight stated that they have not yet decided which variables they will be looking at or how the research methodology will be designed for their BI pilots in Uganda. In Sweden's case, environmental impact was not included in the evaluation of the WTR experiment at the Svartedalen residential home.

During the interviews with the representatives from India Network for Basic Income/Self Employed Women's Association and the Basic Income Grant Coalition Namibia, the author adapted the questionnaire to the context of the interviewed trial, depending on its location.

[2]The company has chosen to remain anonymous.

No.	Case Study	Which policy ?	Main objective	Monitoring	Environmental parameters
1	Kela (Finnish Social Insurance Institution)	BI	Test the effect of BI compared to the current social security system	Employment effects, social benefit take-up	consumption behaviour and voluntary work
2	Barcelona City Council from Spain	BI	Reduce economic poverty and social exclusion	household energy consumption, natural resource use, holidays and leisure activities, time and more quality time with relatives, transport patterns, and acquisition of goods for personal use	consumption patterns, leisure time, and how the local economy and cooperative initiatives develop
3	India Network for Basic Income/Self Employed Women's Association	BI	improve the livelihoods of their recipients and offer a way out of poverty	Financial inclusion, basic living conditions, family and child nutrition, health, eduction, work, labour & time use, savings,debt & economic resilience, women's status & agency	consumption patterns and how the local economy and cooperative initiatives develop

4	the RSA Scotland (Royal Society for the encouragement of Arts, Manufactures and Commerce)	BI	test more radical responses to intergenerational problems around health, inequality, poverty, unemployment, social disconnection	physical and mental health as well as wellbeing, entrepreneurial behaviour, opportunities for retraining or relearning, spend and service use, and gender, impact on consumption, and environmental impact	plan to have environmental aspects as one of the main indicators
5	Deventer City Council from the Netherlands	BI	test the replacement of Dutch welfare benefits with unconditional cash assistance	whether individuals become entirely independent from receiving social benefits, individuals being in part-time employment or getting a form of subsidised work, volunteering, social activation, improved intentions to find jobs, improved job search ability, self-efficacy, social contacts, health and wellbeing of people, the quality of life,	leisure time

				both objective and subjective health, and their capabilities	
6	Basic Income Grant Coalition Namibia	BI	improve the livelihoods of their recipients and offer a way out of poverty	alcohol consumption, level of crime, levels of poverty, hunger and malnutrition, general health, education, as well as economic activity, income and expenditure	how the local economy and cooperative initiatives develop
7	Company in Sweden	WTR	increase the wellbeing and happiness of staff as well as their ability to be better at their job in the long run	none	none

a) **Basic Income**

Namibia

What is it? Why was it tried?
This BI grant project was done with the hope that the Namibian government will take over and implement it as a national policy (Dirk Haarmann, 2017b).

What is the general context? How is it done and who is being targeted?
In January 2008, the Basic Income Grant (BIG) pilot project was started in the Otjivero-Omitara area, about 100 kilometres east of Windhoek; all residents registered as living there in July 2007 below the age of 60 years got a Basic Income Grant of N$100 per person per month, without any conditions (Basic Income Grant Coalition, 2009). The BIG pilot project has run for a period of 24 months up to December 2009 (Basic Income Grant Coalition, 2009). Then the project was extended for another two years in the form of a "bridging allowance" and then for another couple of months (Dirk Haarmann, 2017b). The BIG Coalition reunites four umbrella bodies in Namibia: the Council of Churches (CCN), the Namibian Union of Namibian Workers (NUNW), the Namibian NGO Forum (NANGOF) and the Namibian Network of AIDS Service Organisations (NANASO) (Basic Income Grant Coalition, 2009).

Dirk Haarmann (2017b) pointed out that the pilots done by SEWA Braharat in India were inspired by the experiment done by the BIG coalition in Namibia and, "even though the contexts are completely different, there are quite similar results in terms of nutrition, small economic activity increases, people started self-employment; you can see a circulation of the money within the community and improved welfare in the community".

What is being measured?
Some of the indicators comprised in the study were alcohol consumption, level of crime, levels of poverty, hunger and malnutrition, general health, education, as well as economic activity, income and expenditure (Basic Income Grant Coalition, 2009).

