

The Messy Challenge of Environmental Justice in the UK: Evolution, status and prospects

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Foreword

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Background

The 25 Year Environment Plans recognises that “our environment underpins our wellbeing and prosperity” and that improvements in our natural environment seek to improve social justice and provide a “country that works for everyone”. Internationally the UN Sustainable Development Goal seek a sustainable future for everyone and more specifically, “including those related to poverty, inequality, climate, environmental degradation, prosperity, peace and justice”. Where we invest in our natural environment matters. The improvements may be experienced by different social groups in different ways and it is these distributional considerations and whether they are fair that Environmental Justice considers. This report reviews the Environmental Justice movement in the USA and in Europe. It reviews the evidence of environmental inequality in the UK and considers options for next steps to address the messy challenge of Environmental Justice in the UK.

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Further information

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The Messy Challenge of Environmental Justice in the UK: Evolution, status and prospects

This brief provides an overview of environmental justice (EJ) in the UK. The evolution of the topic is traced and environmental inequality evidence briefly summarised. A series of issues are outlined which mean UK EJ must be characterised as a ‘messy challenge’ requiring purposeful steps to deliver an environment that supports wellbeing for everyone.

Introduction

Few would argue with the imperative to protect and enhance our supporting environment. Indeed, the 25 Year Environment Plan recognises that “our environment underpins our wellbeing and prosperity”^{1(p15)}. Environmental management however, cannot only be seen in terms of aggregate change, in say, the total number of people living with clean air. If the concern is for *our* wellbeing, referring to everyone, then how environmental change is distributed amongst people is a key concern too. This is the issue of Environmental Justice (EJ). EJ is distinct from environmental deprivation, the absence of environmental conditions (e.g. clean air, greenspace) conducive to wellbeing, going beyond it to consider how environmental conditions are experienced by different social groups, and whether such social distributions of environmental conditions are fair (See Box 1).

Box 1. Definitions of Environmental Justice

Cutter² - “Equal access to a clean environment and equal protection from possible environmental harm irrespective of race, income, class, or other differentiating feature of socio-economic status”.

US EPA³ – “Fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation & enforcement of environmental laws, regulations and policies. Fair treatment means no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies”.

UN ECE Aarhus convention, Article 1⁴ – “In order to contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his or her health and well-being, each Party shall guarantee the rights of access to information, public participation in decision-making, and access to justice in environmental matters”.

Internationally, the 1992 Earth Summit first prominently considered environment and justice issues together (a merger of the ‘green agenda’ of rich countries and ‘brown agenda’ of those concerned to secure livelihoods). Both concerns are embedded and interconnected in the UN’s 2030 Sustainable Development Goals which require action on inequality with respect to environment and development (Box 2). Where inequality is low evidence suggests societies are less environmentally damaging, and perform better overall, across numerous social and economic outcome measures^{5 6 7}.

Environmental inequality is familiar at an international level - for example, climate related disaster losses, as % of GDP, are 4.3 times greater in low income countries than in the high income countries responsible for a disproportionately high share of historic CO₂ emission⁸

(‘climate injustice’). Such inequalities occur at other levels – within country, region and city – where concern over the distribution of environmental costs of development led to calls for ‘environmental justice’ which emerged as a major theme in the sustainable development paradigm integrating the goals of environmental protection and social justice. EJ is conceptually broad, addressing issues of fair distributions across generations, within the current generation, and between people and the natural world, although EJ is most strongly associated with environmental distributions amongst people, alive today. This conception of EJ is reflected in the 25 Year Environment Plan.

Box 2. Inequality in the UN Sustainable Development Goals

“The UN SDGs are the blueprint to achieve a better and more sustainable future *for all*. They address the global challenges we face, including those related to poverty, *inequality*, climate, environmental degradation, prosperity, peace and *justice*”. The 17 goals emphasise the importance of inclusive development and progress for all. Several highlight inequality and justice:

- No poverty – economic growth must be inclusive to provide sustainable jobs and promote *equality* (Goal 1).
- Ensure healthy lives and promote well-being *for all, at all ages* (Goal 3)
- Achieve gender *equality* and empower all women and girls (Goal 5)
- Reduce *inequality* within and among countries (Goal 10)
- Promote peaceful and *inclusive* societies for sustainable development, provide *access to justice* for all and build effective, accountable institutions at all levels (Goal 16)

Source: UN ⁹ (*Author emphasis*).

