
When does unequal become unfair? Judging claims of environmental injustice

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Abstract. The purpose of this paper is twofold. Firstly, it presents a pluralistic framework for justice that combines an expanded interpretation of distributive justice with concerns for recognition, participation, capability, and responsibility. It argues that the latter has not attracted the scholarly attention that it deserves in the environmental justice debate. Secondly, the paper demonstrates how this multidimensional framework can be applied in practice to inform practical judgments about particular environmental justice claims by using an example of traffic-related air pollution in the city of Newcastle upon Tyne in the United Kingdom.

Keywords: environmental justice, air pollution, fairness, capability, responsibility, recognition

1 Introduction: justice and the question of ‘fair’ share

“Justice removed, then, what are kingdoms but great bands of robbers?”

St Augustine (quoted in Miller, 2003, page 74)

This ancient quote vividly conveys that justice is not merely a virtue to be cultivated by individuals, as Plato and Aristotle articulated. It is also a set of principles essential to the institutions that transform a mass of individuals into a political community. Indeed, the pursuit of justice is central to any justification of political authority and political obligation (Miller, 2003). Justice is not only about how people are treated (*legal rights*), but also how the benefits and burdens of societal activities are distributed (*distributive justice*) and how this distribution is decided upon (*procedural justice*). While egalitarian concerns with redistribution have provided the case for the theorisation of social justice for the past two centuries, more recently, alternative ways of conceptualising justice have emerged. These are framed in the politics of difference and captured by concepts of recognition, capabilities, and responsibilities. Drawing on these, section 2 of the paper will present a pluralistic framework for understanding justice and the way in which its various elements have informed the debate about environmental justice. Section 3 will demonstrate how this framework can be used in practice to guide practical judgments about environmental justice claims by applying it to the example of traffic-related air pollution in the city of Newcastle upon Tyne (hereafter Newcastle) in the United Kingdom (UK). It is important to note that the empirical analyses in this section are undertaken for illustrative purposes only. Section 4 concludes the paper and highlights some of the conceptual and methodological limitations and strengths of this approach.

2 The ‘justice’ in environmental justice

“Everyone has the right to live in a world free from toxic pollution and environmental degradation.”

UNEP (2001)

Environmental justice, both as a concept and as a focus for environmental and political activism, has been around for many decades, yet the exact meaning of ‘justice’ in environmental justice has remained contested. Definition matters because “different groups ... resort to different conceptions of justice to bolster their position” (Harvey, 1996, page 398). In what follows we aim to provide an overview of a pluralistic understanding of justice which combines distributional concerns with those of recognition, participation, capability, and responsibility. These will be followed by brief discussions of how these various insights have been developed in, and have influenced, the environmental justice debate. In developing this framework, we have built on the existing work, particularly by David Schlosberg (2007) and his multivalent approach to environmental justice.

2.1 Distribution: who gets what?

“Equality is a popular but mysterious political ideal.”

Dworkin (1981, page 185)

John Rawls (1971) has famously suggested that justice is about fairness; that a just society is one in which everyone receives a ‘fair’ share of the available resources. While the principle is acceptable to most, there is much disagreement about what counts as ‘fair’.⁽¹⁾ A full account of how different philosophical and political theories have addressed this question is beyond the scope of this paper, but in simple terms a distinction can be made between strict egalitarian, libertarian, and utilitarian theories which, respectively, use the following criteria to define fairness: *equality* (everyone should receive the same amount regardless of their input or need), *equity* (what people receive from society should be based on what they contribute to it), and *welfare* (what people receive should be based on their need) (Buttram et al, 1995). Rawls’s ‘Difference Principle’ advocates a welfare approach, suggesting that inequalities are justified if they are “to the greatest benefit of the least advantaged members of society” (1993, page 293). This implies that in contemporary unequal societies, such as ours, the needs of disadvantaged people should be given priority (Cohen, 2009).

Distributional concerns have been at the heart of environmental justice debate and campaigns. The latter became prevalent in the 1950s and 1960s in the United States (US) in reaction to the racially motivated distribution of industrial pollution and waste. The history and origin of the environmental justice movement (EJM) are documented in detail elsewhere (Bullard, 1999; Taylor, 2000). However, two, less discussed, aspects of the movement are worth mentioning here. The first is EJM’s redefinition of mainstream environmental activism and the latter’s focus on the ecological concerns of White, middle-class Americans (Holfrichter, 1993). By adding self-determination, land rights, and civil rights (Taylor, 2000, page 533) to the environmental agenda, EJM became embedded in the wider American Civil Rights movements. It showed that environmental racism (a term coined in the 1980s) was a key determinant for the siting of hazardous facilities and that non-Whites were more likely to be exposed to them than Whites (UCC, 1987). Secondly, questions regarding definition, substantive scope, and political reach were integral in the EJM⁽²⁾ and incorporated in the seventeen Principles of Environmental Justice drawn up by grassroots groups in 1991 (Goldman, 1996). Since then, major advances have been made in all three aspects. The substantive scope of environmental justice has moved beyond pollution and toxic waste to incorporate the distributional patterns of an expansive range of both environmental ‘bads’

⁽¹⁾At the heart of this question is an account of the citizen’s fundamental interest. Rawls, taking a liberal perspective, considers citizens as free and equal individuals who reasonably and rationally cooperate with one another within an egalitarian economic system.

