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Using EIA for the assessment of environmental inequities associated with proposed urban developments in the UK

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ABSTRACT

Critical to understanding sustainable development, concepts of environmental justice and environmental equity hold that certain groups of people suffer disproportionately from the environmental burdens, such as noise and air pollution, associated with developments like factories and waste treatment centres. Such ideas first evolved from evidence in the US of the siting of polluting facilities near Black or Native-American communities and subsequently, in the US, various assessment approaches have been developed with the aim of ensuring that proposed projects do not lead to an increase in environmental inequity among certain local target populations.

In the UK, issues of environmental justice and equity have been receiving increasing attention among policy makers at the highest levels with both the latest UK and Scottish sustainable development strategies containing reference to them. Meanwhile, in the research community, work has been undertaken examining the evidence-base for existing environmental inequity in both England and Scotland. However, for a UK context, there has been relatively little exploration to date of what an approach for assessing the environmental equity implications of a proposed project might look like.

In response, this paper builds upon a discussion of the main concepts underlying environmental justice and environmental equity, and their interpretation for a UK context to identify generic assessment requirements for such an approach. It then outlines how Environmental Impact Assessment could provide a framework for the assessment of the environmental equity implications associated with proposed urban developments for a UK context and concludes by introducing the next stage of the research which seeks to develop and test an EIA based approach.

Key words: Environmental Justice, EIA, Urban Development, United Kingdom.

1 INTRODUCTION

High profile “environmental” issues, such as climate change, are leading people all over the world to realise that our current development path is undermining the very natural systems upon which we ultimately depend and that we urgently need a new way of doing things (WCED, 1987; United Nations, 2002; UK Government, 2005). This realisation has inspired a great deal of effort, albeit with arguable success, to change human society, and its economies, so that its development becomes more sustainable.

Accordingly, it is increasingly understood by decision-makers that “sustainable development” requires a greater consideration of the wider social, environmental and economic impacts of, for example, a policy, plan or a project such as an urban development. What is perhaps less understood is that it also necessitates that their decisions result in greater equity in relation to those impacts both amongst people alive today and between the current and future generations.

This key requirement was highlighted by the seminal Brundtland Commission and is implicit in the well versed definition of sustainable development it championed: development that "meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED, 1987). Indeed, it is commonly argued that it would require three planet Earths to sustain the current global population at western living standards and that as long as there is a gap between the “haves” and “have-nots” material aspiration will exasperate over-consumption to the extent that it contributes to irreversible damage to the natural capital upon which future development depends (WWF, 2007). This has led to calls for a convergence between living standards to a level representing an overall contraction in the demand placed on the environment – the so called “convergence and contraction” condition (GCI, 2007) with profound implications for the redistribution of environmental resources and impacts.

Such an understanding of the requirements of sustainable development places a need for greater equity as the guiding principle in our economic, social and environmental dealings and makes clearer the important relationship between sustainability and the concept of environmental justice. The concept of environmental justice, as it is increasingly articulated, holds that it is repeatedly already disadvantaged individuals and communities who suffer the greatest environmental burdens and receive least of the benefits associated with a decision and that critically this state of affairs results from those burdened being effectively excluded from the decision-making process in the first place (Liu, 2001; Downey, 2005).

Although the application of concepts of justice and ethics to the environment is not

new, for example in regard to issues of natural resource distribution and rights for non-human species, the concept of environmental justice as it is increasingly understood today has its origins in the 1990s where evidence in the US was found of the discriminatory siting of polluting facilities near Black or Native-American communities (Bryant and Mohai, 1992; Adeola, 1994) and subsequently, in the US, various assessment approaches have been developed with the aim of ensuring that proposed developments, such as waste treatment plants, factories and major new roads, do not lead to an increase in environmental inequity (and from this environmental injustice – their relationship is discussed in section 2) among certain local target populations (see for example Amekudzi and Dixon, 2001).