Origins

The origins of the EJ movement lie in the USA. Freeman¹⁰ demonstrated a relationship between pollution and income for US cities, and argued that the distribution of environmental quality was produced by its interaction with income and market forces, hence improving the distribution of wealth would lead to an improved distribution of environmental quality. However, it was not until the 1980s, when civil rights activists and environmentalists found common ground that the EJ movement grew. Under Civil Rights legislation cases of ‘environmental racism’ were brought over the siting of hazardous waste disposal sites in communities of colour. In 1982 a particularly high profile case, involving the disposal of PCB contaminated soil in a predominantly African-American community in North Carolina, catalysed national protest. Activist and government research both then showed how waste disposal sites in the US were more likely to be located in communities of colour¹¹.

Critics presented alternatives to racism as an explanation for the observed hazardous waste patterns but concern was such that President Bush Sr. established a Federal environmental equity working group followed by President Clinton issuing an Executive Order on EJ in 1994¹². This requires all Federal agencies "to address environmental justice as part of their overall mission, and to identify and address disproportionately high, adverse human health or environmental impacts of policies, programmes and activities on minority and low income populations". EJ is thus now a key element of US environmental and public health policy. The EPA Office of Environmental Justice (OEJ) is the lead EJ agency aiming to protect vulnerable populations, ensure equal access to environmental decision making, and reduce environmental burdens and build healthy, sustainable communities, through technical and financial assistance¹³. Although the EPA is under budget pressure the OEJ remains very active. Its current strategic plan focusses on overburdened communities, cumulative

impacts, and developing closer working with public authorities and local communities to further embed EJ issues into environmental decision making.

EJ in Europe

US EJ policy was a response to grass roots civil society action. In contrast, EJ policy in Europe, which developed later, is more a response to intergovernmental agreements on human rights, increasingly seen as a mechanism for achieving environmental sustainability. These include the right to a clean and safe environment, the right to act to protect the environment, and the right to environmental information and participation in decisions affecting the environment. These rights were established in the 1992 Rio Declaration, and in Europe through the United Nations Economic Commission for Europe (UNECE) Aarhus Convention on Access to Information, Public Participation in Decision making and Access to Justice in Environmental Matters whose objective is to "contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his or her health and well-being"¹¹.

The Aarhus convention is implemented via EU directives that give citizens greater access to environmental information (2003/4/EC), and enhanced participation in decisions affecting the environment (2003/35/EC) (implemented in national law, e.g. on EIA). An EJ directive was proposed to give citizens rights to challenge acts or omissions by private persons or public authorities that do not comply with environmental law. No directive was agreed as public bodies and business raised concerns over potential costs and delays from EJ court cases, hence in 2017 the EU drew on prior EJ cases to provide guidance to national courts on interpretation of existing EU environment law within a justice context¹⁴. The Aarhus convention thus gives individuals and groups enhanced avenues to address procedures and breaches of environmental laws which contribute to environmental inequality and injustice, albeit without the legislative strength originally envisaged. Whilst EJ in Europe has thus been driven 'top-down', grassroots action is evident too, for example the European Environmental Bureau (EEB - a collective of EU environmental NGOs) map nearly 500 European EJ protest campaigns in their EJ Atlas¹⁵.

Environmental inequality in the UK

EJ concerns arose in Europe two decades after they did so in the US, so the European evidence base for environmental inequality is smaller, and studies of the social distribution (mostly of environmental hazard at city scale) continue to be reported. Environmental inequalities in the UK have been actively researched since the late 1990s¹⁶, and the UK arguably has the best developed evidence base on environmental inequality in Europe.