⁽²⁾See Dorceta Taylor’s account of the replacement of the term environmental *equity* by environmental *justice* because the latter was considered by activists to be “more inclusive” incorporating both “distributive justice” and “corrective or communicative justice” (how people are “treated during a social transaction”) (2000, page 537).

and environmental goods (Benford, 2005; Lucas et al, 2004; Taylor, 2000). Similarly, the political reach of EJM has transcended ethnicity and race to include other social differences such as deprivation, age, gender, health, and disability. More recently, studies on the impacts of flooding have revealed other vulnerabilities such as social isolation and lack of access to insurance (Tapsell et al, 2002). It is now acknowledged that the distributional impacts of environmental burdens and benefits may vary according to the distribution of vulnerabilities. We would also argue that such impacts are also dependent on the distribution of mitigating measures which can reduce the impact of exposure. Finally, new theoretical insights have deepened understanding of justice beyond redistribution, as discussed below.

2.2 Recognition: who counts?

“Instead of focusing on distribution, a conception of justice should begin with the concept of domination and oppression.”

Iris Young (1990, page 3)

The multiple interpretations of distributive justice, outlined above, have one thing in common: they are embedded in liberal theories and are concerned with the just redistribution of resources and how they are channelled from those who have to those who have not.⁽³⁾ This prevailing reduction of social justice to distributive justice has been challenged by Marxist critics for its focus on the individual, its neglect of structural forces, and the obscuring of class relations (Simpson, 1980). Critics argue that a focus on allocation of material goods tends to ignore the social structures and institutional contexts that help determine distributional patterns (Walzer, 1983; Young, 1990). Distributive justice is also criticised by feminists on the grounds that it is difference blind and unable to address cultural oppression; that it overemphasises the social politics of equality and neglects the cultural politics of difference. However, rather than portraying ‘identity politics’ as an alternative to redistributive politics, scholars, notably Nancy Fraser (1996, page 30), have argued for a ‘bivalent’ conception of justice which includes “both distribution and recognition *without reducing either one of them to the other*” (emphasis in original). While redistribution secures the objective condition of justice, recognition safeguards its intersubjective condition (Fraser, 2003, page 36). Recognising individual and social identity but rejecting homogenisation, feminist writers, such as Seyla Benhabib (1992), have used the notion of ‘concrete other’, vis-à-vis Rawls’s ‘general other’,⁽⁴⁾ to reformulate the classic question of justice: how can justice be blind to difference and treat everyone equally while at the same time recognising people’s different identities and vulnerabilities, arguing that justice requires the recognition of sameness as well as difference.

Within the environmental justice debate, the work of Schlosberg (2007) has been particularly important in incorporating the concept of recognition into the understanding of environmental justice and extending justice beyond individuals to the collective realm. Recognition implies seeking measures that enhance, rather than stigmatise, the standing of the beneficiaries of redistribution as full citizens. It implies not “add[ing] the insult of misrecognition to the injury of deprivation” (Fraser, 1996, page 48). In the context of environmental justice, misrecognition can have a spatial dimension and be applied to both people and places. Indeed, countless cases of opposition to the siting of unwanted developments

⁽³⁾ While most redistributive justice theorists acknowledge the significance of status, they tend to “assume a reductive economic-cum-legalistic view of status, supposing that a just distribution of resources and rights is sufficient to preclude misrecognition” (Fraser, 1996, page 28).

⁽⁴⁾ The ‘general other’ refers to everyone with the same entitlement to an equal share of rights and goods that can be justified from an impartial viewpoint. The ‘concrete other’ regards the other “as an individual with concrete history, identity and affective-emotional constitution” (Benhabib, 1992, page 159).

have been justified on the basis that people and places have been devalued, denigrated, misrecognised, and stigmatised (Fraser, 1996) through cultural and institutional processes. However, as Gordon Walker (2009, page 626) argues, such misrecognitions are not “just the product of siting decisions, but also underlie the processes through which certain spaces get to be chosen for the development in the first place”, be it through: deliberate racial discrimination (as was the case in America of the mid-20th century), the operation of land and property markets, the zoning rules of the planning systems, or the dynamics of capitalist systems in general (Pellow, 2004). The interplay of structural processes and institutional misrecognition often leads to the accumulation of multiple environmental burdens and place stigmatisation, which in turn makes them ‘natural destinations’ for further location of environmental bads (Pellow, 2004). Stigmatisation can also lead to denying people and places access to environmental goods, such as well-kept parks, clean streets, and good-quality greenspaces.

2.3 Participation: who gets heard?

“The need to lend a voice to suffering is a condition of all truth.”

Theodor W Adorno (1973, page 17)

At the heart of Fraser’s bivalent theory of justice, which combines redistribution with recognition, is ‘parity of participation’ in society (Fraser, 1996) and fair *representation* and distribution of political power. For Young (2011, page 10) “democratic decision-making processes ... are important elements and conditions of social justice.” If we see justice as the “creation of an inclusive society” (Walzer, 1993, page 55), such inclusivity extends to equal participation. It is not only about sharing resources, but also about joining the debate about what that sharing involves and how it should be managed. Determining the validity of normative claims is up to all the participants without exception or exclusion. Like substantive justice, procedural justice is subject to different interpretations. While some argue in favour of giving more, say, to those who are most affected by an environmental burden (Bell, 2012), others subscribe to equal representation. Detailed discussion of the strengths and limitations of each approach is beyond the scope of this paper [see Hunold and Young (1998) for a review], but what is relevant to both, and of great significance to environmental justice, is transparency of and access to environmental information. The environmental justice literature provides numerous examples of the systematic exclusion of marginalised social groups from decision-making arenas, and the disparity of access to environmental information. The increasingly web-based nature of information provision, government interactions with citizens, and community organisation may indeed widen such disparities in digitally divided societies.

2.4 Capabilities: what matters?

“If we want to be defending equality of something, then what would that be?”