What did they achieve?
Dirk Haarmann (2017b) does not see the Basic Income Grant as a degrowth policy in the Global South context since it provides recipients with the possibility "to build small sustainable economic existences" through improved basic health, education, and local economic growth. The Basic Income Grant has the potential to help in working "towards sustainable growth which is environmentally friendly" in the Global South since there is a need to see it from a global justice and improved welfare perspective (Dirk Haarmann, 2017b). Moreover, in the Global South, though a BI grant, the poor "have the propensity to spend more money locally and, of course, a local economy is more environmentally friendly", while in the Global North there is a stringent need to implement degrowth since the rich "spend their money on luxury goods which are more environmentally detrimental" (Dirk Haarmann, 2017b).

Individuals living on the borderline of existence cannot afford the luxury of making more environmentally sustainable choices in their daily life (Dirk Haarmann, 2017b). They are typically forced into taking decisions that are not environmentally friendly given that their basic subsistence needs (e.g. hunger) are not fulfilled (Dirk Haarmann, 2017b). Having access to the Basic Income grant allows them to meet their basic subsistence needs and, later on, this might lead to changes in their future attitudes and choices which might involve environmental aspects (Dirk Haarmann, 2017b). Teaching environmental friendly practices to individuals who cannot meet their basic subsistence needs, given that environmental concerns are not part of their choices, could be a "futile exercise" and it might even become a "cynical" endeavour (Dirk Haarmann, 2017b). Having access to the Basic Income Grant offers individuals a choice, which might involve environmental aspects eventually, while before benefitting from the grant they did not have one (Dirk Haarmann, 2017b). Furthermore, Dirk Haarmann (2017b) points out that tackling basic health, nutrition, and education issues first is essential before teaching individuals in the Global South about being more environmentally friendly. Often development projects attempt to teach individuals about being more sustainable before addressing basic subsistence issues which leads to these projects' lack of results (Dirk Haarmann, 2017b).

Dirk Haarmann (2017b) states that "few families would get together, pool a part of their income and try to then start a business or start local economic growth together" which is linked to the sharing economy and cooperative initiatives.

India

What is it? Why was it tried?

The Madhya Pradesh unconditional cash transfer project comprising two pilots was launched in 2011 and lasted between a year and 17 months during which 6000 individuals in rural areas of the state of Madhya Pradesh were provided with "small unconditional monthly cash transfers" (SEWA Bharat, 2014). There was one pilot for tribal villages and another for non-tribal villages (SEWA Bharat, 2014). SEWA decided to do this experiment because they wanted to find out if unconditional cash transfers would be a better way of welfare delivery given that their members had issues accessing welfare benefits. After experimenting with the pilot for two-three years, SEWA decided to call these cash transfers Basic Income (Sarath Davala, 2017e).

What is the general context? How is it done and who is being targeted?

The Self Employed Women's Association (SEWA) partnered up with UNICEF in order to implement the experiment (SEWA Bharat, 2014).

What is being measured?

The main indicators include financial inclusion, basic living conditions, family and child nutrition, health, education, work, labour & time use, savings, debt & economic resilience, and women's status & agency (SEWA Bharat, 2014).

What did they achieve?

With regards to consumption patterns, the experimenters have noticed that participants "started eating better in the sense that there was more diversified food" (Sarath Davala, 2017e). Acquiring items such as milk, eggs, meat, fruits, and vegetables is dependent upon whether the household has financial means or not and having the unconditional transfers in place allowed participants to have access to those (Sarath Davala, 2017e). Also, participants "used to go to the forest to cut wood and use it but now they started using the gas that is available because they can purchase it" (Sarath Davala, 2017e). With regards to transport use, one type of initiative observed was the following: after individuals received the cash transfers they wanted to go to a nearby market to buy provisions and then transportation services started coming to the village to take them to the market (Sarath Davala, 2017e).

Sarath Davala (2017e) stated that, from their study, "unconditional and universal Basic Income has a very strong positive impact on social solidarity at various levels", which is related to the sharing economy and cooperative initiatives. Examples of cooperative initiatives that emerged in the villages include the following: everyone in the village offering a small sum of money when there was a function (e.g wedding) in the village, and especially in a poor household, without any expectations of having it back or a group of young people obtaining a harvest from the pond in the village and deciding to start an interest-free loan scheme for the entire village (Sarath Davala, 2017e). Giving out Universal and Unconditional Basic Income encourages this type of humanitarian and solidarity acts which stimulate "communitarian tendencies in people, solidarity in people as the reason of sharing of resources, of coming together, and less usage of energy" (Sarath Davala, 2017e).