This evidence base was developed with notable differences to that in the USA. Early evidence on UK environmental inequality was produced by civil society (Friends of the Earth), but most evidence has been generated in university peer reviewed studies, thus avoiding criticisms experienced by early US EJ analyses. City level EJ analyses are common, but the smaller size of the UK and availability of harmonised data has meant that national small-area (e.g. census ward) analyses were possible, from which more robust conclusions could be drawn about environmental inequality patterns. The UK is also unusual in that two of the national studies have been extended over a decade or more, giving some insight into how environmental inequality has evolved under changing environmental and social conditions. However, UK EJ research has emphasised measurement of environmental inequalities, rather than seeking to explain them. Much US work is similarly descriptive, although there is a greater incidence of case studies which seek to explain observed patterns, using textual analysis methods to evidence discriminatory practice in hazardous facility siting, and most often, multivariate modelling. Box 3 provides an overview of the UK evidence, which whilst clearly incomplete, provides some compelling evidence of the

unequal social distribution of environmental quality.

Box 3. Selected evidence on UK environmental inequality

Air pollution. National small area studies^{17 18 19 20} reveal strong inequality between air pollution and deprivation (and for children), particularly for exceedance of NO₂ and PM₁₀ standards.

Harmonised analysis over the decade to 2011 shows inequality falls as air quality improves, but deprived areas have the slowest rate of air quality improvement, and most cases where air quality deteriorates²¹ (Figure 1). An EqlA reveals BAME groups in England experience PM₁₀ concentration 12-29% above that of White British²².

Flood risk. Coastal flood risk has a strong social gradient, with much higher risk experienced by deprived communities, in part a function of ex-industrial ports and declining resort towns^{18 20 23}. Riverine flood risk has no social gradient.

Regulation of IPC facilities. Integrated Pollution Control facilities are 5 times more frequent in the most, than the least, deprived wards of England (and with greater emissions, hazards, and offensive pollution), but regulation and enforcement activity by the EA is unrelated to area deprivation²⁴.

Greenspace and natural capital. Analysis of accessible greenspace, as parks and woodland^{25 26} and outdoor recreational space²⁷, finds ethnic minorities and those of lower socio-economic status visit less often due lower greenspace quality or accessibility. For a wide range of natural capital, analysis for England shows inequality by deprivation, but a social distribution of capital that varies by types of place and natural capital, suggesting natural capital equity issues may be better addressed at regional to local scale, rather than via a national 'one size fits all places' response²⁸.

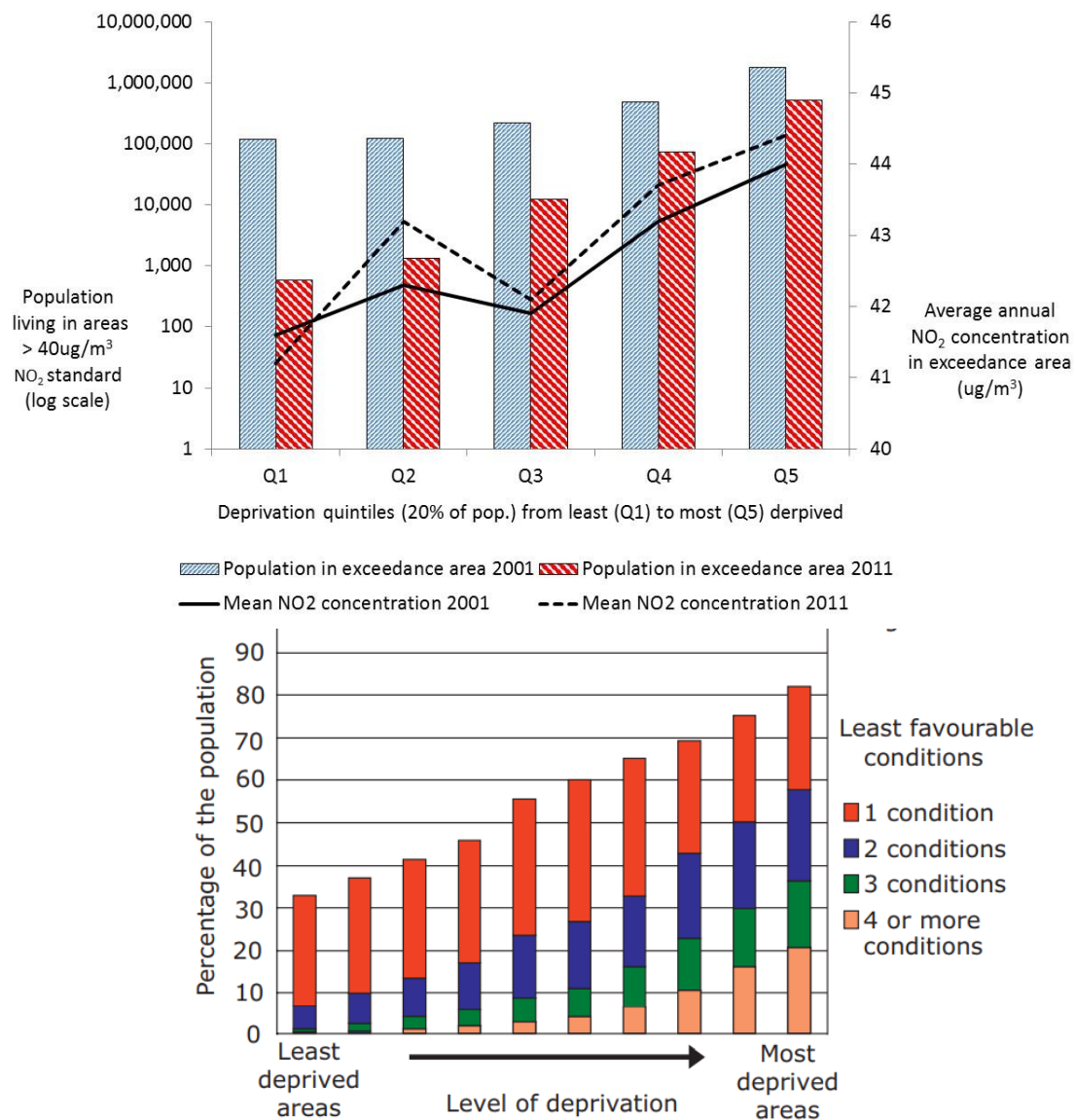
River water quality. For England, a 2008 analysis shows that for those living within 600m of a river, deprived populations are much more likely to be near a river of poor chemical or biological quality. This effect is concentrated in the North West, Yorkshire and Humberside, and London²⁹.