Robeyns (paraphrasing Sen, 1980; 2011, emphasis in original)

This question is central to the *capability* approach to justice as developed by Martha Nussbaum (2011) and Amartya Sen (2009). They challenge Rawls’s ‘primary goods’ metric⁽⁵⁾ as being insensitive to human diversity and the differential values of particular goods to particular people and communities. The metric neglects the structural, institutional, and cultural factors that affect the *conversion* of these goods into: capabilities,⁽⁶⁾ functioning⁽⁷⁾ (being and doing), and well-being-driven freedom. Capability is articulated as “an aspect of

⁽⁵⁾That includes general purpose goods, such as income and wealth, opportunities and liberties, and the social bases of self-respect (Rawls, 1971).

⁽⁶⁾For Sen, capabilities as freedoms refer to the *presence* of options or alternatives, in the sense of opportunities that do not exist only formally or legally but are substantively available to people and communities.

⁽⁷⁾Such as being employed, expressing oneself, breathing clean air, engaging with nature.

freedom, concentrating in particular on substantive opportunities” (Sen, 2009, page 287). The capability approach suggests an expansive ‘informational basis’ for judging a society as (un)just or assessing particular justice claims. Such a basis should focus not so much on individuals’ happiness or pleasure (utility-based approach) or their income and wealth (resources-based approach), but on their freedom and capabilities. This represents “a serious departure from concentrating on the *means* of living to the *actual opportunities* of living” (Sen, 2009, page 233, emphasis in original). Justice in this context is about the capacity of people to function in the lives they choose for themselves. In defining what a capability metric may include, Sen and Nussbaum diverge [see Fabre and Miller (2003) for a full account]. While Nussbaum (2003) endorses a well-defined list of universal capabilities, Sen remains indeterminate and prefers ‘group discussion’ as a way of selecting, sequencing, weighing, and trading off capabilities, as well as prioritising them in relation to other normative considerations such as agency, efficiency, and stability (Crocker, 2008). We concur with the latter because it reflects the situated nature of justice and respects cultural differences while maintaining—following David Miller (2003)—that core elements of human rights have to be observed for a society to count as minimally just.

Environmental burdens and benefits have a profound impact on people’s capabilities. They can enable or inhibit their ability to convert other goods to well-being and freedom to function in ways that they have reason to value. The capability approach has been adopted in the environmental justice debate as an overarching frame which integrates distribution, recognition, and participation. This is clearly reflected in Schlosberg’s (2007) suggestion that environmental justice is about: equitable *distribution* of environmental risks and benefits; fair and meaningful *participation* in environmental decision making; *recognition* of community ways of life, local knowledge, and cultural difference; and *capability* of communities and individuals to function and flourish.

2.5 Responsibility: who does what?

“Freedom to choose gives us opportunity to decide what we should do, but with that opportunity comes the responsibility for what we do ... accountability ... is part of the capability perspective, and this can make room for demands of duty.”

Sen (2009, page 19)

Questions of obligations and responsibilities are central to any account of justice (O’Neill, 1996) because being subjected to the harms in which we have had no choice or responsibility reinforces people’s sense of injustice. However, to suggest that rights and responsibilities go together is not to assert that right-holders are also necessarily obligation-bearers (O’Neill, 1996). Furthermore, drawing a line between individual and collective responsibilities is problematic (Pierik and Robeyns, 2007, pages 148–149). People’s capability to carry responsibility can be constrained by ‘conversion factors’ that include not only structural forces and institutional contexts, but also physical and mental vulnerabilities, social norms, and cultural values.

Nevertheless, responsibilities that emanate from freedom and capabilities remain a critical part of environmental justice as it raises ethical questions about responsibility towards not only fellow humans but also nonhuman nature. However, the latter has attracted little attention partly because the bulk of the environmental justice literature is underpinned by an anthropocentric view of the world which “places humans as at the centre of the Universe and considers nature to be at their service” (Davoudi, 2012, page 54). A focus on responsibility places the discourses of environmental ethics firmly in the framework of social justice in much the same way as a focus on sustainability places “the discourse of justice firmly within the framework of sustainability” (Agyeman and Evans, 2004, page 156). Justice for people becomes entwined with justice to nature. This is in line with Brendan Gleeson and Nicholas

Low's (2008, page 459) definition of the "second wave" of ecological politics in which the notion of environmental justice has provided "a potent ground for conceptualizing the environmental crisis and the relationship between social justice and environmentalism" and addressing "global problems of 'sustainability'". There is historical precedence for concerns about justice to nature. For example, "the early generation of environmental activists framed injustice primarily in terms of humans harming nature and the inequalities of intergenerational and intragenerational resources consumption" (Taylor, 2000, page 522). Similarly, Rachel Carson's pioneering (1962) transformation of environmental framing was based on combining the harm to the environment from the use of pesticides with their harm to human health. This socioecological framing provides a deeper understanding of the interdependencies between manipulation of nature and injustices to people (Schlosberg, 2013). In this context it is possible to distinguish between instrumental (nature for humans' sake) and moral (nature for nature's sake) reasons for taking responsibility for the environment (Sen, 2009, page 306). Whatever the reason, people's capacity to exercise their responsibility is constrained by the 'conversion factors' available to them and the social, cultural, psychological, and physical conditions in which they operate.

3 Judging environmental justice claims

"There is nothing so finely perceived, and finely felt, as injustice."

Charles Dickens (*Great Expectations*, 1861/2003, page 63)

The above overview indicates that, like democracy, justice remains a contested concept and an unfinished business. It also shows that questions of environmental justice and fairness are not technical or statistical questions; they are ethical and political questions. Despite this, as Walker (2009) argues, in the vast majority of environmental justice studies the focus has remained on patterns of uneven distributions and statistical measurement of proximity to environmental burdens without questioning when an unequal distribution can be regarded as an injustice. In the following account we aim to attend to this interrogation by applying, for the first time, the above pluralistic framework in practice. Our aim is not to propose a universal set of principles that can be applied every time and everywhere, but to illustrate how multiple factors can overlap to turn a distributional unevenness into a case for claims of injustice. Focusing on such practical examples, limited in scope and scale as they may be, can contribute to the pursuit of justice, even when "perfectly just institutions" are not in place (Sen, 2009, page 9). Also, while we acknowledge that identifying cases of injustice does not in itself tell us much about why such injustices happen in the first place, it nevertheless acts as a reminder of the prevalence, and nuanced nature of, social and environmental inequalities, and as a justification for pragmatic, if not radical, actions.