Internationally, issues of environmental justice and environmental equity have been receiving increasing attention among policy makers at the highest levels notably through the United Nations' Aarhus Convention on 'Access to information, public participation in decision-making and access to justice in environmental matters (United Nations 1998). In the UK important developments include new legislation on Strategic Environmental Assessment (SEA), the Environmental Information Regulations introduced in 2004 and the Freedom of Information Acts of 2000 and 2002. Importantly the role of environmental justice and equity in delivering sustainability is highlighted in both the latest UK and Scottish sustainable development strategies (UK Government, 2005; Scottish Executive, 2005). Meanwhile, in the research community, work has been undertaken examining the evidence-base for existing environmental inequity in both England and Scotland, where in contrast to the US, the debate has been less centred on the issue of race and more on whether or not people of lower income are being disproportionately exposed to environmental burdens such as poor air quality, landfill sites and flood risk (Walker *et al*, 2003; Fairburn *et al*, 2005).

However, despite this increased attention, for a UK context, there has been relatively little exploration to date of what an approach for assessing the environmental equity implications of a proposed development project might look like.

In response, this paper builds upon a discussion of the main concepts underlying environmental justice and environmental equity, and their interpretation for a UK context (section 2) to identify generic assessment requirements for such an approach (section 3). It then outlines how Environmental Impact Assessment could provide a framework for the assessment of the environmental equity implications associated with proposed urban developments for a UK context (section 4) and concludes by introducing the next stage of the research which seeks to develop and test an EIA based approach (section 5).

2 ENVIRONMENTAL JUSTICE: DEFINITIONS, CONCEPTS AND CONTEXTS

Recent understanding of the concept of environmental justice can be traced to the US in the 1990s and is based around some core interrelated ideas. These are, that:

- Different groups of people have to bear different types of environmental burden and to differing degrees (i.e. there is not environmental equality, which of course says nothing about whether or not this situation is fair).

- It is certain groups of people, such as those in an ethnic minority or of low income, who are bearing the greatest environmental burdens (while often not receiving the benefits) associated with a decision and that they are doing so repeatedly - thus in disproportion to the wider population.

- This situation compounds existing disadvantage that such groups often face. For example they may have fewer resources with which to protect their health from these burdens (Scottish Executive, 2002) and such burdens may contribute to their areas becoming socially and economically undesirable places to live (Downey, 2005). Agyeman & Evans (2004) argue that there is an added irony when it is considered that rarely are such groups themselves major polluters.

- Such groups are rarely responsible for the above situation as it ultimately results from those burdened being effectively excluded from the decision-making process in the first place (Boardman *et al*, 1999).

- This situation is iniquitous and represents an injustice.

In summary, the concept of environmental justice suggests that certain already disadvantaged groups are environmentally burdened more, accordingly benefited less and are less responsible for this situation than others and that this is unfair. All that said it is worth noting that there has been considerable debate as to the *extent* to which this situation exists and whether or not it results from deliberate intent or historical legacy.

From this understanding of the dynamics of environmental justice (or perhaps more appropriately, environmental *injustice*), it is commonly argued that the solution lies in greater “environmental” equity in two interrelated aspects, which are reflected in various definitions and interpretations (see Table 1), these are:

- Distributive equity (i.e. equity in the impacts of a decision) which highlights the distribution of environmental impacts across different groups of people.

- Procedural equity (i.e. equity in impacting upon a decision) which highlights the different opportunities, capacity and leverage that different groups have to participate in decisions affecting their environment (FoE, 2004).

Table 1: Definitions and interpretations of environmental justice.

United States Environmental Protection Agency's definition (USEPA, 1998): Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people, including a racial, ethnic, or a socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal or commercial operations or the execution of federal, state, local and tribal programs and policies. Meaningful involvement means that: (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; (2) the public's contribution can influence the regulatory agency's decision; (3) the concerns of all participants will be considered in the decision making process; and (4) the decision makers seek out and facilitate the involvement of those potentially affected.
Scottish Executive interpret environmental justice as based around two main concerns (Curtice *et al*, 2005): 1) Deprived communities, which may be more vulnerable to the pressures of poor environmental conditions, should not bear a disproportionate burden of negative environmental impacts. 2) All communities should have access to the information and to the means to participate in decisions which affect the quality of their local environment.