The trials have shown that once individuals had access to money in both tribal and non-tribal villages, there was "a shift from being a wage labourer to being a cultivator" (Sarath

Davala, 2017e). Both production and productivity increased in the villages as individuals got access to cash and were able to, for example, buy more goats and sheep and then sell lambs in the market (Sarath Davala, 2017e).

Sarath Davala (2017e) argues that the link between Universal and Unconditional Basic Income and the environment can be drawn in the sense that states currently justify their aggressive growth-driven policies as a way to remove poverty through high growth; "there are more benign and sustainable ways of existing where we learn to consume less, where our governments do not pursue policies that take all of us on this rapid growth roller coaster, but pursue policies that are less aggressive and think of providing a minimum Basic Income to all". This would then lead to a more sustainable world in which individuals will "think differently about our lives and about the environment around us" (Sarath Davala, 2017f).

Finland

What is it? Why was it tried?
This is a temporary experiment and not an actual policy (Miska Simanainen, 2017d).

What is the general context? How is it done and who is being targeted?
The experiment started on the 1st of January 2017 and ran for a period of 2 years until December 2018.
2000 Finnish individuals between the ages of 25 and 58 who were recipients of unemployment benefits from Kela (the Social Insurance Institution of Finland) were randomly chosen to participate in a nationwide BI experiment (McFarland, 2017). The 2000 individuals were offered an unconditional monthly cash payment of €560, which is almost the equivalent of the amount provided by Finland's current unemployment assistance programs (McFarland, 2017).
The experiment participants were not required to prove that they are looking for a job or that they are taking on job offers but they could take on a job while still receiving their monthly cash payment, as opposed to Kela's current unemployment benefits system (McFarland, 2017).

What is being measured?
Registry data will be used as the main source for experiment analysis since it can be sourced without directly interacting with the subjects and experiment results are not expected to be released before 2019 (McFarland, 2017). Whether or not surveys will be done during and at the end of the experiment as well as their type is something that is still being considered and deliberated (Miska Simanainen, 2017d). The assessment of the experiment, according to the information the interviewee had at the time of the interview, will happen "after the experiment or, at least, it will be made public after the experiment" (Miska Simanainen, 2017d).

The consumption behaviour of the experiment participants is not measured prior, during, and after the experiment (Miska Simanainen, 2017d).

On studying the experiment participants' leisure time, the interviewee states that it has not been decided yet who will do the final survey of the experiment, which would be something different from the analysis done with data collected through public registers (Miska Simanainen, 2017d). Some data that is worth looking at can be collected from public registers; for instance, the impact of BI on the use of public health services could be examined using public registers (Miska Simanainen, 2017d). However, if Kela (the Social Insurance Institution of Finland) will be doing the final survey, they will look into how participants are spending their time since this is something they are eager to examine (Miska Simanainen, 2017d).

What do they hope to achieve?
The primary outcome of this experiment is "trying to find out the effect of BI compared to the current social security system" (Miska Simanainen, 2017d). Other outcomes being examined are "the employment effects, the effect of BI on the market income of individuals, the effect of Basic Income on social benefit take-up" as well as "registration as an unemployed job seeker and participation in public employment promotion measures" (Miska Simanainen, 2017d).

In the context and design of the Finnish experiment, environmental outcomes are not a primary focus (Miska Simanainen, 2017d). However, the interviewee mentions that they are interested in examining if participants "are actively engaging in voluntary work", this being a

classic question linked to BI which is connected to social behaviour but which also overlaps with the environmental behaviour point of view; when looking at their participants' voluntary activities, the environmental impact of BI could be indirectly deduced (Miska Simanainen, 2017d).

Spain

What is it? Why was it tried?

This project was one of the most crucial statements of the current municipal government of Barcelona, led by the left-wing party Barcelona EnComú (Bru Lain Escandell, 2017a). "The idea with the pilot is to design and to implement this program along with the social associations and networks, while integrating and collaborating both phases of the project with other areas of the same city council" (Bru Lain Escandell, 2017a). This project is not a "pure Basic Income" one because it also includes four different kinds of public policies (Bru Lain Escandell, 2017a). The experiment includes "two different policies: provides its recipients with cash transfers, and with four kind of active social policies" (Bru Lain Escandell, 2017a).

The main aim of the experiment is to reduce "economic poverty and social exclusion in the city of Barcelona" (Bru Lain Escandell, 2017a).