3.1 Newcastle: a city of contrasts

"Whichever aspect of inequality or lack of social justice is being considered, it is at its worst in" areas known as the riverside wards (NCC, 2011a, page 2). The "uncomfortable truth" is that, "inequalities within and between different parts of the city severely reduce the life chances of people from cradle to grave" (page 4).

Newcastle is the historic regional capital of the North East of England. In the 19th century it was the powerhouse of the fossil-fuel-based industrial revolution which brought wealth for some, but also created hardship for others and left lasting environmental problems. While the shift from manufacturing to the service sector and the rise of environmentalism in the 20th century have erased many environmental scars of the industrial past, reducing inequalities in the city has proved stubbornly difficult and environmental pollution has remained a key concern (Davoudi and Brooks, 2012).

One example is poor air quality which affects human health and well-being as well as the natural environment (DEFRA, 2011). A report from the Institute of Occupational Medicine has identified that eliminating air pollution would have more impact on extending life years than either eliminating road traffic accidents or secondary cigarette smoke (Miller and Hurley, 2006). Poor air quality has a disproportionate impact on younger and older people; affects the unborn child in terms of birth weight (Pearce et al, 2012); and may be associated with asthma of a childhood origin (Zmirou et al, 2004). Emissions from traffic and industry can also harm the natural environment through deposits of nutrient nitrogen (and to a lesser extent in the UK, acid rain) that can damage or change vegetation in sensitive locations (RoTAP, 2013).

In Newcastle, as in other major cities, the sources of air pollution have changed. Until the 1950s the most significant culprit was coal used as a fuel for industrial and domestic purposes. From 1968 onwards the Clean Air Acts changed the city into a smokeless fuel zone, area by area. The decline in industrial activity on the banks of the River Tyne and the shift away from coal for domestic use resulted in major reductions in air pollution. Today, in line with the national trend (DfT, 2011), pollution from transport-related emissions has come to replace coal as the main problem for the city's air quality. The causes are likely to include the rise of car ownership, the dieselisation of the fleet (Carslaw et al, 2011), and the particular road infrastructure of Newcastle, where the central area is traversed by major traffic routes, including the motorway through the urban core constructed in 1973.

Nitrogen dioxide (NO₂), along with particulate matter (of which it is also a constituent), is one of the most harmful pollutants for human health (WHO, 2013) and is often used in studies as a proxy for air pollution. Two types of NO₂ exceedence are regulated by air quality policies in the UK: the hourly mean concentration of NO₂ (of which eighteen exceedences of 200 µg/m³ are permitted per year); and the annual mean concentration, which is not supposed to exceed 40 µg/m³ (DEFRA, 2007, page 20). Because the annual objective was likely to be exceeded, Newcastle City Centre was designated as an Air Quality Management Area (AQMA)⁽⁸⁾ in 2003, and subsequently supplemented by three further AQMAs (AQRG and AQCL, 2005). While Newcastle's recent background levels (as opposed to hourly means) do not go above the 40 µg/m³ threshold, some areas have much higher levels than others [figure 1(a)]. Both exceedences and background air pollution can be harmful to human health and natural environment.

In the analyses that follow, the city's geography is simplified for ease of reference given that wards and their names have changed over the period for which data were available at the time of analysis. The main contrasts are drawn between the 'deprived riverside wards/areas' which were the former locations of heavy industry in the city; and the mainly 'affluent wards/areas' from the city centre northwards, set higher up and characterised by more middle-class housing. The northwest of the city is a suburban, semirural area, parts of which are also relatively affluent. These are generalisations because, as can be seen from figure 1(b), there are also areas of strong deprivation in the city centre which are named separately when under discussion.

3.2 Uneven distributions

In line with the majority of environmental justice studies, we will first look at: patterns of *deprivation* and examine whether these correlate with higher levels of *air pollution*. We then overlay these analyses with two other observations: distribution of *vulnerabilities* and *mitigating* measures. To our knowledge, the latter has not been part of previous empirical studies that focus on distributive justice.

⁽⁸⁾These are areas that fail the government-set air quality standards, with NO₂ from road traffic being the main reason for designation. The designation allows the city to investigate the nature and causes of the problems and take action to tackle them.

