‘PRIVILEGE AND HEALTH: THE INEQUITABLE DISTRIBUTION OF CONTEMPORARY ENVIRONMENTAL HARM’

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Abstract

This article examines the modern concept of environmental justice (EJ) with a focus on the inequitable distribution of environmental harm stemming from contemporary global issues. The article takes an expansive, global view of issues by analysing country-specific case studies. These case studies include assessing the impact of wildfires in California, sea level rise in the Maldives and air pollution in the UK. Through the lens of EJ and social justice, it is argued that negative impacts and harm resulting from environmental disasters are disproportionately borne by vulnerable populations. These vulnerable populations include low-income, less affluent communities. It also includes those who lack the personal capacity to move away from dangerous environments such as children, the elderly and those who have poor health or are disabled. Throughout this article, environmental law and policy failures, at both national and international level, which may be seen to contribute to the negative social impacts, are outlined. This involves discussion as to how governmental tiers can take action to ensure distribution of environmental harm is more equitably apportioned.

Introduction

Environmental Justice (EJ) is a relatively recent and wide-ranging concept which has gained prominence in the past two decades. The concept acts as a bridge between environmental law and policy and social justice through a focus on the human impact from environmental harm. This includes looking at community impacts, as well as individual

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impacts.[2] At a solely legal level, EJ is widely applicable and can be used as a lens to assess an array of areas in addition to environmental law such as immigration law and human rights. EJ upholds the idea that harm resulting from the environment should be equitably distributed across a population as opposed to being most concentrated within vulnerable or less affluent pockets of society. This idea remains the same for environmental benefits whereby EJ acknowledges that environmental goods should be enjoyed by a population as a whole and freely distributed, as opposed to only being enjoyed by those who are more affluent and can afford it.[3]

EJ is, however, merely one social dimension to consider in relation to the larger complex picture of contemporary environmental issues. Positive solutions require a range of interdisciplinary action across scientific, social, economic, legal and political spectrums.[4] Due to the multi-faceted approach needed to tackle environmental problems, extensive research, knowledge and skills are required across each individual discipline to adequately address inequalities.[5] Further, environmental problems are inherently complex due to the size of the problems and the scale at which consequences are felt at both a global and local level.[6] This difficulty is only compounded when taking into account that some problems, such as air pollution and climate change, are intangible.[7] They lack ownership and specific root causes yet have a wide-reaching, general impact upon the global population.[8] Naturally, these complex environmental problems also have difficulties of restitution whereby issues such as climate change and island loss from sea level rise cannot be undone or restored.[9]

The overarching goal of social analysis relates to understanding varying types of harm imposed upon vulnerable populations.[10] Therefore, it is important to note that in the modern day, much of this imposed harm at both global and local levels stems directly from

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[2] David Schlosberg, Defining Environmental Justice: Theories, Movements and Nature (Oxford University Press 2007) p.5.
[3] Julian Agyeman and Bob Evans ‘‘Just sustainability’: the emerging discourse of environmental justice in Britain?’ (2004) Vol.170(2) The Geographical Journal p.155-164.
[4] Stuart Bell and others, Environmental Law (9th edn, Oxford University Press 2017) p.4.
[5] ibid.
[6] N3.
[7] N3 p.537.
[8] ibid.
[9] Laura Westra Environmental Justice & The Right of Ecological Refugees (Earthscan 2009) p.185.
[10] Rob White, Environmental Harm: An Eco-Justice Perspective (Policy Press 2013) p.1.

environmental problems caused by anthropogenic activity or human-induced processes.[11] We live in a continuously developing global economy which is fuelled by consumption from wealthy nations in the name of innovation. At a global level, mass over-consumption and the resultant environmental fall-out poses significant threats to poorer nations and communities through issues such as global warming, which contributes to rising sea levels and increased wildfire risk. EJ upholds human rights and complements international treaties by protecting interests and providing a voice to small nations and communities who are at risk of devastation as a consequence of human-induced global warming. At a local level, poorer communities and individuals bear the burden of dealing with the greatest exposure to heavily polluted air from anthropogenic activity such as transportation and industrial developments. EJ provides a means to highlight the inequitable distribution and allow governments to form and implement targeted law and policy measures to benefit those most in need.

The United Nations, in 2015, introduced the 2030 Sustainable Development Goals with a focus on achieving a sustainable future for all. The 17 goals include addressing inequality, climate change and environmental degradation.[12] Evidence suggests that more socially and economically equitable countries are often found to be more environmentally friendly across a large range of environmental factors.[13] This is due to equality having a positive impact upon health and, in turn, happiness and life satisfaction.[14] As society has a direct result upon attitudes and behaviours, the goal of sustainability could be said to partially lie within the rectification of inequality, in all of its forms.[15] Therefore, through the acknowledgement and continued development of social justice principles such as EJ, environmental improvements can be felt across the board which will aid in the ongoing goal of creating a sustainable future.[16]

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[11] European Environment Agency, 'Anthropogenic processes' https://www.eea.europa.eu/archived/archived-content-water-topic/wise-help-centre/glossary-definitions/anthropogenic-processes (Last accessed 20th April 2021).
[12] United Nations, 'Sustainable Development Goals' https://www.un.org/sustainabledevelopment/sustainable-%20development-goals/ (last accessed 22nd April 2021).
[13] Danny Dorling, *The Equality Effect: Improving life for everyone* (New Internationalist Publications Ltd 2017) p.250.
[14] ibid.
[15] N12.
[16] Mitchell G 'The messy challenge of environmental justice in the UK: Evolution, status and prospects' (2019) Natural England Commissioned Reports, No 273.

1 The Concept of Environmental Justice

Environmental Justice (EJ) has gained prominence over recent decades as a terminological vehicle used as a tool for mobilization of the masses and, somewhat, as a policy principle at governmental tiers.[17] The movement comes at a time where political and social relationships are witnessing greater frictions, tensions and harms as marginalized populations gain consciousness and self-awareness of their surrounding environment and inequality.[18] The unprecedented ascendancy of mankind and exponential growth of the population has given rise to, what scholars have labelled, the anthropocene epoch; the collective domination of human activity.[19] The situation thus raises questions as to the significance of the concept of EJ in the wider context of development in an interconnected world of social conflict.

1.1 Definitions and Interpretations

While the concept of EJ has gained traction and been propelled into environmental discourse in a relatively short timeframe, it has also been subject to difficulties identified as being 'from problems of definition'.[20] This is partly due to the conceptually broad nature of EJ accompanied with the myriad of inter-relationships it possesses.[21] Much like the majority of environmental principles, stand-alone concepts are far and few between. Stability in a concept is often found when considered alongside and in conjunction to similar concepts; the synergy of EJ and sustainability being just one example.[22] However, the resulting lack of clarity can blur the outer limits of what constitutes an environmental principle over a social justice principle.[23] As EJ in its broadest sense is such a substantive global issue, this overlap prompts potential for it to mean anything to anyone.[24]

The United States' Environmental Protection Agency defines EJ as encompassing the 'fair treatment and meaningful involvement of all people regardless of race, colour, national

[17] N2.
[18] David Naguib Pellow, *What is Critical Environmental Justice?* (Polity Press 2017) p.13.
[19] ibid.
[20] N3 p.76.
[21] N15.
[22] N2.
[23] N3 p.75.
[24] N3 p.76.

origin, or income'.[25] This fair treatment and involvement comes, multifaceted, in respect of development, implementation and enforcement of environmental laws, regulations and policies.[26] Injustices are not solely a consequence of what the law prescribes but equally take form when legal principles are put in to action.[27] Environmental policy, therefore, should reactively address environmental issues, such as air pollution and climate change head-on. Policy should also simultaneously distribute environmental goods such as life quality, proactively, to all people.[28] Environmental Justice's foundation of fair treatment stems from the desire that no specific population should bear a disproportionate share of negative environmental consequences.[29] Bullard is of the view that the intentions of policy makers are irrelevant in relation to determining whether a community has been disproportionately affected by their environment; the mere existence of oppressive practice is enough to constitute injustice.[30]

A strong link is also observed between EJ and the protection and upholding of human rights.[31] Article 1 of the Aarhus Convention, for example, sets out the objective of protecting rights of individuals to live in environments adequate to his or her health and well-being.[32] Contributions by parties towards this goal encompass solidifying the rights of individuals' access to justice in environmental matters, access to information and public-participation. The Convention[33] acts as a key, contemporary, contributor to the subtle merging of EJ, a social justice principle, into legal systems.[34] By binding enforceable rights with environmental and social justice principles, a strong foundation is laid providing more control for individuals over their environment. It also provides populations an extra tool for enforcing lax environmental legislation.[35] It can be said, however, that the creation of environmental rights, while a step in a positive direction for vulnerable populations, may still

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[25] United States Environmental Protection Agency, 'Learn About Environmental Justice' < https://www.epa.gov/environmentaljustice/learn-about-environmental-justice> last accessed 7th December 2020.
[26] ibid.
[27] N3 p.76.
[28] N2.
[29] N24.
[30] Robert D Bullard, 'Dismantling Environmental Racism in the USA' (1999) Vol.4(1) Local Environment The International Journal of Justice and Sustainability p.5-19.
[31] N3 p.75.
[32] Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters UNTS Vol.2161 p.447 (1998) < https://www.unece.org/fileadmin/DAM/env/pp/documents/cep43e.pdf> last accessed 8th December 2020.
[33] ibid.
[34] N3 p.76.
[35] Ole W Pedersen, 'European Environmental Human Rights and Environmental Rights: A Long Time Coming?' (2008) Vol.21(1) Georgetown International Environmental Law Review p.1.

be rendered inefficient without the accompanying social and political networks required to exercise said rights.