The B-MINCOME experiment has partnered up with cooperative associations in Barcelona which will give participants the opportunity to benefit from "public policies of social entrepreneurship which means the creation of new cooperative businesses" (Bru Lain Escandell, 2017a). Therefore, participants are encouraged to get involved in the sharing economy as well as participate in and develop the local economy.

What is the general context? How is it done and who is being targeted?

Barcelona's B-MINCOME experiment was launched in October 2017 and will last for a period of 2 years; 2000 households have been selected from the current recipients of social assistance benefits to take part in this experiment (McFarland, 2017). It targets Besos, Barcelona's poorest area (McFarland, 2017). 1000 households have been allocated to the control group while the other 1000 ones have been split up into ten treatment groups (McFarland, 2017).

The participants are asked to fill in three surveys: one at the start of the experiment, one midway, and one at the end of the experiment or six months after the end of the experiment (still to be decided) (Bru Lain Escandell, 2017a). These surveys are not so specific to the point that they would ask participants about end-of-life management of objects (collection, valorising, recycling) (Bru Lain Escandell, 2017a).

What is being measured?

The following aspects are being monitored: household energy consumption, natural resource use, holidays and leisure activities, time and more quality time with relatives, transport patterns, and acquisition of goods for personal use (Bru Lain Escandell, 2017a).

With regards to participants' consumption patterns, "household energy consumption, natural resource use, holidays and leisure activities, time and more quality time with relatives, transport patterns" and "acquisition of goods for personal use" will be measured throughout the experiment on a household level (Bru Lain Escandell, 2017a).

In terms of surveying how participants spend their time, the experimenters are looking at how many times participants "meet with political parties or social movements and associations' or 'how much time they spend weekly with their relatives" (Bru Lain Escandell, 2017a).

What do they hope to achieve?

The experimenters expect an improvement in consumption, transport, and education and they expect the experiment participants to become independent from public aid and benefits after the experiment (Bru Lain Escandell, 2017a). This is expected given that the participants will be provided "with money and/or with public policies to increase household supplies and wellbeing in general terms, and more particularly, their skills in work, social relationships, entrepreneurship, and education" (Bru Lain Escandell, 2017a).

The experimenters also expect an increase in the number of holidays taken by participants as well as increased involvement in leisure activities such as cinema, theatre, and concerts; low income households usually do not have the means to take a holiday or get involved in this kind of activities and this is why these aspects are being surveyed (Bru Lain Escandell, 2017a).

The Netherlands

What is it? Why was it tried?

Groningen, Wageningen, Tilburg, and Deventer City Councils have launched two-year experiments in October 2017 and, in the Netherlands' case, these projects have emerged from a bottom-up initiative which reunited municipal leaders and university researchers (McFarland, 2017). These experiments aim to test the replacement of Dutch welfare benefits with unconditional cash assistance (McFarland, 2017).

What is the general context? How is it done and who is being targeted?

The *Participation Act*, which is a law that was passed in 2015, allowed councils to experiment with an option to Dutch workfare-based benefits but which also prevented them from testing "a truly unconditional and non-means-tested Basic Income" (McFarland, 2017). For all of the trials the participants have been selected from current social assistance recipients and have been distributed either to a control group or to one of the treatment groups (McFarland, 2017). Social benefits recipients in the Netherlands are expected to do something in return such as sending five job applications per week and taking part in meetings and training activities (McFarland, 2017). Present experiments aim to provide individuals with social benefits and social support with less rules attached (Sofie de Boer, 2017f). Still, when the Dutch Ministry of Social Affairs granted the four councils the permission to run experiments they also set a number of rules which do not allow the running of a complete Basic Income experiment (Sofie de Boer, 2017f). However, the experiment run by Deventer City Council has one research group whose characteristics resemble those of a Basic Income experiment (Sofie de Boer, 2017f). They ask of participants as little as possible which involves the fact that participants need to make a plan, set a goal for themselves, and work towards that goal; if a year has gone by without participants doing any of these, then they will have to stop their participation in the experiment and return to the regular social benefit policy (Sofie de Boer, 2017f). Therefore, this is not a Basic Income group but one that has some BI characteristics because there are still some restrictions imposed by the ministry and participants do not get money without giving anything in return (Sofie de Boer, 2017f).

What is being measured?