Tranquillity. A study that examined the loss of tranquil areas in England 1960-2007 (to intrusive urban development, transport, energy and minerals infrastructure) found intrusion greatest in deprived districts. Increases in intrusion were greatest in the least deprived districts³⁰.

Waste Hazards. Waste recycling and transfer sites, and particularly incinerators, are more likely to be in areas of higher social deprivation^{31 32 33 34 35}. The pattern is less clear for landfills, probably as these have less urban locations. Studies are based on proximity not exposure analysis.

These inequalities are often cumulative (Figure 2) raising issues over total impact and management.

Figure 1. Temporal change in air quality inequality in Britain, 2001-2011 (NB. Log scale) ²¹



Source: UK Sustainable Development Indicator: Environmental inequality-2009. Deprivation measured by Index of multiple deprivation. The 11 conditions are: river water quality, air quality, green space, habitat favourable to biodiversity, flood risk, litter, housing condition, road accidents, and regulated sites (e.g. landfill, sewage works). For each, the population living in areas with the 10 per cent least favourable conditions have been determined.

The 'messy challenge' of environmental justice in the UK

Environmental inequalities in the USA led to EJ legislation and a national government body to champion EJ. The UK has developed credible evidence of environmental inequality, but no comparable response has been made, and progress towards EJ has been slower than many hoped for given the political support of the early 2000's. This cannot be attributed solely to changing political priorities and stakeholder conflict over objectives; the highly multi-faceted nature of EJ in the UK means that it is readily characterised as a 'messy' challenge that, in the absence of clear leadership, resists the development of ready solutions.

The challenge of EJ has parallels with that of health inequalities. These are avoidable differences in health between people that are observed for a range of health outcomes and social characteristics. They have many social determinants, and numerous mitigating actions are possible, that can be implemented by national and local institutions. Action on health inequalities has been catalysed by several major reviews (Black report 1980, Acheson report 1998, Marmot review 2010) and the Health and Social Care Act 2012 that placed legal obligations on health bodies to have due regard to reducing health inequalities. In the context of EJ, the Marmot review is notable in drawing attention to environmental inequality, and for a policy objective of developing sustainable communities, recognising that actions to reduce health inequalities will also benefit the sustainability agenda. If the challenge of EJ is to be tackled as directly as the similarly complex problem of health inequality, then it is important to address a series of questions to clarify the EJ challenge.