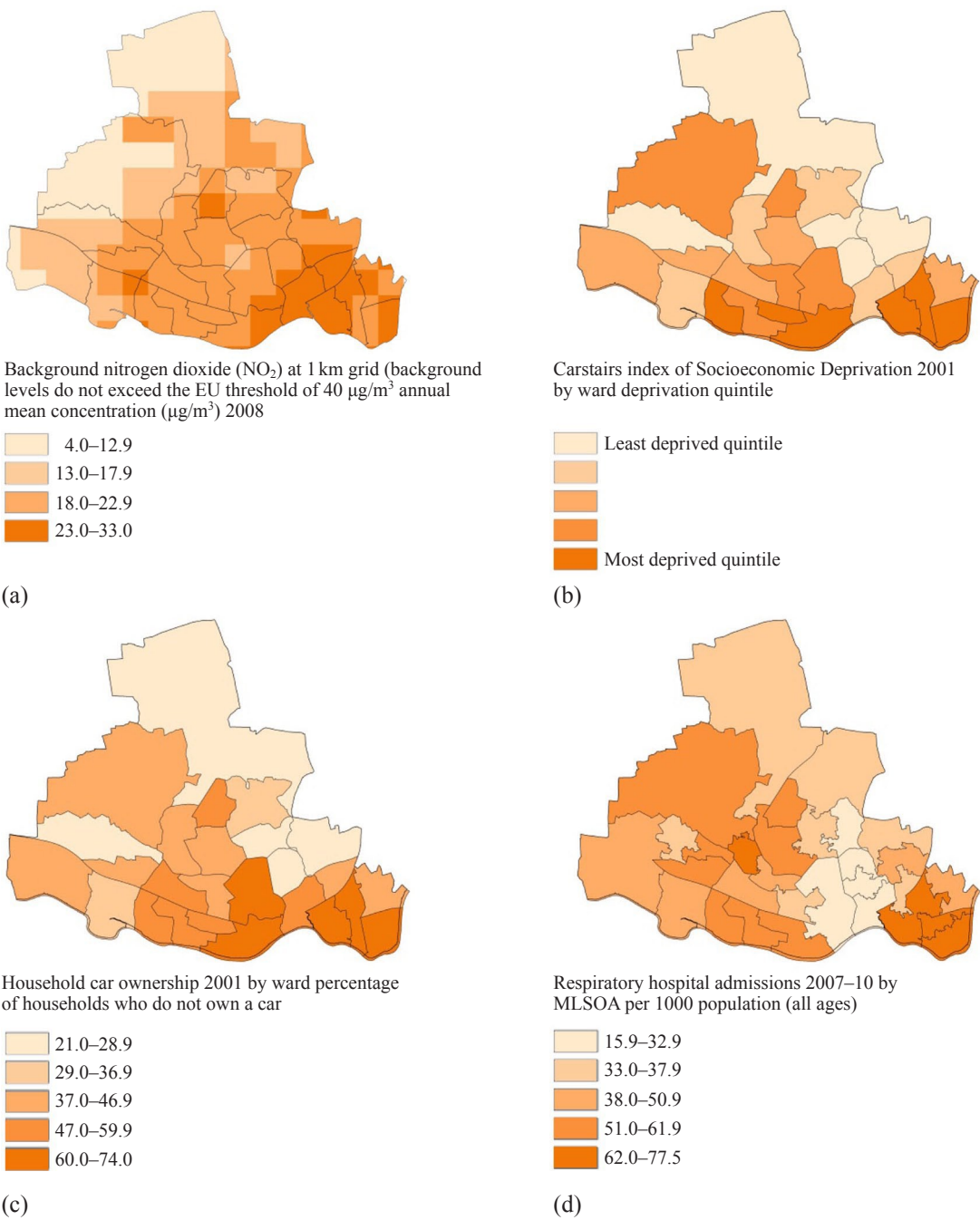


Figure 1. [In colour online.] Comparing NO₂ levels (a), deprivation (b), car ownership (c), and respiratory illness (d) in Newcastle. The census data used in (b) and (c) are out of date, but detailed data from the 2011 Census were not available at the time of writing [source: commissioned by the authors, based on the approach in Stevenson et al (1998) as reproduced in O'Neill et al (2003)].

Despite decades of investment in area-based schemes, Newcastle remains a city of contrasts with some parts of the city continuing to suffer from multiple deprivations [see figure 1(b)]. Over a quarter of the population live in lower layer super output (LSO) areas⁽⁹⁾ that fall into the 10% most deprived in England, while over a third live in the top half of affluent areas. There is a high level of deprivation at both ends of the demographic spectrum.

⁽⁹⁾These are homogeneous small areas of relatively even size (around 1500 people) of which England has 32482 and Newcastle 173.

Almost a third of the younger population and a quarter of older people live in the 10% most deprived LSO areas (NCC, 2011a).⁽¹⁰⁾ Disparities not only relate to wealth and income, but also to health and well-being.

A number of studies have found a strong link between air pollution and deprivation (Jerrett, 2009; Laurent et al, 2007). For example, Walker et al (2003) found that for England those wards exposed to the highest concentrations of five types of pollutant were also the most deprived. Similarly, Gordon Mitchell and Danny Dorling (2003) showed that over half of the wards where NO₂ concentrations exceeded the annual mean standard⁽¹¹⁾ were among the most deprived 10% of wards nationally. Although not subjected to comparable statistical analysis, the distribution of air pollution in Newcastle appears to tally with these findings. As shown in figure 1(a), there is an uneven distribution of traffic-related air pollution in Newcastle, with the city centre and southeastern parts suffering more pollution than the more rural northwest areas. When comparing figures 1(a) and 1(b) it becomes clear that the southeast wards which have higher levels of pollution also suffer from multiple deprivations.

Comparing figure 1(a) with figure 1(d) shows that deprived areas that are most affected by NO₂ emissions also show a high incidence of admissions for respiratory illness,⁽¹²⁾ ⁽¹³⁾ indicating a higher level of vulnerability to air pollution. Health inequalities such as these may well be the result of wider social injustices. Indeed, one of the most striking inequalities in the city is the substantial gap (19.3 years for males and 16.4 years for females) in disability-free life expectancy when comparing the least deprived (eg, South Gosforth, a city-centre ward) with the most deprived wards (eg, Byker, a riverside ward) (NCC, 2011b, page 3). This means that, “compared to those in the richest areas, women and men in the poorest areas of Newcastle die younger and live a larger proportion of their shorter lives with a disability” (page 3). While the juxtaposition of air pollution and respiratory illness does not necessarily suggest a causal relationship between the two, it does indicate the greater vulnerability of these populations to the impacts of air pollution.⁽¹⁴⁾ Furthermore, although not shown on the maps, Newcastle’s deprived areas also have a larger proportion of younger and older people who are also more vulnerable to the effects of air pollution.