Environmental Justice, which has been viewed as a 'contested and problematized concept'[36], has prompted the view from some experts that the concept is not 'green' enough to amount to an environmental concept and that it sits more comfortably entirely within the realms of social justice.[37] However, its linkage, or what Schlosberg has termed 'cooperative endeavours'[38] with the sustainability movement reflect the significance of 'placing [sustainability] within a context of social justice, equity and human rights'.[39] While EJ and sustainable development do not necessarily fully intertwine, the two critically complement each other. Sustainability is often seen to be more future-orientated while EJ has a focus on the present and the past[40] as well as the process.[41] However, Sands has noted intergenerational equity and the preservation of resources as a key component to sustainable development.[42] While EJ may not be enough alone to constitute environmental redress, the battle for global sustainability will forever be a battle until the burden is relieved or ecological violence is no longer inflicted upon powerless communities and populations.[43] It can be said, therefore, that social justice (encompassing EJ) is a prerequisite for the sustainability movement and is inseparable from the path to achieving environmental protection.[44]

1.2 History

Environmental Justice as a notable concept has grown and spread organically over the years. It initially emerged in the 1960s in the United States of America which possessed a strong culture of deep-rooted racism.[45] At a time where activists were campaigning for equal rights for minority populations, environmentalists fostered a beginning for EJ by

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[36] N2.
[37] N3 p.76.
[38] David Schlosberg, *Environmental Justice and the New Pluralism* (Oxford University Press 1999) p.194.
[39] N2.
[40] Christopher G.Boone, 'Environmental Justice, Sustainability and Vulnerability' (2010) Vol.2 International Journal of Urban Sustainable Development p.135-140.
[41] N37.
[42] Richard L.Revesz, Philippe Sands and Richard B. Stewart, *Environmental Law, the Economy, and Sustainable Development* (Cambridge University Press 2000) p.196.
[43] N17 p.18.
[44] ibid.
[45] Ole W Pedersen, 'Environmental Justice in the UK: Uncertainty, Ambiguity and the Law' (2011) Vol.31(2) Legal Studies The Journal of the Society of Legal Scholars p.279-304.

reinforcing the concept alongside the Civil Rights Movement. This novel concept would provide a foundation upon which impoverished African American and Native-American communities could establish and demonstrate their environmental injustices and cases of environmental racism. Discriminated communities were finally acknowledging their own lack of environmental protection regardless of whether it had come about through conscious design or institutional neglect; an awakening.[46]

As the concept garnered more attention in the 1980s, studies were undertaken evidencing correlation between lack of environmental protection and racial and economic status. One 1983 report published by the US Government Accountability Office (GAO) determined that minorities were more likely to be situated near hazardous waste landfills.[47] The report found that, where the region's four offsite hazardous waste landfills were located, a majority of the population making up communities surrounding the sites were black. Within these communities, at least 26 percent lived below the poverty line.[48] While the race or economic status may not be an outright motivating factor in a state's choice of landfill location, the criteria used to determine suitable locations inadvertently disadvantages people from minority backgrounds. Hazardous waste landfills must be placed in a large open space and isolated from densely populated towns and cities. The land must also be available to be purchased or taken over by the state. Consequently, rural, poorer neighbourhoods with smaller populations are more likely to bear the burden of these sites. Upon the placement of these hazardous sites, harm may be further instilled through lowering the economic value of the surrounding neighbourhoods.

As more studies were conducted and brought to the forefront of public attention, the early 1990's saw EJ gain considerable momentum through the emergence of various action groups, networks and summits. These efforts soon brought EJ to a wider national and international stage leading to President Clinton signing the EJ Executive Order 12898 in 1994.[49] The Order aimed to focus federal attention towards improving environmental conditions for minority communities and low-income populations.[50] This included directing

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[46] Robert D Bullard, Confronting Environmental Racism: Voices from the Grassroots (South End Press 1993) p.17.
[47] United States General Accounting Office, 'Siting of Hazardous Waste Landfills and their Correlation with Racial and Economic Status of Surrounding Communities' (1983) <https://www.gao.gov/assets/150/140159.pdf> (last accessed 12th December).
[48] US Government Accountability Office https://www.gao.gov/products/RCED-83-168 (last accessed 12th December 2020).
[49] United States Environmental Protection Agency, 'Environmental Justice' https://www.epa.gov/environmentaljustice (last accessed 13th December 2020).
[50] ibid.

federal agencies to identify and address the adverse health and environmental effects of their actions and implement a strategy to uphold EJ and non-discrimination. The ultimate goal being to establish environmental protection for all communities.[51]

Rather than rising from the grassroots, EJ in Europe and the UK evolved less organically. By driving the concept top-down, EJ gained recognition by working adjacent to and in conjunction with rights and sustainability-based policy rather than as a stand-alone concept.[52] The Rio Declaration[53] and the Aarhus Convention[54] also acted as key mobilisers for the movement. Specifically within the UK, EJ gained prominence from the non-governmental organisation (NGO) Friends of the Earth's 1999 research which was focused on income and Integrated Pollution Control (IPC) facility locations.[55] Elsewhere, by highlighting significant injustices within Scottish populations in respect of poverty, unemployment and isolation, increased academic studies have been undertaken on UK-wide populations.[56] Rather than offering reasons for environmental inequalities, UK research has had a tendency to focus more on data collection and presentation of inequalities including air pollution, flood risk, greenspace, tranquillity and even light pollution.[57]

Agyeman notes the presence of what he terms an 'environmental justice paradox' in the UK outlining a significant gap between 'people's perception and what is happening'.[58] He reasons that this is potentially due to the more subtle nature and range of environmental inequalities in the UK than the US. Irrespective of the attention drawn to environmental injustices across the UK, judicial recognition and reconciliation remain inadequate to address the full scale of the problem.[59] While the US EJ response encompassed the rise of

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[51] United States Environmental Protection Agency, 'Summary of Executive Order 12898' https://www.epa.gov/laws-regulations/summary-executive-order-12898-federal-actions-address-environmental-justice#:~:text=for%20all%20communities.-,E.O.,strategy%20for%20implementing%20environmental%20justice (last accessed 29th January 2021).
[52] N15.
[53] Report on the United Nations Conference on Environment and Development (1992) A/CONF.151/26 Vol.1 < https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf> (last accessed 13th December 2020).
[54] N31.
[55] Anna-Michelle Slater and Ole W Pedersen, 'Environmental Justice: Lessons on Definition and Delivery from Scotland' (2009) Vol.52(6) Journal of Environmental Planning and Management p.797-812.
[56] N2.
[57] N15.
[58] N2.
[59] N3 p.76.

legislation, policy and governmental bodies, the UK response has been referred to as a messy challenge.[60]

1.3 Distribution

Discourse surrounding EJ, worldwide, acts as a vehicle for addressing, what are termed by Schlosberg, as 'distributional concerns'.[61] These concerns include the distribution of goods, social and political recognition and community participation.[62] A key indicator of the concept of EJ is the ability of it to push past the objectivity of just identifying mere environmental deprivation in populations. Environmental Justice provides a basis for highlighting inequalities and assessing the distributional processes behind them so all communities can function optimally.[63] While disproportionately polluted air, industrial placement and lack of open space are signals for significant concern for all, the EJ movement helps to reflect the disparities between varying social groups and how these different groups experience environments. Distributional considerations, therefore, must be taken into account alongside research surrounding aggregate change.[64] The total number of people living in a clean environment is not synonymous to the equitable distribution of clean environments.[65] In other words, although statistically more people in the UK in 2021 are experiencing better air quality than in the early 2000s, those living in poorer communities are not experiencing the changes as quickly, or at all, compared to higher-income communities. A focus on distribution, therefore, ensures environmental improvements are felt across the board by the many as opposed to the few.