Who cares?

First, there has been no strong, consistent civil society action for EJ. UK EJ has been driven top-down, by international agreements. From 2001-03 speeches on the environment, poverty and justice were given by the Prime Minister, First Minister of Scotland and the Secretary of State for the Environment, stressing the centrality of EJ to poverty reduction and that improving local environments would have greatest impact on the poorest areas³⁶. The Office of the Deputy Prime Minister (ODPM) conducted cross departmental work to determine the extent to which poor environmental quality correlated with deprivation and acted to maintain social exclusion, whilst the Sustainable Development Commission advocated consideration of justice issues in environmental policy and community regeneration. However, although EJ campaigns were run by NGOs such as Capacity Global, the Black Environment Network, and Friends of the Earth, compared to the USA, civil society pressure for EJ remained comparatively weak. Nevertheless, EJ is still a national policy issue as evidenced by the 25 Year Environment Plan: “Our proposals ... seek to improve social justice by tackling the pollution suffered by those living in less favourable areas, and by opening up the mental and physical health benefits of the natural world to people from the widest possible range of ages and backgrounds”^{1 (p9)}.

What environment matters?

From the outset, the UK took a broader conception of the environment. The USA focuses on ‘LULUs’ (locally unwanted land uses) particularly sites of hazardous waste treatment, storage and disposal such as landfills and incinerators. These remain an OEJ national challenge, together with potable water quality, lead pollution, and air quality. Of these, waste facilities and air quality have been much researched in the UK. No analyses have been conducted for potable water or lead as environmental inequalities are considered unlikely - potable water is high quality (standard compliance rates are >99.9%) whilst lead exposure does vary socio-economically but is most strongly mediated by occupational rather than ambient exposure. The UK’s broader conception of the environment is however seen in the wide range of environmental ‘bads’ of concern, which addresses issues such as noise, flood risk, traffic accidents, and local incivilities, like fly tipping, litter and graffiti¹⁶.

More notably the UK was quick to consider inequality with respect to public goods including issues of greenspace and countryside access, tranquillity, access to environmental information, and fair environmental regulation (Box 3). Current UK work is examining the social distribution of natural capital and the ecosystem services flowing from it²⁸. The relationship between EJ and ecosystem services has previously been studied in lower income countries where the importance of eco-services to livelihoods is more direct and obvious,

but EJ ecosystem services work in the UK remains in its infancy. Overall, this broader framing of issues, collectively addressed by a very wide range of institutions and stakeholders, poses a challenge in responding to UK environmental inequality.

Who matters?

US EJ work focused on ethnicity, reflecting the issue's civil rights origins, whilst the UK social focus has been deprivation, widely perceived as the key driver of social exclusion³⁷. It's notable that much early US EJ research was criticised for poor research design which meant that some race-hazard associations were misspecified, with later studies concluding these links were often a function of income (this autocorrelation effect occurs as US communities of colour tend to be of lower income)³⁸. The UK focus on inequality related to poverty is thus justifiable, but has not attracted the same attention as a racial inequalities focus might. Inequality with respect to ethnicity appears to exist in the UK^{22 39}, but rather little work has been done, and there is a limited understanding of the extent to which the few UK environment-ethnicity observations are mediated by income.

The question of who matters in the UK EJ debate is further complicated by the 2010 Equality Act introduced to tackle discrimination and disadvantage. It identifies nine protected characteristics, such as age, race and gender, but socio-economic status (deprivation) is not one. Part 1 of the Act – “Socio-economic inequalities” - is not to be ‘commenced’ (implemented), except in Scotland, where it came into force in April 2018 as part of the Fairer Scotland duty, which places a legal responsibility on certain public bodies to consider how they can reduce inequalities of outcome caused by socio-economic disadvantage, when making strategic decisions⁴⁰. Thus local plans (land use, transport, air quality etc) or major infrastructure investment may undergo an Equality Impact Assessment (EqIA, often as part of an integrated impact assessment with SEA and HIA) that considers pollution impacts on children or ethnic groups, but only in Scotland must this also address socio-economic status. In practice, some local authorities are voluntarily extending EqIA's to socio-economic status, although these do not carry the same weight in law as for those against protected characteristics.