Added to the uneven distribution of pollution and vulnerabilities is the unequal provision of mitigating measures such as greenspaces and trees, which are proven to reduce the effect of air pollution through biogenic regulation (Freer-Smith et al, 1997). As shown in figure 2, some of the areas that are most affected by NO₂ emissions also have fewer substantial-sized greenspaces.⁽¹⁵⁾ Furthermore, the output areas⁽¹⁶⁾ with levels of deprivation in the bottom 50% for the urban core of the city have larger mean distances to such greenspaces than the more affluent 50%, with a difference of about 157m between the average for the most deprived and most affluent quarters (Caparros-Midwood, 2011).

⁽¹⁰⁾ The English Indices of Deprivation 2010 use thirty-eight separate indicators, organised across seven distinct domains of deprivation which can be combined, using appropriate weights, to calculate the Index of Multiple Deprivation.

⁽¹¹⁾ This is set by the UK National Air Quality Strategy (DEFRA, 2007).

⁽¹²⁾ It has not been possible to get data on admissions for respiratory illness at ward level, so the nearest approximation, the middle layer super output area, has been selected.

⁽¹³⁾ Respiratory diseases causing hospital admissions cover a wide range of conditions affecting the respiratory system, with initial causes ranging from poor working conditions, smoking, and infection.

⁽¹⁴⁾ This is despite the fact that, at the individual level, other factors (such as indoor air pollution or exposure to tobacco smoke) may have greater effects on exposure to airborne pollutants than proximity of residence to busy roads.

⁽¹⁵⁾ This is minimum of 2 ha as used in the Natural England’s (2010) greenspace standards and also adopted by Newcastle City Council (NCC, 2004).

⁽¹⁶⁾ The lowest level of census data.

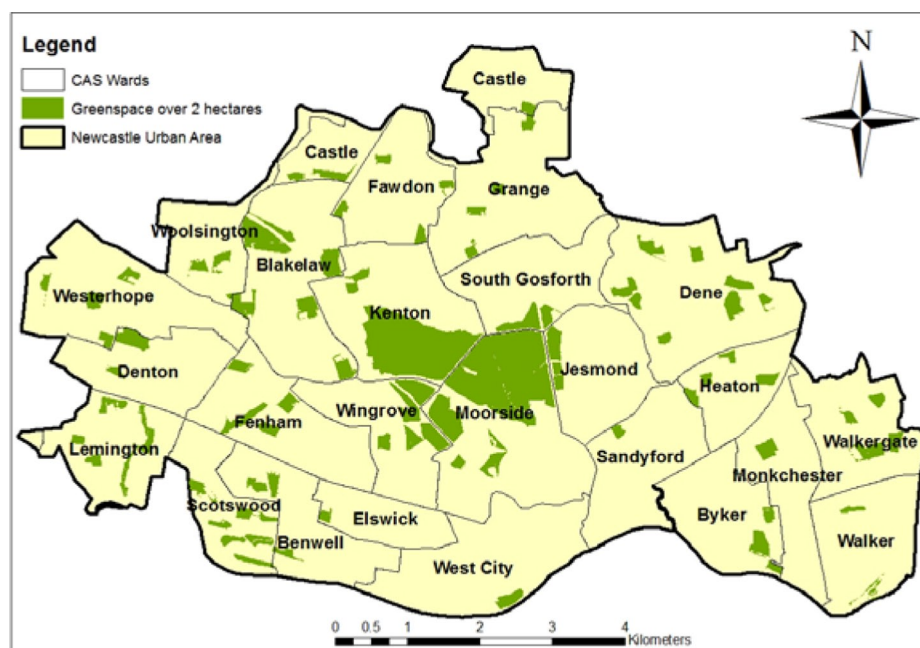


Figure 2. [In colour online.] Distribution of 2ha+ greenspaces in Newcastle's urban core (pre-2004 wards) (source: Caparros-Midwood, 2011; reproduced with author's permission).

3.3 Expanded justice dimensions

In the following account we move beyond distributions and discuss whether higher levels of deprivation, air pollution, and vulnerabilities as well as lower levels of mitigating measures in the Newcastle riverside wards combined with concerns related to other dimensions of justice including: responsibility for the pollution and contribution to its mitigation; participation in decision making; misrecognition and stigmatisation, and capabilities and freedom to pursue valued goals.

3.4 Responsibility

Claims of environmental injustice become more patent if those who are affected by harm are not responsible for it, and even more so, if deprived communities suffer from environmental burdens that are caused by more affluent ones. Indeed, what is widely known as the defining event in EJM, in 1982, was triggered not just because the State of North Carolina decided to use as landfill contaminated soil in the Shocco Township in Warren County, where nearly 70% of the population was non-White and had the lowest per capita income in the United States. It was also because the toxic soil originated from other counties where land was sprayed illegally with toxic substances (Bryant, 2003). The township was to bear the burden of pollution caused not by themselves, but by other, more affluent groups. As Walker (2009, page 623) argues, such “disconnected geographies of responsibility and outcome” matter in making judgments about environmental justice claims.

In Newcastle the comparison of figure 1(a) with figure 1(c) shows that areas most affected by NO₂ emissions, including the riverside wards, have the highest percentage of households which do not own a car. Therefore, those who suffer most from air pollution in the city are least responsible for it. Furthermore, the road users in these areas tend to drive through without stopping to use local shops and services and, hence, without contributing to the vitality and viability of these locales. Indeed, speeding is the cause of the highest density of road traffic accidents in the riverside wards (TWITA, 2011). The old saying that ‘where there's muck, there's brass’ does not seem to ring true in this case. A further important aspect

of responsibility overlaps with the issue of participation, in terms of how much communities were able to influence where major roads were sited in the first place and to what extent they can now take part in mitigating measures for the effects of those roads, as we explore in the next section.