While assessing distribution is crucial to allocating justice, the key to equitably diffusing environmental effects across populations is going to the root of why the inequalities exist in the first place.[66] In understanding the injustices of cultural domination, non-recognition and lack of respect, there is the ability to move past the matter-of-fact conclusion that unjust environmental distribution exists and potentially move into actionable territory.[67] Moving past the theoretical impasse of environmental distribution issues relies heavily on

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[60] N15.
[61] N1 p.79.
[62] N1 p.34.
[63] N15.
[64] ibid.
[65] N15.
[66] N1 p.14.
[67] N1 p.16.

community recognition, participation and functioning[68], accompanied by a supporting institutional basis.[69] Institutional foundations have been laid in the US, as outlined prior, through the implementation of the EJ Executive Order. However, over the years, inconsistent approaches in the implementation of provisions in regional offices has diminished the Executive Order's efficacy. In Schlosberg's view, through encouraged public participation and general 'procedural equity', environmentally disadvantaged populations can directly aid in policy development.[70] Pellow rebuts this assumption, however, suggesting that the idealistic view of political inclusion is a mere hope and dream.[71] This is because he views that significant environmental change for disadvantaged populations is unlikely to come about seamlessly through the same structural inequality and institutions that gave rise to the inequality in the first place.[72] This is particularly applicable in respect of the UK EJ movement which is characterised, not by emotively fuelled activists and voices, but by a weak civil society movement giving rise to an advocacy deficit and lack of conscience.[73]

1.4 Harm and victimisation

The concept of EJ responds to negative environmental impacts upon human populations. However, there is a tendency in the contemporary literature to broaden this focus such that justice-based approaches can be categorised three-fold to encompass the full spectrum of environmental protection perspectives; Environmental Justice, Ecological Justice and Species Justice.[74] Ecological Justice takes an expansive view of rights, encompassing all complex ecosystems and nature.[75] Species Justice focuses on non-human animal rights through foundations of value and ethical responsibility.[76] While all three approaches come under the wider umbrella of Eco-Justice[77], individually, all are equally concerned with varying harmful transgressions, practices and omissions.[78] Harm and victimisation, therefore, are at the centre of analysis in relation to understanding environmental injustice; who is being harmed, how and why. Any intervention in matters concerning the

[68] N1 p.viii.
[69] N9 p.164.
[70] N1 p.75.
[71] N17 p.35.
[72] ibid.
[73] N15.
[74] N9 p.14.
[75] N9 p.14.
[76] ibid.
[77] N9 p.11.
[78] N9 p.13.

environment, including positive redress and action, is directly reliant upon how harm and risk from environmental hardships are interpreted and perceived.[79] Despite this commonality of a focus on harm, in some commentator's eyes, the breadth of justice-based approaches can have a diversionary effect whereby human injustice and suffering is being diluted through the inclusion of other aspects such as ecological and species injustice.

Evaluating harm across populations gives rise to potential for value conflict which is deemed to be at the heart of environmental politics.[80] While value conflict is increasingly used to describe the balancing act in making decisions between human and non-human environmental rights, it also encompasses the multi-faceted nature of EJ. Jacobs has likened these to what he terms 'contestable concepts'; involving the struggle for political discourse and policy to form a decisive action plan and implementation.[81] Conflict does not only arise from disparities in society but also from the debates as to the methods adopted to rectifying harm in practice; a constant battle to decide who and what to prioritise. This struggle is significant within the context of injurious social relationships.[82] As with vulnerable populations, harm is manifest yet invisible where it can be externalised to those with little voice, connections or influence. [83] An externality in this instance represents a cost or negative impact of an environmental activity that can be imposed by one party upon others due to social imbalances of power.[84] For example, where a community has high levels of air pollution, some may choose to not live near the air pollution due to being able to afford to live in other communities. In contrast, those that are unable to afford alternative housing must bear the burden of living in a highly polluted community.

Harm and danger persist in growing society as many harmful practices are ingrained in to day-to-day human activity and life.[85] Lack of outrage and urgency to protect not only human populations but also the environment and species at large, stem from the rules themselves which perpetuate harm through legal, yet detrimental, practices.[86] A clear distinction can be made between conscious decision-dependent risks, such as the

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[79] N9 p.21.
[80] Graham Smith, *Deliberative Democracy and the Environment* (Routledge 2003) p.1.
[81] Michael Jacobs, 'Sustainable Development as a contested concept', in Andrew Dobson, *Fairness and Futurity: Essays on Environmental Sustainability and Social Justice* (Oxford University Press 1999) p.21-45.
[82] N9 p.24.
[83] N9 p.21.
[84] Malcolm Fairbrother, 'Externalities: Why Environmental Sociology Should Bring Them In' (2016) Vol.2(4) Environmental Sociology p.375-384.
[85] N9.
[86] Ulrich Beck, 'World Risk Society as Cosmopolitan Society? Ecological Questions in a Framework of Manufactured Uncertainties' (1996) Vol.13(4) Theory, Culture & Society p.1-32.

placement of industrial waste sites, and dangers that have escaped society such as the climate crisis.[87] While the climate crisis can produce equality of victims, within populations like the Maldives, harm to smaller social groups caused by decision-dependent risk remains inequitable due to the potential for the risk to be consciously managed, averted or made illegal.[88]

While practices which disadvantage and inflict harm upon disadvantaged populations may not be strictly intentional, it is crucial to look to the bodies that make decisions and question whose interests they are actually in.[89] Sweeping the dust under the rug (dust being the harm felt by minorities) does not frame a sustainable future regardless of whether the resultant harm has come about legally.[90] The need furthers, therefore, for the entrenchment of human environmental rights[91] as opposed to environmental protection based upon what people are and are not prepared to go on accepting.[92]

1.5 Economic growth and development

Environmental Justice can be viewed as contentious as it elicits debate surrounding the idealised view of economic growth, development and globalisation, where compromise and value-conflict are most pertinent.[93] Posing the question, therefore, of how justice can be reached, at a global, national and local level while retaining the potential for economic growth and development.[94] Development in rich nations, when viewed as a mutually exclusive principle to environmental and social justice, rears its head as a survival issue for developing nations.[95] As alluded to prior with externalities, it has been found that losses as a result of climate disasters alone present as 4.3 times greater, as a percentage of GDP, than high income countries.[96] This is particularly worrying when considered alongside the association between poverty itself and increased environmental destruction[97] with poor

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[87] ibid.
[88] Beck cited in Rob White, *Environmental Harm: An Eco-Justice Perspective* (Policy Press 2013) p.15.
[89] N9 p.21.
[90] N39.
[91] N79 p.107.
[92] N85.
[93] N9 p.44.
[94] N9 p.2.
[95] United Nations Report of the World Commission on Environmental and Development: Our Common Future (Brundtland Report 1987).
[96] N15.
[97] N85.

nations becoming trapped[98]. A continuous cycle is therefore created with mindless environmental degradation shadowing growth-based modernity; only accelerated through lack of acknowledgement for others' needs. [99]

GDP growth accelerates pressure placed upon human livelihoods as well as biodiversity and the climate; extreme consumption habits are simply not synonymous with EJ or framing a sustainable future.[100] A sustainable, socially just society requires focusing on social inclusion over social performance.[101] The contribution of an industrial facility to a tax base does not make up for the negative fall-out, placement and burden of said facility upon the low-income neighbourhood it is situated.[102] A system of equitably distributed environmental costs and benefits[103] and a shift away from net-gain[104] or mere risk-based cost-benefit analyses is also required at all levels.[105] This shift will ensure the gap between those growing and those struggling does not further increase exponentially. Environmental harm, whether by pollution or industrialism, can be viewed as an inevitable by-product of development and in the greater interests of the Anthropocene era. However, as mentioned previously, decision-making enabled by taking the path of least resistance[106] will only further increase inequalities for future generations; supporting the Brundtland Commission's view that inequality is simultaneously an environmental and development problem.[107]

In conclusion, EJ is a multi-faceted concept which complements sustainability principles and human rights movements through its focus on harm arising from social inequalities and distribution issues. While EJ's current presence in the UK is weaker than what has been shown in the US, it is clear the movement has potential to give rise to positive change.

2 An Assessment of the Impact of Contemporary Global Issues upon Less Affluent Communities

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[98] N94.
[99] N85.
[100] Joan Martinez-Alier, 'Environmental Justice and Economic Degrowth: An Alliance between Two Movements' (2012) Vol.23(1) Capitalism Nature Socialism p.51-73.
[101] ibid.
[102] N3 p.76.
[103] N54.
[104] N15.
[105] N9 p.53.
[106] Alice Kaswan, 'Environmental Justice: Bridging the Gap Between Environmental Laws and 'Justice' (1997) Vol.47(2) American University Law Review p.221-301.
[107] N94.