The main indicator for measuring the impact of these experiments that the Dutch Ministry is interested in is whether individuals become entirely independent from receiving social benefits and there are only two ways in which that can happen: either getting a job or applying for further education (Sofie de Boer, 2017f). Therefore, the only indicator that the Dutch Ministry of Social Affairs is interested in is individuals becoming independent of social benefits but the Deventer City Council is interested in looking at other indicators as well (Sofie de Boer, 2017f). The Deventer City Council is looking at other indicators such as individuals being in part-time employment or getting a form of subsidised work, volunteering, social activation as well as "improved intentions to find jobs, improved job search ability, self-efficacy, social contacts, health and wellbeing of people, the quality of life, both objective and subjective health, and their capabilities" (Sofie de Boer, 2017f).

The council is asking participants how often they visit a doctor and also how healthy they feel (Sofie de Boer, 2017f).

All the councils conducting the experiments have the same questionnaires that they ask participants every 6 months (Sofie de Boer, 2017f). These questionnaires include questions regarding whether or not participants "find it important to have enough income" but there are no questions tackling consumption (Sofie de Boer, 2017f). The questionnaires include questions regarding the activities individuals are currently undertaking and the weekly time they spend doing them; they have several options they can choose from which include volunteering, caring for friends and family, taking a course, or other (to be filled in) (Sofie de Boer, 2017f).

What do they hope to achieve?

Present experiments aim to provide individuals with social benefits and social support with less rules attached (Sofie de Boer, 2017f).

Scotland

What is it? Why is it planned?

In October 2016 the councils of Fife and Glasgow announced their commitment to examine the viability of BI experiments at a municipal level (McFarland, 2017). In February 2017 the Glasgow City Council decided to have workshops on the several aspects related to the feasibility of a BI experiment and partnered up with the British think tank, the Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA) (McFarland, 2017). North Ayrshire and Edinburgh City Councils have joined the initiative of the Glasgow and Fife ones (McFarland, 2017). In September 2017 the Scottish Government stated that they are committed to fund BI trials in the four municipalities mentioned above (McFarland, 2017).

What is the general context? How is it done and who is being targeted?

In Scotland the idea of Basic Income has been looked at for quite a while now by scholars such as Annie Miller and Ailsa McKay and the Scottish Green party have been long established supporters of it (Jamie Cooke, 2017c). One of the main parts of the motivation to experiment with BI is that there appears to be a growing feeling in Scotland that more radical change and responses are needed to solve "intergenerational problems around health, inequality, poverty, unemployment, social disconnect" (Jamie Cooke, 2017c). Moreover, "within Scotland there has been very much a push from a social justice perspective around the BI movement" (Jamie Cooke, 2017c). At the time of the interview, the interviewee stated that the RSA Scotland was working with the four councils on the design stage of the experiments and that this was likely to last between a year and 18 months (Jamie Cooke, 2017c).

What is being measured?

In terms of measuring the impact of BI the following indicators are the potential ones to be looked at: physical and mental health as well as wellbeing, entrepreneurial behaviour, opportunities for retraining or relearning, spending & service use, and gender (Jamie Cooke, 2017c). Moreover, Jamie Cooke (2017c) states that "impact on consumption and environmental impact I think is an area that we really need to look at because I don't think it's been considered enough as of yet". The RSA Scotland and the 4 councils are keen to look at how an improvement in physical and mental health impacts the use of health services provided by the NHS (Jamie Cooke, 2017c).

What do they hope to achieve?

Jamie Cooke (2017c) believes that environmental impact is a crucial point to consider in designing the basic income experiment in Scotland, and then as a policy, in the era where we talk about climate change and sustainable development, particularly for the countries in the Global North. Also, Jamie Cooke (2017c) states that his initial thinking on the link between BI and environmental impact is the following: "a lot of environmental issues, and particularly personal

impact on environmental issues, are quite long term in nature and I suspect where people are living precarious lives they're pushed into short term mindsets around survival rather than long term flourishing and personal growth as opposed to economic growth". Therefore, Jamie Cooke (2017c) is wondering "whether creating a more secure environment and lifestyle for people will also create a better opportunity for them to engage with longer term thinking around behaviour change to improve environmental impact".

b) Working Time Reduction

Sweden

What is it? Why was it tried?
The main motivation behind implementing WTR in this company was to increase the wellbeing and happiness of staff as well as their ability to be better at their job in the long run given that they would have more time for other activities different than work.