It is important to stress that campaigners for environmental justice do not insist that greater distributive equity demands that all environmental burdens are borne equally by all communities ("environmental equality"), but that it should not be already disadvantaged communities that bear the greatest burdens and repeatedly so. They highlight that sustainable development, with its call for greater intergenerational equity, requires that environmental burdens as a whole are reduced in order to protect natural capital into the future and that charges of NIMBYism ("Not In My Backyard"), in regard to the siting of polluting facilities, should be countered with calls of NIABYism ("Not In Anyone's Backyard") (Faber, 1998).

What can be seen in such discussions on the definitions and requirements is that the environmental justice concept represents an important extension to the usual environmental concerns. Traditionally, environmentalism's focus has been on the impact that people have on the environment while the concept of environmental

justice includes an exploration of how the impacted environment then affects other people. Indeed, it could be argued that it is because those people effecting a particular environmental change are often different from those that are then affected by that change that environmental inequities arise and from this a sense of injustice (see Figure 1).

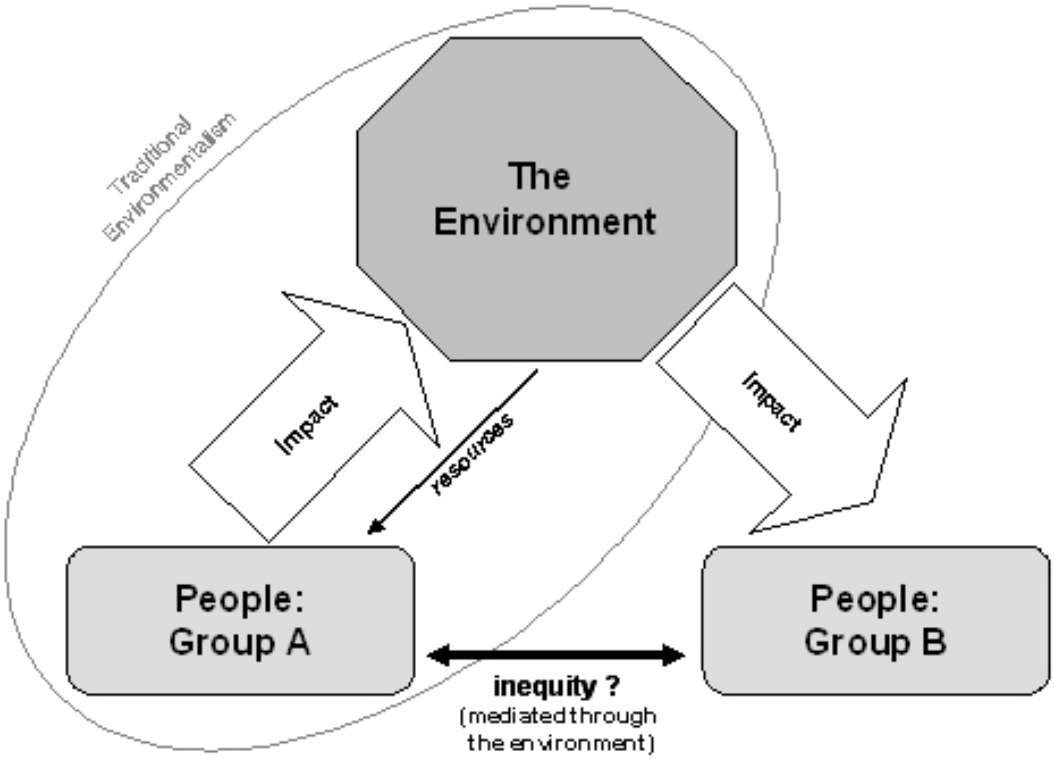

Figure 1: The underlying dynamics of environmental justice.