Contemporary global issues and disasters such as hurricanes, wildfires and rising sea levels can be viewed as distinct environmental problems. However, societal circumstances and the distribution of harm, as discussed in chapter one, play a significant role in determining which populations and communities most greatly feel the negative impacts. Natural hazards and disasters, which are now only increasing as a result of climate change, reach disaster status at the point where governments and bodies fail to adequately address social vulnerabilities.[108] As a consequence of failures to address unequal exposure to harm pre-disaster, negative impacts to life, well-being and property are disproportionately borne by low income, less affluent and vulnerable communities and people.[109]

2.1 Wildfires in California

Wildfire frequency and its influences are complex to pinpoint but it is understood they come about from the combination of natural and human factors.[110] Natural factors can include lightning as an ignition source, temperature, humidity and soil moisture. Human factors include practices such as forest management and man-made ignition causes.[111] As climate change warms the planet from anthropogenic activity, there will be a direct effect upon the natural factors inducing wildfires as the complex balance of controls become more unstable and volatile.[112] An increase by double in the area covered by forest fires as a result of rapidly changing climate factors has already been found between 1984 and 2015 in the United States.[113] Increasingly dry landscapes, which have now intertwined with urban development as economies grow, will continue to foster and potentially increase threatening wildfires in the years to come.[114]

The state of California provides a pertinent example of the widespread development and expansion of communities from traditional city environments into what is known as

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[108] Susan L Cutter and others, 'A place based model for understanding community resilience to natural disasters' (2008) Global Environmental Change Vol.18 p.598-606.
[109] Ian Davies and others, 'The unequal vulnerability of communities of color to wildfire' (2018) PLoS ONE Vol.13(11).
[110] Wehner and others, 'Droughts, floods and wildfires' in 'Climate Science Special Report: Fourth National Climate Assessment' Vol.1 p.231-256 (US Global Change Research 2017) https://science2017.globalchange.gov/chapter/8/ (last accessed 5thth February 2021).
[111] ibid.
[112] N109.
[113] ibid.
[114] N108.

wildland-urban interface (WUI).[115] California now possesses the highest amount of people and communities in WUI whereby from 1990 to 2010 the number of people living in WUI areas increased by 3 million from 8.2 to 11.2 million.[116] Although some communities in the WUI are home to large, detached properties and high-income families, it has be found that subsidized housing, or housing provided with assistance by the state, is inequitably correlated with being located within this territory.[117] Drawn to the prospect of more affordable housing, the WUI, as a result, is home to a disproportionate amount of people from low-income and vulnerable backgrounds.[118] While local and county governments are responsible for land use and outward urban planning, the federal government bear the cost of firefighting when disaster strikes.[119] Strict liability also falls upon California's utility companies when addressing wildfire damages. This is due to local government refusals to partake in policy agreements to equitably apportion financial burdens associated with fighting wildfires and property damage.[120] Inevitably, due to escaping the burden of risk and costs, local governments lack incentive to restrict development and continue to build outwards as they prioritise economy expansion.[121] Until more stringent regulations can be applied to the continuous development in to WUI, vulnerable populations will be drawn to living within high-risk areas. As a result, many will suffer from the resultant harm imposed upon themselves and their property from wildfires.[122]

While harm can arise from the direct impact of burning wildfires, it can also present itself more indirectly through externalities such as associated health issues accompanying smoke and particle inhalation. Despite education and guidance in relation to wildfire disasters being available from regional government agencies such as the Bay Area Air Quality Management District, EJ issues can be raised from their advised adaptation measures. For example, onus is placed upon people to weatherproof their homes to keep out smoke, purchase new or upgrade air purifiers or even fully relocate for extended periods to avoid unwanted effects.[123] While higher income communities are simultaneously

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[115] C. J. Gabbe, Gregory Pierce and Efren Oxlaj, 'Subsidized Households and Wildfire Hazard in California' (2020) Environmental Management Vol.66 p.873-883.
[116] ibid.
[117] N114.
[118] ibid.
[119] Satoru Myles Nagano, 'The Price is Light: Socializing the Cost of Wildfires in California' (2019) Environmental Claims Journal Vol.32(3) p.179-200.
[120] ibid.
[121] N118.
[122] ibid.
[123] Bay Area Air Quality Management District, 'Wildfire Safety' https://www.baaqmd.gov/about-air-quality/wildfire-air-quality-response-program/wildfire-safety (last accessed 10th February 2021).

greatly affected by wildfires, those with pre-disposed vulnerabilities or from low-income backgrounds are less equipped to adequately adapt to these measures as quickly. As a result, they have a lower absorptive capacity to adequately cope, as well as rebound, from disaster.[124] Many must prioritise funds for basic necessities such as rent and food and do not possess adequate savings to purchase expensive air purifiers or temporarily relocate to safer locations. The US' healthcare insurance system in itself further perpetuates harm in this instance and works against the EJ movement. Those who are unable to purchase air purifiers may also not be able to afford sufficient healthcare insurance which accentuates health issues associated with wildfire air pollution.[125] Cutter, therefore, notes the importance of 'social learning', which includes informed social policy making, as a means to enhance disaster planning by working alongside the public.[126] This also upholds procedural equity, as outlined in chapter one, whereby the involvement of environmentally disadvantaged populations in policy development could be seen to have the greatest impact. By involving the public, policy that comes about from direct communication has the utmost relevance to the struggles endured in day-to-day life.

Further problematic adaptation measures became apparent in the unprecedented public safety power shutoffs imposed by utility company Pacific Gas & Electric in 2019.[127] Albeit unintended, the sudden power shutoffs, in an attempt to stop the spread of wildfires in Northern California, caused widespread distress upon vulnerable populations such as those on ventilators and those in rural communities with fewer resources. The utility company was condemned for abandoning protocol by not informing vulnerable residents of the impending, and prolonged power shutoffs. While for many, a power shutoff would constitute a mere inconvenience, those with pre-disposed health issues require sustained electricity to power lifesaving equipment and refrigerate medications.[128] Similarly, those from low-income backgrounds depend upon refrigeration to keep their food fresh, especially in the warm Californian climate.[129] The gravity of the situation at hand has a direct link to the background of the individual experiencing the effects. A balancing act is created where immediate health and wellbeing for the few is set in opposition to the need

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[124] N107.
[125] Emily Holden, ''They're suffering now': Americans scramble to adapt to daily reality of climate crisis' *The Guardian* (London, 23rd September 2020).
[126] N107.
[127] Taryn Luna, 'California adds new rules for planned power shutoffs under laws signed by Newsom' *Los Angeles Times* (California, 2nd October 2019).
[128] Gabrielle Wong-Parodi, 'When climate change adaptation becomes a 'looming threat' to society: exploring views and responses to California wildfires and public safety power shutoffs' (2020) Energy Research and Social Science 70.
[129] ibid.

for public safety power shutoffs for the many. Wong-Parodi states how adaptation to climate disasters by vulnerable populations is likely to become a 'looming threat' as the resultant externalities such as poor health are thrust upon them.[130] It is clear, therefore, as adaptations to the effects of climate change become more drastic, that unified policy development across government departments and utility companies is required.[131] Positive action can be seen through the Governor's introduction of 22 new bills to improve wildfire response, mitigation and community resilience following the Strike Force Progress Report.[132] The legislation, such as SB160 by Senator Jackson and SB670 by Senator McGuire, focuses on improving communication, coordination and engagement across the administration and diverse or vulnerable communities. AB836 by Assembly member Wicks also includes implementing and prioritising measures to equitably protect people's health from smoke exposure through public clean air centres.[133] By providing vulnerable populations the necessary resources, tools and knowledge to adapt, they will be equipped to make autonomous decisions as to their health in an increasingly dangerous environment.

In conclusion, costs associated with wildfires must be equitably apportioned across federal, county and local governments as well as utility companies to curb the unprecedented development in the WUI. A unified approach to policy development and wildfire planning spanning governments, utility companies and the public is also needed. While education and guidance for wildfire safety has been implemented by various bodies, a focus must be shifted to ensuring those who are vulnerable or have a low income possess the necessary tools to adapt and implement guidance measures sufficiently for their own protection.