What are the outcome objectives?

For any environmental inequality analysis there are various possible endpoints. With pollution, distributive analysis may simply consider the proximity of people to pollution sources, a relatively straightforward analysis often supported by available data. However, proximity reveals rather little about outcomes of concern. Hence we are progressively more interested in the social distribution of emissions by mass, ambient concentrations, exposure (area wide, then for individuals), in vivo pollutant concentration, and ultimately health outcomes. The later analyses are however increasingly costly, so data constrained and limited in scale. This diversity of endpoints coupled with the broad conception of the environment generates a further complexity of EJ – uncertainty in outcome objective. Often the concern is for ‘health’ which may be implicit or undefined. It may imply a narrow biomedical conception suggested by pollution studies (good health as the absence of disease) or the broader World Health Organization (WHO) conception of health as physical, mental, and social well-being.

In her latest annual report⁴¹, focussed on pollution, the Chief Medical Officer urges renewed attention on the health impacts of pollution, and argues for environmental inequalities to be accounted for and addressed within the health inequalities agenda. She highlights the strength of evidence for air quality^{41 (chap 6)}, but notes a relative lack of understanding of

health impacts from longer-term lower-level pollution, less well studied and emerging pollutants (such as noise, light, nanomaterials, micro-plastics), and the potential cumulative effects of pollutant mixes. The issue of 'triple jeopardy' (whereby pollution exposure and social characteristic – such as poor nutrition - combine in a multiplicative rather than additive way to heighten health impact) is also raised as a concerning knowledge gap.

The biomedical conception of health is clearly significant, but the wider conception of health has traction too, including politically, as evidenced by the Aarhus convention (see above), and in the UK, duties to promote well-being (Local Government Act 2000, 2011 Localism Act), ONS wellbeing measures⁴², and the 25 Year Environment Plan recognition of the environment's role in 'underpinning wellbeing'. Evidence on the relationship between natural environments and health is evolving^{43 44} yet is sufficiently compelling to support nature based intervention in GP social prescribing for health⁴⁵. Such a concern strengthens the imperative to address ecosystem services relevant to wellbeing – most obviously regulating and cultural ecosystem services that act to protect biomedical health (e.g. via pollutant sequestration), or support mental health and social wellbeing (e.g. via reduction of perceived flood risk, or access to nature based recreation and amenity). Extending EJ interest to this broader wellbeing objective adds further complexity to UK EJ.

What is a just outcome?

A distributive analysis may reveal strong inequality but this need not imply an unfair distribution. This is evident in past government ambition for EJ as justice rather than equality. Judging if a distribution is 'fair' may require a consideration of how the distribution arose. Box 4 presents some possible explanations for environmental inequality. Of these, discrimination is obviously unfair, but the others may be considered fair, or not, depending upon the justice conception held. That is, should distributions be judged according to merit, need, or entitlement? These ideas are formalized in theories of utilitarianism (maximize net benefit to society), egalitarianism (distribute costs/benefits equally to all), contractarianism (guarantee a minimum level of protection) and libertarianism (maximize freedom of choice and action), and depending upon which is applied, an intervention shifting the social distribution of environmental quality may be seen to be more or less just. If the goal is to improve the condition of the most vulnerable or disadvantaged, for example, then measures that deliver higher net benefit may not be appropriate. The justice conception held may also suggest that the process producing the distribution is immaterial – this would be the case under a social contractarian conception. Here injustice is evident for a social gradient in breaches of a statutory environmental standard intended to protect health regardless of social characteristic (e.g. Figure 1), but not for an equally strong social gradient in, say ecosystem service provision, for which there are no statutory standards.

Justice as distribution, procedure or recognition?