3.5 Limited participation

The central motorway plans were first described in detail in the Development Plan Review of 1963 (CCN, 1963) and then in the final Development Plan which was published in 1967. This was a time when no statutory provisions for public consultation were built into the planning system. Plans could be adopted without any representation from those affected by their policies. Therefore, given that the new roads (proposed as part of the central motorway) were already on the approved Town Map, they were deemed by the council to have planning permission. However, before any route could become a motorway, the council had to publish a scheme and order which were subject to public inquiry, if the central government considered it necessary, and approval by the secretary of state. Such an inquiry took place in 1967 and following approval by the Minister of Transport in 1968, the scheme was confirmed in 1969. However, the focus of the inquiry was on legal matters related to, for example, questions of landownership, rather than dealing with broader issues raised by a coalition of groups such as Tyneside Environmental Concern and Friends of the Earth (SOC'EM, 1974). A second public inquiry was held in February 1971 to deal with the concerns over the effects on trees and open spaces in two adjacent and established parks. These concerns were dismissed by the transport minister on the grounds that the then Corporation of Newcastle City had made adequate provision for public open spaces. The scheme was approved in August 1971 and the construction of the roads that subsequently cut through the riverside wards (Redheads and Associates, 1972) began in 1972. Although the impact of road traffic on air quality was highlighted by the above-mentioned group (see SOC'EM, 1974, page 14), it was not the focus of the two inquiries, according to the available information (Fenwick, no date). Neither is there any evidence of consultation with those who would be most affected by the decision to construct the roads: that is, the people living in the riverside wards. After the second inquiry, the city council newssheet announced that "now that the work is in progress, any attempt to hinder operation can have only one effect—the unnecessary expenditure of public funds on precautionary measures" (*Diversion* 1972, page 2), foreclosing further opposition to the construction of the motorway.

Today, there are more opportunities for taking part in decisions that affect air quality in Newcastle. However, one increasingly significant aspect of participation may work against those in deprived areas. This is because sources of environmental information are increasingly communicated through the Internet, with which there is unequal engagement in the city. In 2006, 60% of homes in Newcastle's affluent areas had Internet access compared with 37% in deprived areas (Crang et al, 2006). Although Internet usage is rising to over 80% in the North East region as a whole (ONS, 2013), the gap between affluent and disadvantaged areas in Newcastle has not narrowed because access is only one aspect of the digital divide; others include skills, attitudes, and types of engagement (Clayton and McDonald, 2013; Helsper, 2012). This refinement of the concept of the digital divide brings out the significance of the finding in Crang et al's 2006 case-study comparison of an affluent neighbourhood and a deprived one in Newcastle, whereby the pattern of usage of information and communication technology in the former was 'pervasive', but only episodic and instrumental in the latter.

3.6 Misrecognition

Some of wards most affected by NO₂ emissions have a high concentration of low-income families living in estate-based social housing. While the city average is 16.1%, one of the riverside wards has 49.9% of its residents in this category (NCC, 2011c, page 2). Although

these areas have gone through a raft of regeneration schemes in the last fifty years, they have remained among the most disadvantaged. Indeed, “in most deprived areas, area based investment schemes have maintained the ‘status quo’ at best over the period”, with forty-one out of forty-three LSO areas that were in the 10% most deprived nationally in 2007 remaining in the same position in 2011 (NCC, 2011a, page 4). The long-term association of these areas with deprivation, crime, rundown neighbourhoods, and at times social unrest, coupled with the segregating effects of the concentration of low-income families in council and other social housing, has created a degree of place stigmatisation and misrecognition (see, for example, West Newcastle, 2006). This is exacerbated by the cumulative effects of multiple environmental burdens. Therefore, poor air quality in deprived areas is combined with contaminated sites—a legacy of the areas’ industrial past—including St. Anthony’s Tar Works, a site of significant contamination in the riverside ward of Walker, whose remediation has been put on hold due to economic downturns. Misrecognising these places as ‘old industrial’ areas has turned them into ‘natural’ destinations for the location of other environmental bads. For example, most of the city’s waste processing facilities are situated in the more deprived riverside wards in the city (notably Benwell and Byker) with plans for further concentration of waste treatment facilities in these locations including the projected expansion of the Benwell plant to include a facility for extracting recyclables from bulky items (NCC, 2011d).

3.7 Reduced capabilities

The capability approach is focused on freedom, considering that a central part of a good life is having the freedom to choose what we have reason to value. According to Nussbaum (2003), capabilities are the freedom to convert resources to achieve certain functionings, such as being healthy or getting an education. In other words, the capabilities approach requires a focus on outcomes, not means; not on equal resources but on what those resources mean to people and what they can do with them; not so much on rights but on the freedom to exercise rights, if to do so is compatible with what people consider worthwhile (Nussbaum, 2003, page 43). Thus, in Newcastle people living in deprived areas might be constrained to improve their health by affordable means such as walking or cycling in their neighbourhood, which could be problematic if the area suffers from elevated levels of air pollution. Likewise, heavy levels of background pollution, noise, and dust associated with busy roads might detract from people’s capacity to enjoy the use of outdoor domestic space such as gardens and yards, and lead them to keep windows closed, to the detriment of their indoor conditions. In line with Sen’s approach noted in section 2, a qualitative investigation would need to be conducted to draw out the full implications of air pollution for people’s capabilities.