2.2 Accelerated sea level rise in the Maldives

As with wildfires discussed previously, rising sea levels have also been attributed to ongoing global climate change from unprecedented levels of anthropogenic activity.[134] The continuous release of carbon dioxide and greenhouse gas emissions into the atmosphere

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[130] N127.
[131] N118.
[132] Governor Gavin Newsom, 'Catastrophic Wildfires, Climate Change and our Energy Future' (Strike Progress Report 2019) https://www.gov.ca.gov/safety-and-accountability-for-californias-energy-future-status-update/ (last accessed 14th February 2021).
[133] Office of Governor Gavin Newson, 'Govenor Newsom Signs Bills to Enhance Wildfire Mitigation, Preparedness and Response Efforts' (2019) https://www.gov.ca.gov/2019/10/02/governor-newsom-signs-bills-to-enhance-wildfire-mitigation-preparedness-and-response-efforts/ (last accessed 16th February 2021).
[134] David E Newton *Environmental Justice: A Reference Handbook* (2nd edn, ABC-CLIO 2009) p.97.

from industrialisation, transportation and deforestation entraps heat reflected from the earth's surface. In turn, earth's average surface temperature is increasing.[135] The ongoing trend of exponential global temperature increase of 0.2 degrees Celsius per decade has been found to result from human activity from the 1950's onwards.[136] As a consequence of global warming, coastal communities, cities and island nations, such as the Maldives archipelago in the Indian Ocean, will bear the burden of sea level rise from increased ocean temperatures, melting glaciers and extreme weather.[137]

With 80 percent of the low-lying Maldives being less than one metre above sea level, inevitable gradual sea level rise will likely result in the slow demise of the 25 coral atolls that make up the nation.[138] In addition to the impending threat of rising sea levels engulfing the islands, Maldivians are already experiencing disproportionate effects to their economic base.[139] Salinity intrusion is negatively impacting fresh water supplies as well as the island's soils.[140] Human interference resulting in coral reef degradation in the capital Malé also has a knock-on effect by diminishing coastal protection from waves.[141] Coral reef degradation has also been negatively impacting fisheries which many greatly depend upon.[142] Due to sea level rise posing novel, multi-faceted problems, responses are inherently difficult to comprise and will rely on gaps being bridged between science and policy.[143]

Rising sea levels as a result of climate change are driven by severe power asymmetry and dominating economies of developed countries, illustrating the distributive injustice imposed upon island nations such as the Maldives.[144] The United States, albeit being home to only 4 percent of the global population, is inequitably responsible for 20 percent of global emissions produced.[145] In comparison, 136 developing countries, collectively, are

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[135] ibid.
[136] NASA, 'Overview: Weather, Global Warming and Climate Change' https://climate.nasa.gov/resources/global-warming-vs-climate-change/> (last accessed 19th February 2021).
[137] N133.
[138] United Nations Development Programme, 'Maldives' https://www.adaptation-undp.org/explore/maldives (last accessed 21st February 2021).
[139] ibid.
[140] M Oppenheimer and others, 'Sea Level Rise and Implications for Low-Lying Islands, Coats and Communities' (IPCC Special Report on the Ocean and Cryosphere in a Changing Climate 2019).
[141] ibid.
[142] N137.
[143] N139.
[144] J Timmons Roberts and Bradley C Parks *A Climate of Injustice: Global Inequality, North-South Politics and Climate Policy* (The MIT Press 2007) p.10.
[145] ibid.

responsible for the production of 24 percent of global emissions.[146] Varying perceptions of harm and urgency in relation to global warming between countries also drives inequality further. While richer nations view the impacts and mitigation of global warming as a non-urgent, long-term commitment, poorer nations, who are experiencing devastating disasters and danger in the present, bear the burden of focusing on mere survival.[147] The 2015 Paris Agreement[148] aids in addressing this severe global asymmetry through the establishment of clear goals and substantial, on-going review to address the effects of climate change and relieve the burden on poorer countries.[149] A 'soft' law focus provides individual states with autonomy, accountability and greater flexibility to achieve targets while a 'hard' law focus provides overarching compliance commitments.[150] While the Paris Agreement provides an unprecedented voluntary framework, fragility can be seen through the reliance upon strong climate leadership at national governmental tiers.[151] For example, president Trump's view that climate change was a 'hoax' in 2017 and subsequent pledge to withdraw from the Paris Agreement had potential to reverse years of positive action.[152] Questions therefore arise surrounding the need for further inclusivity of cities, regional governments, and what Coolidge refers to as 'sub-state actors', in international law settings to help tackle climate change and aid smaller nations.[153]

As the Maldives steadily becomes inhospitable because of climate change, it is clear migration as a means of adaptation to reduce vulnerability will be favoured.[154] While resource-rich coastal communities and cities can reduce exposure to harm through coastal defences, the Maldives' vulnerability to sea level rise cannot be adequately reduced through man-made structures; the scale of the problem is too great.[155] EJ issues therefore arise when considering the onus placed upon these communities, many of whom are

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[146] N143.
[147] N143 p.37.
[148] Paris Agreement adopted on 12 December 2015 to the United Nations Framework Convention on Climate Change UNTS Vol.1771 p.107 (1992).
[149] Trudy Fraser 'A comparative architectural analysis of the 1997 Kyoto Protocol and the 2015 Paris Agreement and other ways to counter environmental 'ratification fatigue'' in Vesselin Popovski *The Implementation of the Paris Agreement on Climate Change* (Routledge 2019) p.41.
[150] ibid.
[151] Melissa Denchak, 'Paris Climate Agreement: Everything You Need to Know' (NRDC February 19 2021) https://www.nrdc.org/stories/paris-climate-agreement-everything-you-need-know (last accessed 13th March 2021).
[152] ibid.
[153] Kelsey Coolidge, 'Cities and the Paris Agreement' in Vesselin Popovski *The Implementation of the Paris Agreement on Climate Change* (Routledge 2019) p.282.
[154] Uma Kothari, 'Political discourses of climate change and migration: resettlement policies in the Maldives' (2014) The Geographical Journal Vol.180(2) p.130-140.
[155] N139.

ethnic minorities and from poor backgrounds.[156] Myers coined displaced, marginal communities 'environmental refugees'.[157] This distinct category of displaced people are driven to seek refuge and re-build their livelihood wherever possible or in the most easily accessible place.[158] Refugee limits and lack of willingness to accommodate from large, host countries further weighs down upon already vulnerable communities.[159] Some views challenge the perspective that climate change inequitably affects small-island nations through the idea that inhabitants of these islands have autonomous ability to make decisions and possess adequate resources to adapt.[160] While many Maldivian inhabitants have been conscious of their changing environment and have adapted mobile lifestyles to respond to the dynamic territory in which they live, environmental adaptation in the form of internal displacement is only a short-term solution.[161] Issues arise when looking to the future, beyond the adaptation of internal displacement, with the inevitable need for cross-border displacement of a population of over 300,000.[162]

Global warming issues and lack of acknowledgement from developed countries are compounded by problems of restitution.[163] Island nations such as the Maldives, accompanied with their history, communities and culture, cannot simply be restored once lost.[164] Although adaptation in the form of migration removes Maldivians from direct harm, the disruption and loss of identity for the displaced communities could result in new vulnerabilities arising.[165] These vulnerabilities may include fewer resources and unstable infrastructure due to limitations on land ownership.[166] Myers states how rather than viewing environmental refugees as a 'peripheral concern', a global focus must be placed upon ensuring the original cause for vulnerable populations to migrate is reduced.[167] In cases of conflict, this concept is more straightforward. However, where the root cause of migration cannot be adequately addressed and managed, as is the current case with out of control global warming and rising sea levels, developed countries must work with developing

[156] ibid.
[157] Norman Myers, 'Environmental Refugees' (1997) Population and Environment: A Journal of Interdisciplinary Studies Vol.19(2) p.167-182.
[158] ibid.
[159] N156.
[160] Ilan Kelman and others, 'Does climate change influence people's migration decisions in Maldives?' (2019) Climatic Change Vol.153 p.285-299.
[161] ibid.
[162] Geronimo Gussmann and Jochen Hinkel, 'What drives relocation in the Maldives?' (2020) Climatic Change Vol.163 p.931-951.
[163] N8.
[164] ibid.
[165] N161.
[166] ibid.
[167] N156.

countries to provide destitute and at-risk populations safe environments and lifestyles.[168] Should the climate crisis progress without prior risk management or consideration for island nations, environmental refugees are likely to inadvertently become caught in the middle of unprecedented social, political and economic global crises through no fault of their own.[169]

While the Maldives government can to an extent control internal displacement through law and policy, the future of the population will likely be slowly displaced cross-border. The Nansen Initiative, supported by United Nations Human Rights Council (UNHCR) and endorsed by 109 countries, aims to unify policy development at a domestic and international level to fill the legal gap surrounding displaced populations as a result of environmental disaster or climate change.[170] A goal of the Nansen Initiative was to form coherent, dignified policy and establish international accountability for displacement protection.[171] Due to the complexity of the issue at hand, externally displaced populations, such as those from island nations like Kiribati, and eventually Maldivian communities, require equally complex international law protection. At present, due to the unprecedented nature of rising sea levels and environmental refugees, legal instruments and policy are only in the early days of development. The UNHCR set out for the Initiative to develop a 'global guiding framework or instrument' to facilitate cross-border displacement in contexts outside of the Refugee Convention 1951.[172] It also noted the need for collaboration between states with a focus on burden and distribution of responsibility.[173] Through increased international collaboration and communication, vulnerable displaced populations from island nations will not be left alone to deal with the effects which larger nations have caused.