Distributive justice is one of three dimensions commonly associated with EJ. The second is procedural justice, but there is no consensus on what this covers. For some, procedural justice implies a libertarian conception of justice, as advocated by American philosopher Robert Nozick, in which any distribution is fair, so long as it has been arrived at in a just manner, which for Nozick revolved around fair acquisition (e.g. of a property, via work or gift)⁴⁶. Others interpret procedural justice as that which ensures all have opportunity for meaningful involvement in environmental decision making (an interpretation reflected in the US EPA definition of EJ). Meaningful involvement requires a consideration of many of the issues set out above – who are the parties involved, what decisions are relevant, how are decisions to be made and so on? Whilst the Aarhus convention and EU Directive support

public involvement in environmental decision making, in practice the expectations are modest, and actual participation is weak relative to possible alternatives⁴⁷. Finally, for some, procedural justice implies ‘access to justice’, the ability to seek redress in the courts where environmental laws are breached. This definition of procedural justice is of course applicable where relevant law exists, so if socio-economic status, or wellbeing derived from ecosystem services is not recognised in law, this definition is much more limiting than the other interpretations of procedural justice. It is notable too, that, for those cases where relevant law does exist, access to environmental justice may still be very difficult. Barriers to justice are posed by ‘standing’ (e.g. NGOs cannot bring a case on behalf of others), litigants not having the communication skills or capacity to engage in a court case, and by cost. The Aarhus EJ directive requires that EJ litigation is “not prohibitively expensive” but the fixed cost cap was abandoned by government in 2017. The House of Lords voted against this stating unknown legal costs would discourage people with a genuine complaint, and a judicial review brought by the RSPB and others overturned the decision, partially⁴⁸.

Box 4. Causal theories of environmental inequality

- Discrimination (e.g. in siting decision over hazards)
- Protest evasion (e.g. hazard developers targets minority communities having low perceived collective resistance)
- Risk - perception and acceptance of environmental risk varies by social characteristics
- Commercial rent – hazardous activities locate where land and labour is cheaper, but minority and deprived groups are more prevalent
- Invasion succession theory - minorities locate near a hazard, do well, and attract others creating a concentration of minorities next to the hazard
- Location choice – minority households locate in areas of low environmental quality as other area features, such as home size, compensate (Tiebout theory)
- Neighbourhood transition theory – development repels the affluent whose properties are occupied by lower income groups
- Property rent seeking - housing developers build higher value homes in high environmental quality areas; social housing is directed to lower quality areas
- Conservation policy – protection of high quality environments directs new housing to areas that are already degraded, concentrating lower income households.

Determining the role of these mechanisms in producing environmental inequality distributions is strongly constrained by a lack of appropriate spatio-temporal data.

A final EJ dimension, ‘Recognition’, has latterly been introduced by political scientists⁴⁹. Recognition prompts consideration of whose voices are heard, who gets to define a ‘good’ outcome, and whose knowledge is deemed relevant when planning remedial action. This returns us to the issue of a relatively weak civil society EJ movement in the UK and lack of a strong advocacy voice. However, given the argument set out above, we can conclude that this weakness is not a function of disinterest or lack of commitment on behalf of civil society, but a product of a multiplicity of factors that contribute to UK EJ as ‘messy challenge’. Civil society may rally around specific EJ issues, such as shale gas ‘fracking’, but struggle to do so around more abstract issues, such as ecosystem services, despite these being fundamental to their wellbeing. Thus the messy nature of UK EJ gives rise to an advocacy deficit, and uncertainty over environmental management needed to support the wellbeing of all.

“An equal distribution of environmental benefits, resources and opportunities”

An objective of the 25 Year Environment Plan^{1 (p16)} is to ensure “*an equal distribution of environmental benefits, resources and opportunities*” (the plan cites examples of tackling pollution suffered by those living in less favourable areas, and ensuring children from ethnic minority backgrounds and low income households have access nature). A range of factors variously support achievement of this objective, but hurdles remain to be overcome too. First, there is already evidence to reveal the nature and extent of environmental inequality in the UK. However, this evidence is incomplete with little evidence beyond deprivation based analyses, little on natural capital, and nothing on ecosystem services. The latter is a key gap given the focus of the 25 Year Environment Plan, and the wider ambition to promote well-being. Some of the key evidence is also rather dated and temporal studies are rare so we have no real picture of the changing nature of environmental inequality in the country (the UK Sustainable Development headline indicator of Environmental Inequality (Figure 2) was only reported for three years). Various options exist to tackle environmental inequality (Box 5), with a common approach being via community regeneration projects⁵⁰ – however, regeneration projects tend to have many objectives, hence follow up evaluation and synthesis of reported findings with respect to environmental equity has been weak.