What is the general context? How is it done and who is being targeted?
Both private companies and public sector service providers such as the Svartedalen residential care home have experimented with WTR in Sweden in the past couple of years by switching to a six-hour work day (Crouch, 2015: np). While some companies such as Toyota switched to WTR 15 years ago and did not change anything since, other trials such as the one at the Svartedalen residential care home have lasted for only a limited period of time (Crouch, 2015: np).[3] Nurses in the residential care home had their working hours reduced to six hours a day while still receiving their full time pay (Lorentzon, 2017: 14).

The Swedish Company representative (2017g) stated that in six hours they produce the same amount of work that they would be expected to produce in a context with longer working hours due to the fact that they work efficiently.

What is being measured?

They did not have any indicators to measure the impact of WTR in their company and they had WTR in place since the company was created because their founder knew from personal experience the benefits of WTR. All of the 28 staff members are subjects of WTR. The company offers a full time salary coupled with shorter work days (Swedish Company Representative, 2017g).

What did they achieve?
Looking at the environmental impact of this measure is not part of their objective and therefore not monitored. They stated that they do not have records of how employees were spending their leisure time before and after their participation in WTR. Moreover, the company does not have records on which activities their employees presently engage in compared to those they took part in before being under WTR (Swedish Company Representative, 2017g).

The Swedish Company Representative (2017g) believes that the company's working hours cannot be connected to how their staff "prioritise the environment". Monitoring environmental impact is not part of the objective and therefore not evaluated.

[3] The author has contacted Toyota for an interview but the company did not respond to the request.

B. Discussion

The case studies and their methodologies do not target BI and WTR in terms of their environmental benefits. Therefore, **these case studies do not confirm or deny the hypothesis, offering only a limited answer to the research question of this paper.** They are not explicitly monitoring environmental benefits or not monitoring them at all. Therefore, **this research paper has identified a major gap between the theory of the environmental benefits of WTI and BI and the practice, where the theory is not considered by policy makers and private companies (not as a second priority, but not at all, in many cases). This points to the divide between academic research and on-the-ground implementation.**

This paper has started from degrowth, which encompasses ideas about reducing environmental impact, and then looked at BI and WTR as prominent policies that emerged from the degrowth literature. However, looking at some examples of these policies being implemented did not prove that they reduce individual environmental impact, given that it was not one of the main targets of the interviewed experiments.

Even though degrowth has emerged as a concept in the Global North and was designed for it, there are policies comprised in it that are relevant for the Global South. Basic Income proves to be a sustainable way for the Global South to develop. It is crucial to focus on looking at the environmental impact of these two policies in the Global North more than in the Global South since the Global North has, overall, the higher environmental impact of the two.

It was important to adjust the questionnaire to the situation of each case study. Three of the seven case studies proved to offer more insight than others with regards to the research question: Spain, the Netherlands, and India. Spain is measuring how participants spend their **leisure time** and they expect an increase in the **wellbeing** of their participants due to the fact that they are provided with more financial resources to have more holidays and take part in cultural activities they do not usually take part in. Similarly, in the Netherlands they look at how individuals spend their time in the sense that they take into account activities such as volunteering. The Spanish and Dutch experiments are the ones that look so much in detail at the activities of participants, given that they ask how much time they spend on these activities every week. This is a good indicator when looking at individual environmental impact. However, given that these are experiments have started a little while ago and they are ongoing at the time of writing, there is no data available yet on what type of activities and for how long participants engage in them. This makes it difficult to establish the positive or negative environmental impact of these trials at this point in time.

Moreover, in the Spanish experiment participants are encouraged to get involved in the

sharing economy and cooperative initiatives as well as participate in and develop the local economy. In both India and Namibia participants started cooperative-like initiatives and the local economy was expanded as a result of the trials. The boosting of the local economy and the involvement in cooperative initiatives is likely to lead to a more positive environmental impact. This is a beneficial aspect to investigate when aiming to establish the actual environmental impact of the trials.

In India and Namibia Basic Income brought tremendous nutrition, health, and education improvements which imply, for instance, a clear increase in **consumption**. It also resulted in improved livelihoods for participants and offered them the possibility to have a wider set of options regarding their choices which might, further along the line, include environmental concerns. In Namibia's case the interviewee pointed out that, when individuals are pressured by financial strains (e.g. not being able to meet nutrition requirements), they have to make choices from a short-term perspective. They lack the means to think on a longer term perspective which would involve environmental impact considerations and more environmentally friendly choices.