In the 2020 landmark asylum case *Ioane Teitota v New Zealand*, the UN Human Rights Committee set global precedent by providing one of the first authorities outlining the need for governments to consider the threats to environmental refugees.[174] If national and international immigration law does not meet the needs of environmental refugees,

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[168] ibid.
[169] N156.
[170] The Nansen Initiative Global Consultation, 'Conference Report' (Geneva, 2015) https://www.nanseninitiative.org/global-consultations/ (last accessed 3rd March 2021).
[171] ibid.
[172] Guy S Goodwin-Gill and Jane McAdam, 'UNHCR & Climate Change, Disasters and Displacement' (2017).
[173] ibid.
[174] Amnesty International, 'UN landmark case for people displaced by climate change' (2020) https://www.amnesty.org/en/latest/news/2020/01/un-landmark-case-for-people-displaced-by-climate-change/ (last accessed 5th March 2021).

governments may be exposed to violating rights to life under Article 6(1) of the International Covenant on Civil and Political Rights 1966. In this instance, the committee concluded that the removal of the author and his family was not in violation of Article 6(1).[175] Although the author and his family and other Kiribati inhabitants were lacking safe drinking water from salinity intrusion, the fact safe water was still available, despite depletion, did not constitute a risk of imminent deprivation of life.[176] While the threshold of harm currently remains obscure, dissenting committee member Duncan Laki Muhumuza likened the action to 'forcing a drowning person back into a sinking vessel'.[177] This reflects that all states have a duty to protect the human rights of low-lying island nations from rising sea levels.[178] Implementation of law and policy to aid displaced populations is not straightforward, however. UNHRC states how the driving forces behind displacement, while driven by climate change, are often 'multi-causal' whereby disaster and conflict can intertwine.[179] As a result, refinement and consolidation must be made to the application of refugee law and when it shall apply to displaced populations fleeing from drowning island nations.[180]

In conclusion, island nations such as the Maldives and Kiribati inequitably experience environmental harm from global warming which has largely manifest from exponential emission output from developed nations. Domestic and international law must rise up to meet the needs of environmental refugees who experience imminent danger, as to uphold the right to life, despite developed host-countries more relaxed perception of the dangers of rising sea levels. In relation to the current situation with the Maldives, harm from rising sea levels must be addressed now, pre-disaster, to have the greatest positive impact and protection for these vulnerable communities.

As outlined throughout this chapter, it is societal circumstances, foundational distribution issues and power asymmetry which determine the manifestation of harm across the globe. Less affluent communities such as those from poor or vulnerable backgrounds and smaller, developing nations bear an inequitable exposure to negative environmental impacts. This exposure can be further compounded by lack of resources to adapt when disaster strikes as well as ineffective international immigration schemes giving rise to potential crises.

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[175] International Covenant on Civil and Political Rights (ICCPR) UNTS Vol.999 p.171 (1966).
[176] Ioane Teitota v New Zealand CCPR/C127/D/2728/206 [2020] < https://tbinternet.ohchr.org/_layouts/15/treatybodyexternal/Download.aspx?symbolno=CCPR%2fC%2f127%2fD%2f2728%2f2016&Lang=en> (last accessed 5th March 2021).
[177] ibid.
[178] N173.
[179] N171.
[180] ibid.

3 An Assessment of the Impact of Local Atmospheric Pollution upon Less Affluent British Communities

Despite the widely acknowledged assault on public health and well-being over recent decades from air pollution, economic expansion and affluence prevails over stricter regulatory measures.[181] British cities have been invisibly plagued by polluted air which has steadily become second nature to residents and a natural mark of living in certain areas of the UK. Consequently, harm, discussed in chapter one, is most concentrated within these densely populated city environments. It is vulnerable populations within these cities, however, that inequitably bear the burden of adverse, and often chronic, health effects from continuous exposure to polluted city air.

3.1 Air pollution and harm

Air pollution issues within the UK have been attributed to three key pollutants being emitted into the air above domestic and international targets.[182] These are, nitrogen oxides (NO_X) which are made from nitrogen oxide (NO) and nitrogen dioxide (NO_2), ozone and particulate matter (PM).[183] The list of damaging pollutants is extensive, however, and also includes gases such as carbon dioxide (CO_2) and sulphur dioxide (SO_2). Pollutant sources include transportation, industry and agriculture dating back to the Industrial Revolution.[184] They also arise from simple, everyday tasks such as lighting fires and using aerosol deodorants.[185] While natural air pollution sources do exist, anthropogenic activity can be attributed to an overwhelming proportion of the sources causing issues in the modern day.[186] Potential effects associated with air pollution can vary greatly day-to-day as pollutants in the air are often manipulated from air temperature, humidity and wind.[187] This complex inter-relationship of factors makes air pollution, which is in itself intangible, inherently difficult to manage and measure.[188]

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[181] Judith A. Cherni Economic Growth versus the Environment: The Politics of Wealth, Health and Air Pollution (Palgrave 2002) p.1.
[182] Environmental Audit Committee, Air Quality (HC 2009-10, 229-I) < https://publications.parliament.uk/pa/cm200910/cmselect/cmenvaud/229/229i.pdf> (last accessed 19th March 2021).
[183] ibid.
[184] N3 p.531.
[185] ibid.
[186] N3 p.531.
[187] N3 p.532.
[188] N3 p.537.

Clean air is vital for public health, high quality of life and also retaining the integrity of the surrounding environment.[189] Consequently, the pursuit of emission reduction, and understanding where harm is most manifest, is imperative to ensure communities live long, prosperous lives. In 2018, the World Health Organization (WHO) outlined air pollution as being one of the leading avoidable causes of death globally.[190] WHO also stated that air pollution has become the 'world's largest single environmental health risk' with 3.7 million deaths per year globally.[191] This fact remains true at national level where the House of Commons Environmental Audit Committee outlined that up to 50,000 people per year in the UK are at risk of dying prematurely due to the adverse health effects related to breathing polluted air.[192] Short-term harm to health can arise in the form of respiratory problems which include exacerbation of pre-disposed conditions such as asthma and bronchitis.[193] Long-term harm to health from prolonged exposure can result in more serious life threatening conditions such as brain damage, cancer and heart disease.[194] Air pollution and accompanying negative health effects, however, do not necessarily have a straightforward causal link.[195] Rather, it is the underlying socioeconomic circumstances of the communities affected by air pollution, such as low-income, lack of education and social class, that dictate the extent to which negative or detrimental health impacts are endured.[196]

3.2 Inequalities

Environmental inequalities negatively affecting vulnerable communities within the UK have been noted and measured for a considerable length of time. In 2001, Friends of the Earth found that 66% of cancer-causing emissions in the UK were present in the top 10% most deprived areas.[197] This was contrasted to the 50% least deprived areas where only 8% of

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[189] Environmental Protection UK, 'Air Pollution- Law and Policy' https://www.environmental-protection.org.uk/policy-areas/air-quality/air-pollution-law-and-policy/ (last accessed 19th March 2021).
[190] World Health Organization, 'Health and the environment: Draft road map for an enhanced global response to the adverse health effects of air pollution' (A69/18 6th May 2016) < https://apps.who.int/iris/bitstream/handle/10665/252673/A69_18-en.pdf?sequence=1&isAllowed=y> (last accessed 18th March 2021).
[191] ibid.
[192] N181.
[193] ibid.
[194] N3 p.532.
[195] N189.
[196] ibid.
[197] Friends of the Earth, 'The environmental reasons for reducing inequalities' (2015) < https://friendsoftheearth.uk/sites/default/files/downloads/environmental-reasons-reducing-inequalities-90784.pdf> (Last accessed 27th March 2021).

the same emissions were suffered.[198] A 2003 Environment Agency study also went on to find that even through the introduction of stricter and more refined air quality regulations, poorer communities were more likely to bear the burden of new exceedances of targets.[199] Although the pursuit of lowering overall levels of air pollution is positive, a net-gain approach does not necessarily address fundamental exposure and social distribution issues.[200]

While anthropogenic-induced air pollution is entrenched in day-to-day modern life, the COVID-19 outbreak and subsequent unprecedented national lockdown response has reflected the scale at which human activities contribute to air pollution. In the 100 days following the UK government imposing lockdown on 23rd March 2020, vehicle usage was down by 52%.[201] As a result, NO_X and fine PM, which negatively impacts human health, reduced exponentially having a positive effect on air quality.[202] The concentration of fine PM saw a reduction of 25% from the preceding 7-year average while NO, which partly makes up NO_X, saw a reduction of 61%.[203] While improved air quality from a reduction of NO_X can be attributed to reduced anthropogenic activity, the path to safe, clean air is not straight forward. Studies have found that although harmful NO_X was reduced during the initial lockdown period, equally harmful sulfur dioxide (SO_2) concentrations doubled from the prior 7 years.[204] In terms of distribution, northern areas of the UK such as Glasgow, Liverpool and Manchester, which have a higher number of vulnerable and low-income communities, saw the greatest increase in harmful SO_2.[205] Consequently, while a drastic reduction in anthropogenic activity has been seen to have positive effects in terms of NO_X, long-term solutions will require a complex balancing act to avoid making matters worse. Merely addressing the root of the problem, emission output, will not effectively tackle the distributive injustice placed upon more vulnerable populations in the UK. Law and policy in the pursuit of EJ must, therefore, simultaneously address localised pockets of social injustice and overall emission reduction. These complexities reflect Mitchell's view that the