3.8 Is uneven distribution of air pollution in Newcastle unfair?

The above analysis has shown that applying the pluralistic framework of justice enables us to look beyond the distributional patterns to consider other dimensions of justice. In the case of air pollution in Newcastle, this wider perspective has shown that, not only does the distribution of the NO₂ impinge more on deprived communities, but that these locations are also (and potentially, as a consequence) more stigmatised as places to live. The inhabitants are more vulnerable to pollution due to poor health and age, and have been less provided with measures that mitigate pollution, such as greenspaces. They have been less likely to participate in choices about the siting of roads and are potentially less likely to be involved in future decisions partly, though not entirely, because of lower access to and engagement with web-based information. Their low levels of car ownership suggest that they are less responsible for causing traffic pollution; and it is likely that local businesses draw little benefit from the through-flow of traffic in their area. Finally, some aspects of people’s freedom to achieve what they have reason to value are likely to be curtailed by the poor air quality. It is this

accumulation of multiple social, spatial, and environmental disadvantages that presents a powerful ground for claims of injustice and calls for action.

4 Summary and conclusions

Environmental justice is a critical component of social justice because environmental inequalities, like other forms of social inequalities, worsen health and well-being, hamper economic performance, and diminish social cohesion. But defining what is justice in environmental justice has not been straightforward and remains an open question. In this paper we have built on previous scholarship in this area to provide a pluralistic understanding of justice and its particular implications for, and development in, the environmental justice debate. This expanded view of justice goes beyond the centuries-old debate on distributive justice to incorporate recognition, participation, capability, and responsibility. We have paid particular attention to the concept of responsibility, which seems to have received less attention, and argued that it matters for justice for both instrumental and moral reasons. In terms of the former (nature for humans’ sake), claims of injustice are reinforced when people suffer from other people’s actions rather than their own, as is the case in air pollution in Newcastle. In terms of the latter (nature for nature’s sake), not being able to exercise responsibility for the environment is an injustice not only to nature, but also to the people who value such contributions. From a broader perspective, the responsibility dimension of environmental justice is crucial in defining humans’ relationship to nature. It binds together social justice and environmental sustainability, not just by placing the question of social justice in the framework of environmental sustainability—which is already embedded in the notion of ‘just sustainability’—but also by placing the question of environmental sustainability in the framework of social justice. It combines justice for people with justice to nature. It is about sensitising people not only to their rights to nature, but also to their responsibilities for nature, both of which are critical in the creation of space for social and ecological transformation.

A further aim of this paper has been to explore how the pluralistic understanding of justice may be applied in practice, using the example of air pollution in Newcastle. To this end, we have developed a set of guiding questions (summarised in table 1) that include, firstly, an expanded range of distributional concerns which requires mapping not only

Table 1. Guiding questions for judging environmental justice claims.

Justice dimension	Examples of questions in relation to environmental burdens
Distribution	Does a deprived community suffer disproportionately from an environmental burden? Is it particularly vulnerable to the impact of the environmental burden? Is it provided with mitigating measures?
Recognition	Does exposure to an environmental burden result in, or add to, misrecognition for a deprived community or stigmatisation of a deprived area? Is the area perceived as a ‘natural’ destination for other environmental burdens and does it suffer from their cumulative impact?
Participation	Is a deprived community excluded from decisions about locating, or strategies to mitigate, an environmental burden?
Responsibility	Is a deprived community the least contributor to the cause of the environmental burden to which it is exposed? Is it compensated by the benefits that are attendant on the environmental burden? Can it contribute to mitigation measures?
Capabilities	Does the environmental burden limit the freedom of a deprived community to pursue their valued goals?

deprivation and location of environmental burden but also vulnerabilities and mitigating measures. Secondly, it includes questions related to recognition, participation, capability, and responsibility. Applying these to the Newcastle example has revealed that the impact of air pollution is likely to fall harder on socially deprived communities where people: are more vulnerable to emissions (because of their health and age); are less responsible for the problem; benefit less from the mitigating contributions of greenspaces; may be less able to make their voices heard; suffer from place stigmatisation; and their capabilities may be impinged. As mentioned in section 3, the proposed guiding questions should not be taken as all encompassing or universally applicable to all situations but as a starting point to develop a fuller account of how multiple social, spatial, and environmental factors can overlap to turn a distributional unevenness into an injustice; how unequal may become unfair.

We are aware of both conceptual and methodological limitations to this approach. Conceptually, this approach, and the largely liberal theories upon which it is based, does not explain why injustice happens in the first place and why some people systematically suffer more from injustices than others. We acknowledge that the answers to questions such as these lie in the underlying social structures and institutional contexts that help determine distributional patterns. Such acknowledgment, however, should not stop us attempting to unearth cases of injustice even if perfectly just institutions are not in place. Methodologically, working within the constraints of bounded spaces (such as statistical units, neighbourhoods, or cities) overlooks the relational understanding of space and time and its implications for justice at various scales within the city, as well as the wider questions of environmental justice on a global scale and between generations. Finally and perhaps more importantly, we concur that a true application of the pluralistic framework requires a radically different take on environmental justice studies: one which combines the positivist, top-down, and expert-driven approaches with the interpretive, bottom-up, and people-driven approaches. The top-down level may be required to overcome people's tendency to habituate to restrictive and unjust conditions (Nussbaum, 2003). The bottom-up is important to allow detailed narrative of a particular place and of people's perceptions of the environment and the meaning and values they attach to it. This approach might also allow greater consideration of the interactions between the various justice dimensions, which has not emerged sufficiently from the above discussion. Such a situated view of environmental justice enables the people affected to prioritise the burdens, benefits, and principles (such as those summarised in table 1) that matter most to them, and to determine what ought to underwrite their claims to environmental injustices. This inclusive approach and its underpinning multidimensional justice framework may be seen as highly idealistic but, in a nonideal world, we need what John Rawls calls 'realistic utopia' to enable us to seek potential alternatives beyond the political reality of the moment.

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