Regarding consumption evaluation, in the Netherlands **consumption levels** are not looked at at all while in Finland consumption levels could be investigated at the end of the experiment but, at the time of writing, this has not been definitively confirmed. In Scotland they plan to look at the pilot's impact on consumption and its overall environmental impact. It is encouraging that Scotland wants to look at environmental aspects as one of the main indicators of their future trials and wants to include questions specifically targeting consumption. Furthermore, it is promising that Spain has already included specific questions on consumption (measuring household energy consumption, natural resource use, holidays, and transport patterns) in the surveys participants have to fill in. Also, it is promising to see that Finland is considering including consumption in their final evaluation of their BI pilot. There is some interest in comparing "the consumption behavior of the treatment group to the control group at a certain point in time" by providing them questionnaires to fill in at the end of the experiment which could help in determining if there are any differences between them given that at the starting point these two groups are similar in many aspects (Miska Simanainen, 2017d). Even though there is no information available at the moment regarding participants' consumption, the interviewee stated that thinking of using surveys to collect information on consumption is useful (Miska Simanainen, 2017d). The interviewee could not state with certainty that this aspect will be measured but he mentioned that Kela (Finnish Social Insurance Institution) has 'had discussions that if some surveys are made they will be made in the end of the experiment and, of course, they could include questions that are related to consumption for example' (Miska Simanainen, 2017d).

According to the information collected by the author up to the time of writing, consumption will be looked at in more detail only in Spain's case while other countries are considering its investigation (Finland) or plan to investigate it in future trials (Scotland). This is a positive aspect to be looked at in the environmental evaluation of the trials and further research is needed in order to establish the positive or negative environmental impact of these trials.

Finland and Scotland have mentioned examining the **impact of Basic Income on public health services**. This has also been mentioned in the Netherlands' case to some extent given that the experimenters ask participants how often they visit their doctor. Spain will be looking at the

overall well-being levels of their participants. It is likely that public health services will be less used due to an increased level in physical and mental health as well as wellbeing. Therefore, the environmental impact of the health sector could be reduced. However, given that these are ongoing trials and their results are not available yet, one cannot pronounce themselves on the environmental impact of trial participants with regards to this aspect.

Moving to WTR, the Swedish company did not have any data on how their employees spend their **leisure time**. Since the company had WTR in place from the very beginning it was not possible to look at whether the employees' salary or their consumption patterns changed since implementing WTR. WTR has typically been proved to be an efficient way to increase citizens' wellbeing and this was one of the outcomes mentioned by the Swedish interviewee as well. The interviewee stated that the company's WTR policy cannot be connected to their employees' attitude towards environmental impact. This WTR case study does not prove to be adequate for this paper's research question given that environmental impact assessment is not part of their objective and therefore not monitored.

5) Conclusion

Environmental impact or environmental sustainability assessment is not often the objective of BI and WTR experiments, or it is not central, and thus poorly monitored. However, this does not diminish the value of the interviewed experiments. This paper is looking at WTR and BI as pathways to environmental sustainability but the case studies do not make it possible to clearly state that those two policies help in transitioning towards a sustainability that clearly includes environmental aspects. However, raising awareness towards a positive link between BI and WTR and their environmental impact is important for future research.

The case studies have proven to have a strong focus on social and economic aspects but they did not take environmental aspects into account. Still, given that the academic literature on this research question is not very large and given that few existing articles look at up-to-date top-down policies linked to this research question, this paper points out that there are gaps in research regarding this topic. How can we research/understand experiments to see what can help us towards sustainability? What should future research be careful with? How could experiments better monitor multiple effects/side effects?

Below are some possible reasons for the lack of monitoring and evaluation of environmental aspects in BI and WTR trials.

First, the case studies have their own specific priorities but they do not explicitly monitor environmental impact. Even if they are not helping with this paper's hypothesis, they are helping answer sustainability questions related to social aspects, health, employment, and gender. Thus, the case studies offer an insight into other aspects of a sustainable lifestyle.

Second, BI and WTR might not be strong entry points for environmental sustainability analysis. Environmental impact might be monitored only indirectly through these two policies. Little input has been obtained through the case studies since it is difficult to monitor environmental impact given that the nature of these policies does not allow an insight into the private dimension of individuals' life (monitoring what individuals do outside work is related to private life). Moreover, BI and WTR might not be the adequate tools to measure environmental impact since interviewed policymakers might be carefully evaluating environmental impact through other policies than these two.

Third, case studies that would be specifically tackling this paper's research question were not found due to reasons such as the fact that they might be in a language different than English.