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[198] ibid.
[199] Dr Gordon Walker and others, 'Environmental Quality and Social Deprivation' (Environment Agency R&D Technical Report E2-067/1/TR 2003) < https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/291071/se2-067-1-tr-e-e.pdf> (last accessed 27th March 2021).
[200] ibid.
[201] J.E Higham and others, 'UK COVID-19 lockdown: 100 days of air pollution reduction?' (2021) Air Quality, Atmosphere and Health Vol.14 p.325-332.
[202] ibid.
[203] N200.
[204] ibid.
[205] N200.

pursuit of UK EJ will be a 'messy challenge'.[206]

From 2001 to 2011, the implementation of law and policy aimed at reducing air pollution levels has been, at surface level, effective.[207] Up to two million UK residents' exposure to NO_2 has been reduced as a result of efforts to adhere to Directive 2008/50/EC limits through The Air Quality Standards Regulations 2010.[208] However, Barnes notes that the environmental injustice of exposure to air pollution has actually worsened.[209] Despite the rate of environmental compliance following a general upwards trajectory towards the goal of sustainability, non-compliance remains partial against poorer communities within the UK.[210] Correlation has been seen with non-compliance and deprived areas in London, Southampton and Cardiff reflecting how poorer communities within cities are not experiencing the benefits to the same extent as affluent communities throughout the UK.[211] For the ultimate goal of equitable distribution and reduction of harm across the UK, the current objective-orientated approach of air quality law and policy must complement equal efforts to fix underlying distribution issues.[212] Studies have suggested that a key component to positively shifting the distribution of harm due to air quality in the future lies within assessing and strategically planning the distribution of new housing and industrial development.[213] This approach is opposed to only implementing singular air quality management measures with a focus on net-gain.[214] While upholding the integrity of England's green landscapes is vital, affordable housing developments must not merely be pushed to outskirt, brownfield sites or areas which are deemed to matter less due to their unattractive state or undesirable location, such as near industrial sites.[215] An approach of this manner would only drive inequality further as those who are less affluent would be, through no fault of their own, driven to live in unpleasant locations compared to their more affluent counterparts.[216] Without careful consideration to acknowledge and address underlying distributional harm, the pursuit of singular sustainability targets and general

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[206] N15.
[207] Gordon Mitchell and others, 'Who benefits from environmental policy? An environmental justice analysis of air quality change in Britain 2001-2011' (2015) Environmental Research Letters Vol.10(10).
[208] ibid.
[209] Joanna H. Barnes and others, 'Emissions vs exposure: Increasing injustice from road traffic-related air pollution in the United Kingdom' (2019) Transportation Research Part D: Transport and Environment Vol.73 p.56-66.
[210] N206.
[211] ibid.
[212] N206.
[213] ibid.
[214] N198.
[215] N15.
[216] ibid.

aggregate change could be likened to a façade, potentially masking the limitations of the approach.

3.3 Government Response

The UK government's law and policy response to air pollution over the last decade has proven weak and ineffective in relation to the social component of environmental problems. Issues become obvious when looking to the UK government's use of reactive, as opposed to proactive, law and policy development.[217] While law is characteristically reactive, environmental law is firmly planted in principles such as sustainable development, which is naturally focused on the future. These underlying principles should have the effect of encouraging law and policy which is forward focused and prevents harm before disasters arise or inequalities become entrenched. Reactivity has been noted throughout the growing timeline of air pollution disasters within the UK; the most noteworthy being the 1952 Great Smog of London where over 4000 lost their lives.[218] It was not until after the disaster that unprecedented legislation was implemented. Namely, the Clean Air Act 1956 and Clean Air Act 1968 which focused on restricting emissions. Despite the overall positive effect reactive legislation can have on reducing national air pollution levels at its root cause, reactivity also fails to take into account the multi-faceted nature of air pollution issues.[219] This approach to policy development, which continues to the modern day, could be attributed to the significant research deficit in more intersectional, complex areas of air pollution issues such as distribution, socioeconomic status and harm.[220] Further complexity is added when taking into account the multitude of various population characteristics that can take effect such as age and ethnicity between urban or rural locations.[221] Without more extensive research and understanding of the multi-faceted relationships at hand across the UK, policy makers and public health officials will not be equipped to develop and implement targeted social policy measures.[222] The knowledge gap must therefore be bridged between local research and national policy development and implementation.[223] Without this bridge, the more general approach to culling emissions will continue with the only option being reactivity when

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[217] N3 p.535.
[218] N3 p.534.
[219] N3 p.536.
[220] Daniela Fecht and others, 'Associations between air pollution and socioeconomic characteristics, ethnicity and age profile of neighbourhoods in England and the Netherlands' (2015) Environmental Pollution Vol.198 p.201-210.
[221] ibid.
[222] N219.
[223] N15.

disaster strikes.

Out of the extensive list of emission sources contributing to air pollution in the modern day, road traffic has been listed as the largest problem.[224] While commuters benefitting from the use of cars are greater contributors to air pollution levels, they have been found to be equally less exposed to pollutants.[225] This is contrasted with low-income populations who rely heavily on public transport such as the underground and, as a result of their close proximity, are exposed to increased amounts of air pollution.[226] Increased exposure also correlates with poor quality housing and being located near dense, high-traffic areas.[227] Mitchell and Dorling found that it is those who lack the financial ability or personal capacity to move away from these areas of high air pollution that burden the greatest exposure.[228] This includes children and those who are elderly or have a disability. The 2020 landmark inquest into the death of 9-year-old Ella Adoo Kissi-Debrah from London highlights the detrimental effect that prolonged exposure to traffic air pollution can have on vulnerable children's lungs.[229] The Record of Inquest outlines air pollution as being a 'significant contributory factor' to the exacerbation of Ella's asthma between 2010 to 2013.[230] This case marks the first instance in the UK where cause of death has been directly attributed to air pollution. At this time, the government failed to comply with NO_2 EU and domestic annual limit values of 40μg/m^3, as prescribed under Schedule 2 of The Air Quality Standards Regulations 2010. Simultaneously, there was a failure to create adequate public awareness as to the significant negative effects that air pollution can have on health.[231] This duty is governed by Regulation 21.[232] Consequently, Ella's mother lacked sufficient knowledge to implement prevention measures in day-to-day life such as moving house or

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[224] Friends of the Earth, 'Air pollution and the campaign for clean air' https://friendsoftheearth.uk/clean-air (last accessed 27th March 2021).
[225] Ioar Rivas and others, 'Exposure to air pollutants during commuting in London: Are there inequalities among different socio-economic groups?' (2017) Environment International Vol.101 p.143-157.
[226] ibid.
[227] Nicola Slawson, 'Rosamund Kissi-Debrah: 'We need to confront the issue of inequality and air pollution' *Evening Standard* (London, 23 February 2021).
[228] Gordon Mitchell, 'An environmental justice analysis of British air quality' (2003) Environment and Planning A Vol.35 p.909-929.
[229] Blackstone Chambers, 'Inquest into the Death of Ella Adoo-Kissi-Debrah' (2020) https://www.blackstonechambers.com/news/inquest-death-ella-adoo-kissi-debrah/ (last accessed 30th March 2021).
[230] London Inner South Coroner's Court, 'Inquest Touching The Death Of Ella Roberta Adoo Kissi-Debrah' (2020) https://www.innersouthlondoncoroner.org.uk/news/2020/nov/inquest-touching-the-death-of-ella-roberta-adoo-kissi-debrah (last accessed 30th March 2021).
[231] ibid.
[232] The Air Quality Standards Regulations 2010 SI 2010/1001.

moving Ella to a school in a less polluted area.[233] This lack of knowledge outlines institutional failure to uphold procedural equity, as discussed in chapter one, as Ella's family were not equipped with the tools to make an autonomous decision. The distribution of harm in this instance is inherently inequitable due to it arising in an unjust manner.