Box 5. Possible responses to environmental inequality [and possible problems]

- Direct environmental hazard away from minority communities [Fewer local economic opportunities/jobs; more significant environmental damage elsewhere]
- Good neighbour [hazard v community] agreements⁵¹ [Risks ‘greenwash’, few sanctions, hard to police and enforce]
- Provide compensatory benefits to accept environmental hazard [Evaluation, cost, little culture of compensation]
- Invest in environmental regeneration in minority communities [Environmental gentrification]
- Raise environmental performance generally [Passive and effect on inequality unproven]
- Embed social justice appraisal in tools such as SEA and HIA to avoid exacerbating inequality [EqIA exists but advisory, pollution focussed, and no legal driver for deprivation analyses]
- Litigation [Access to justice barrier, especially uncertain cost⁵²; untested re wellbeing duties; post-Brexit ‘Green Watchdog’ weaker at enforcing environmental law than ECJ]

Second, a ‘soft architecture of equity appraisal’ is emerging in the UK. Thus whilst we may have an incomplete picture of environmental inequality, there are appraisal tools that can be used to determine the effect of development interventions on it. The Public Sector Equality Duty created under the Equalities Act 2010 is a driver of environmental equity appraisal with guidance published by both Department for Transport (DfT) and the National Institute for Health and Care Excellence (NICE). These are important as environmental inequalities are most evident with respect to deprivation, a material factor in equalities impact appraisal (EqIA) before the 2010 Act⁵³, but generally absent thereafter, such as EqIA of many local plans. The DfT and NICE guidance go beyond the protected characteristics of the Equality Act to also address socio-economic status, as do equity impact appraisals of some public authorities⁵⁴, drawing on guidance in the Equality Bill. The Treasury Green Book also gives guidance on socio-economic based distributive appraisal. Thus although there is no legal driver for socio-economic environmental equity appraisal, the practice is supported, although appraisals are voluntary. Thus environmental equity appraisals remain relatively rare, and tend to be limited to pollution (mostly air quality) with no consideration yet of

natural capital or its ecosystem services.

Third, the 25 Year Environment Plan pledges to “hand over our planet to the next generation in a better condition than we inherited it”. If achieved, we might anticipate substantive improvement in environment inequality, if a ‘rising tide lifts all boats’. However, this is unproven – analysis of the social distribution of UK air quality over time shows that whilst many people experience better air quality than they did a decade ago, the most deprived areas enjoy the slowest rate of air quality improvement, and are most likely to be in those areas where air quality deterioration has occurred²¹. The Environment Plan principle of net-gain could then deliver as intended yet have little or even adverse effects on environmental inequality. Housing development is a national priority, but if the net-gain principle results largely in affordable housing (i.e. for lower income households) being steered towards the least environmentally damaging areas then environmental inequalities could be worsened.

Finally, the EJ debate in the UK is broad and inclusive. It is a strength that there is ambition to go beyond the narrow conceptions of environmental hazard and physical illness, to environment as the source of well-being support services. However, the broadening of the scope of EJ poses a ‘messy challenge’ whereby a wider focus risks limiting progress. Making further progress on UK EJ, nearly two decades after it first received attention, would benefit from addressing current knowledge gaps, answering such questions as:

- How are environmental inequalities changing over the long run (years)?
- Are there health relevant environmental inequalities in new and emerging pollutants?
- What are the social distributions of ecosystem services important to well-being?
- How can natural capital accounts be best extended to address inequality in wellbeing?
- What effect do local (project, plan) interventions have on environmental inequalities?
- What influence do public bodies have on environmental inequalities?
- What synergies exist with other policy objectives (e.g. re health inequalities, economic regeneration environmental conservation) able to foster mutually supportive action?
- What do marginal groups perceive as EJ priorities and appropriate responses?

Answering these questions would help add necessary detail to the social justice aspirations expressed in the 25 Year Environment Plan, and help develop appropriate responses. Of these, the last point is worth dwelling on, as a critical reflection by the Environment Agency on their 2002-2004 environmental inequalities programme was the need to better explore processes for connecting local action research into regional and national research and policy making³⁶. Such action may prove valuable in addressing the messy challenge of UK EJ.

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