Fourth, some of the case studies are considering the inclusion of environmental sustainability evaluation at a later stage. There is potential to do more in investigating environmental impact.

In terms of policy recommendations, future trials need to have better monitoring and an improved design that includes environmental impacts. This would be beneficial for the

experimenters because it can show that they do not only care for the wellbeing of people but also about the environment. Environmental evaluation in future experiments with BI and WTR should be one of the major aspects to look at for both policy makers and private companies, given the major gap between theory and practice identified in this research paper. The environmental evaluation suggested by this paper could be adopted in future BI and WTR trials. Furthermore, if future trials make environmental impact one of the main indicators to be measured, in order to have as accurate responses as possible about the environmental impact of these policies, there is a need to look at a sample that includes individuals from all groups in the society. Current experiments only target social benefit recipients or very poor individuals. Moreover, there is potential for experimenters to do much more and to have a holistic view on sustainability that would also include environmental impact and develop into a coherent set of sustainability-oriented policies.

Further research should be looking at environmental impact on an individual level (interviewing the experiment participants). The entry point would be the people who participate in the experiment and not the companies, experimenters, or organizers. This approach was beyond the scope and means of the researcher.

Furthermore, future research should be looking at other policies linked to degrowth and environmental sustainability for a more detailed and comprehensive analysis of environmental impact. The present research shows a missing link between degrowth-related policies and the overall degrowth objective of environmental sustainability. Future research could thus question this missing link between alternative socio-economic systems on one side and lower environmental impacts on the other through exploring multiple examples of policies. This gap could be an opportunity for the degrowth narrative to be more developed, and to better understand the potential for coherence in sustainability policy efforts.

However, a widespread change in attitude that would lower individual environmental impact could be achieved if BI and WTR are coupled with other degrowth policies (e.g. restrictions to advertising, awareness campaigns on how to degrow efficiently within the household) (Kallis, 2011: 873). For instance, individuals might not necessarily choose to spend their time outside of work engaging in activities that will lower their environmental impact; it is strictly a matter of personal choice. Still, this could be achieved if there are policies that create incentives for individuals to spend time in activities that would lower their environmental impact, which suggests that BI and WTR would work best as part of policy coherence being in place. There is need for a coherent, global sustainability policy framework.

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Appendix 1

Questionnaire for Basic Income and Working Time Reduction trials

I) Preliminary questions

1) Do you wish to remain anonymous (yourself or organisation/institution)?
2) Do you agree for this interview to be recorded?
3)To what extent can I use what you are saying in my research paper? Could I quote you?
4) Which was the main motivation behind your choice to implement BI/WTR? Did you have indicators to measure the policy's impact? Which ones? What was your evaluation? Do you have precise background information on how the experiment was implemented? When/what was the change? How many participants? Salaries? Workload?

II) Income and consumption per capita levels

5) Have you registered any change in the participants' consumption behaviour in their: / Do you believe BI/WTR can change the trial participants' consumption behaviour regarding their:

a) household (energy consumption, natural resource use)
b) Holidays and leisure activities
c) transport patterns (eg. decrease in their use of cars/planes and increase in the use of bikes/public transport)
d) food choices (buying more organic food, participating in food sharing activities, becoming vegan or vegetarian)
e) acquisition of goods for personal use
f) use of objects/facilities (through maintenance, repair, reuse)
g) end-of-life management of objects (collection, valorising, recycling)

compared to previous levels?

6) What do you think is the reason for this change in behaviour if any?
7) Since becoming subjects of this policy, did your subjects get involved in the sharing economy (eg cooperative initiatives)? How and how often?

III) Leisure time

8) Do you have records of how your participants were spending their leisure time before and after their participation in the BI/WTR experiment?/ Will the participants' way of spending their leisure time be looked at before and after their participation in the BI/WTR trial?

9) Which activities do they presently engage in compared to those they took part in before participating in the experiment?
10) Do they currently engage in any activities with a low environmental impact (eg cycling, hiking, reading, volunteering, DIY&crafts)?/ Do they actively engage in protecting the environment (eg. volunteering)?
11) Do you believe the findings of your sample would apply if your experiment would be implemented at a larger scale (entire country)? Why?

IV) Further remarks

12) What else could be done to ensure the better efficiency of BI and WTR? (Which other policies or measures could be implemented alongside?)
13) Are these two policies feasible at a large scale in the current society? Why and how?
14) Will you be considering these questions when evaluating the impact and results of your experiment?
15) Which other questions do you think this questionnaire should ask?