While the findings that air pollution had made a significant contribution to illness and death were unprecedented in Ella's case, the UK government failures to uphold air quality legislation are not uncommon. Despite a regulatory scheme being in force under Part IV of the Environment Act 1990 and the accompanying enforcement scheme under The Air Quality Standards Regulations 2010, which both implement the 2008 Air Quality Directive,[234] the government consistently fails to adhere to annual targets. In 2015, thirty-seven, out of a total forty-three, UK zones exceeded the statutory annual limit for NO_2.[235] The environmental NGO ClientEarth has sought to challenge the UK government's consistent non-compliance and lack of urgency to improve air quality levels in multiple instances. Following on from a reference to the Court of Justice of the European Union (CJEU), Lord Carnwath in *R (on the application of ClientEarth) v The Secretary of State for the Environment, Food and Rural Affairs* outlined the 'need for immediate action'[236] to address the UK government's breach of its core obligation of limit compliance under Article 13 of the Air Quality Directive.[237] The Court took the view that the most 'realistic' way of rectifying the problem was for the UK government to produce new air quality plans in accordance with Article 23(1) of the Air Quality Directive.[238] The subsequent 2015 Air Quality Plan implemented by the government in a bid to comply was later held to be in breach of Article 23(1)[239] and Regulation 26(2) of the Air Quality Standards Regulations 2010 in *ClientEarth (No. 2) v The Secretary of State for the Environment, Food and Rural Affairs.*[240] Justice Garnham held the steps taken to comply with limit values must be deemed 'likely' to reduce exposure as opposed to 'just possible'.[241] These cases provide

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[233] N229.
[234] Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe [2008] OJ L152.
[235] Department for Environment, Food & Rural Affairs and Department for Transport, 'UK plan for tackling roadside dioxide concentrations' (2017) < https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633270/air-quality-plan-detail.pdf> (last accessed 3rd April 2021).
[236] [2015] UKSC 28 [31].
[237] N233.
[238] *R (on the application of ClientEarth) v The Secretary of State for the Environment, Food and Rural Affairs* [2015] UKSC 28 [31].
[239] N233.
[240] [2016] EWHC 2740 (admin).
[241] ibid [95].

further examples of the UK's reluctance to implement effective measures proactively on their own accord. Bell outlines how the judgement in *ClientEarth (No.2)*[242] reflects a significant shift in judiciary attitudes towards intense, and much needed, scrutiny of environmental modelling; reflecting the scale of the UK's obligations and continuous failings.[243] Justice Garnham in *R (on the application of ClientEarth) v (1) The Secretary of State for the Environment, Food and Rural Affairs (2) The Secretary of State for Transport and (3) Welsh Ministers* also went on to find the 2017 Air Quality Plan unlawful.[244] He noted how in the eight years of non-compliance with the original 2008 Directive[245] deadline, 'UK citizens have been exposed to significant health risks'.[246] As outlined prior, it is specifically vulnerable sub-groups of UK citizens that most greatly feel the negative consequences of this non-compliance.

In the pursuit for EJ across the UK, full air quality compliance must first be achieved.[247] However, this compliance-based approach should integrate equity.[248] The current statutory Local Air Quality Management (LAQM) process focuses on implementing plans to hit local targets as opposed to addressing social disparities.[249] The government state how this method is advantageous as 'local authorities know their areas best' which makes them the best people to 'take the lead in rectifying the problem'.[250] However, Mitchell notes that to achieve EJ, 'injustice in air quality cannot be tackled purely at local level' as it is not a singular environmental issue.[251] He notes the need for expansive engagement at central government tiers to form cohesive, national policy encompassing environment, transport and health.[252] If the UK continues down the current path, air quality improvement numbers may eventually present a positive picture on the surface but experienced effects will continue to be unequal.

Post-Brexit, the UK is in an unprecedented position to action positive change by filling the

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[242] N239.
[243] Joanna Bell, 'ClientEarth (No 2): A Case of Three Legal Dimensions' (2017) Journal of Environmental Law Vol.29 p.343-353.
[244] [2018] EWHC 315 (Admin).
[245] N233.
[246] N243 [108].
[247] N206.
[248] ibid.
[249] N206.
[250] N234.
[251] N206.
[252] ibid.

governance gap left behind from EU institutions.[253] The UK government's track record for missed environmental targets does not, however, paint a positive picture as to any potential future commitment to EJ or implementation of bold, progressive measures. Building upon the foundations of the Environment Act 1995 and the 25-year Environment Plan, the new Environment Bill, introduced in 2020, does have the potential to create a powerful, legally binding framework to address air quality emissions as well as underlying social issues.[254] The efficacy of this framework will, however, rely heavily upon the newly created Office for Environmental Protection holding the government accountable through independent enforcement measures.[255] Concerns have arisen over the true level of legal authority, power and funding the Office for Environmental Protection will be afforded in order to sufficiently keep the government accountable.[256] If budget cuts and restraints are placed on the Office, similar to the Environment Agency, enforcement against the government for environmental wrongs will prove increasingly difficult.[257] Without sufficient commitment to enforcement, movements towards EJ and sustainability have the potential to be seriously weakened.

In conclusion, full air quality compliance must be achieved in order to achieve EJ across the UK. However, due to the multi-faceted complexities of air pollution issues, a compliance-driven or net-gain approach alone may not be the most efficient method to reduce social harm. The knowledge gap must therefore be bridged between local socioeconomic research and national policy implementation to address unequal distribution of harm currently present in the UK. Further, by adopting a sustainable-orientated approach to law and policy development, the UK government can proactively reduce the burden of social injustice and inequality on future generations. Post-Brexit, the government are in a position to begin implementation of new, ambitious legal frameworks. Therefore, it remains to be seen whether they will make the most of the opportunity and lead the UK into a new era of progressive law and policy development or remain along the path of missed targets and consistent non-compliance which drives inequality and perpetuates harm.

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[253] Client Earth, 'Why the UK environment bill matters' (2020) <https://www.clientearth.org/latest/latest-updates/news/why-the-uk-environment-bill-matters/> (last accessed 7th April 2021).
[254] Dan Hayes, 'Does the Environment Bill only look good on paper?' *The Times* (London, February 13 2020).
[255] N252.
[256] N253.
[257] N253.

Conclusion

There are varying forms and degrees of harm imposed upon vulnerable populations stemming from the environment. However, many contemporary environmental problems, such as wildfires, sea level rise and air pollution, as discussed prior, could be said to have a root cause of anthropogenic activity. This activity is fuelled by developed nations' pursuit of unrelenting innovation and continuous economic expansion, even at the expense of others. As a result of anthropogenic-driven problems by developed nations, such as global warming, impacts are most felt by smaller nations or less affluent communities. Developed nations and affluent communities' relaxed perception of danger also feeds into a perpetual cycle of harm as they are blind to the hardships and distributive injustice that vulnerable communities are exposed to in everyday life.[258]

Questions can therefore be posed about how social harm can be reduced. The process of reducing harm could be said to lie within large-scale international co-operation as well as national commitment to addressing problems, causes, harm and distribution.[259] Distribution considerations, specifically, are vital to shifting government focus away from mere net-gain environmental improvements to implementing consciously targeted social measures. However, while implementing measures at both international and national level are integral, there is no singular measure equipped to deal with such vast issues. The path to addressing environmental problems and social harm is long and complex. Therefore, the continuous development of social justice concepts such as EJ are vital to ensure progress continues in this expanding area.

EJ aims to address hardships through a focus on equity and social justice by upholding the idea that law and policy should benefit a population as a whole, as opposed to those who are most affluent in society. Through highlighting institutional framework deficits, EJ provides a means for policy makers to become aware of policy shortfalls and potential consequential impacts across populations. While EJ upholds the idea of equitable outcomes, it equally pushes for procedural equity; the involvement of disadvantaged communities and individuals in policy development.[260] Governments have been seen to attempt to implement education and guidance information as to environmental risks, however, more steps must be taken to provide people who are vulnerable sufficient tools to adapt. By possessing the necessary tools and information to adapt, people are able to

[258] N143 p.37.
[259] N3 p.537.
[260] N1 p.75.

make autonomous decisions as to their health and well-being. Without sufficient tools, for example to implement safety measures or relocate, less affluent communities will continue to bear the burden of inequality.

While EJ has risen quickly from the grassroots in the US as a tool to address inequality, EJ as a global concept, and specifically within the UK, is still in the early days of recognition at governmental tiers.[261] Due to EJ being a wide-reaching, multi-faceted concept, any future entrenchment as a utilised concept to develop law and policy will rely upon the continuation of research surrounding social justice across varying population characteristics. Through gathering greater evidence as to the variables underlying perceived injustices, such as class, income, age and race, targeted policies can be directed to address inequality.[262] By bringing greater awareness and attention to EJ and fostering its development further, the concept can also work in conjunction with the complementary principle of sustainable development. While governments at local, regional, national and international tiers have strongly committed to adopting sustainability-based policies, there is a significant lack of understanding as to the importance of framing sustainable development around social justice.[263] The utilisation of sustainability and EJ would encourage governments to address harm and social injustice pre-disaster in an anticipatory manner, reducing negative impacts to life in the future.[264] This is opposed to waiting until environmental disasters strike and harm inequitably manifests itself in the least affluent sectors of society. The concept of EJ, therefore, can help to act as a vehicle to drive the necessary change of reducing distribution issues and social inequalities, at a local and global level, to move towards sustainable societies and achieving the Sustainable Development Goals.

[261] N15.
[262] N219.
[263] N2.
[264] N39.