As a result, environmental justice is a concept which brings together traditional environmentalism and the social justice agenda and so is arguably a powerful ally for those seeking to promote a more equitable society and through it sustainable development. Indeed, the greater attention the concept is receiving from policy makers, activists and academics internationally and in the UK, suggests that they are increasingly aware of this (see Agyeman and Evans (2004) for an overview of the main UK developments).

Comparing UK efforts with the environmental justice agenda as it originated in the US a number of differences have been commented upon: In the US the

environmental justice movement grew “bottom-up” through the civil rights movement with the link between ethnicity and exposure to pollution a main concern. The UK agenda has developed from a more “top-down” response to policy and law (Agyeman, 2000) with a strong focus on the link between deprivation and local environmental conditions (Poustie, 2004). Additionally, in the UK the environmental justice agenda is more embedded in efforts to deliver sustainability. However, despite these differences, underpinning both the US and UK agendas, can be seen the core ideas earlier outlined. These suggest a number of broad generic requirements for the assessment of environmental equity implications.

3 GENERIC ASSESSMENT REQUIREMENTS

Examining the core ideas underpinning the concepts of environmental justice and environmental equity, a number of broad requirements for the assessment of environmental equity are suggested:

In regard to distributive equity, an assessment should be able to:

1. Determine the nature and extent of any likely significant environmental impacts associated with a proposed project.
2. Determine the extent to which target groups are present in the impacted area.
3. Determine the extent to which target groups are present within the wider population.
4. Provide a comparison between 2 and 3 to indicate the extent to which the impact is disproportionately falling on target groups – the suggested measure of environmental inequity.

Such an approach underpins the process suggested by Millar (2004). During these stages, in helping to promote greater procedural equity, the assessment should encourage the meaningful engagement of those communities, and especially target groups, likely to be impacted.

In addition to assessing the likely impact on local target groups the process could also be used to highlight those environmental impacts likely to contribute to a significant impact on “people at other locations” and “future generations” in order to further align the process with the principles of sustainable development.

However there are a number of important issues and challenges associated with this approach. Firstly, it is important to be clear about what exactly it would assess. Identifying the nature and extent of any environmental impacts that may affect different groups is obviously more then an assessment of the existence (or not) of

environmental *equality* but does not in itself make any judgement as to whether or not the situation is equitable or just. However, it is an important step in being able to do so and because such an approach can be focused on examining, against the wider population, the impacts faced by groups likely to be already disadvantaged and/or least responsible for them, it can be argued that it moves closer still to what would reasonably be expected of an assessment of a form of equity. All that said, it is the impacted communities themselves who are best able to inform decision-makers if they feel unfairly treated and accordingly their involvement in the decision-making process (including any assessment) is critical.

Such an approach does not provide an assessment of any existing environmental inequity at a location. Rather, it seeks to provide information on the likely distribution of impacts associated with the particular project in question to be examined in the context of existing and compounding impacts. The information from particular assessments can be fed to policy-makers in order that they can, over time, examine how their decisions ultimately affect the distribution of burdens amongst communities and inform future Strategic Environmental Assessments.

Operationally, Amekudzi and Dixon (2001) identify a number of key factors critically influencing the outcome of any environmental justice assessment, including: the particular environmental burdens (and the benefits) examined; the choice of impact thresholds for identifying disproportionately high and adverse impacts; the target groups identified; the spatial scale of the assessment and the manner in which data uncertainty is addressed.

Finally there is the ever present issue of project resources and so there would be an obvious advantage if the assessment could be delivered as much as possible through existing procedures and tools. In light of this, the next section outlines how this might be done through EIA.

4 ENVIRONMENTAL EQUITY ASSESSMENTS THROUGH EIA

The US heritage of the environmental justice agenda has meant that that is where much of the effort to develop and use environmental justice and environmental equity assessment methods has taken place. A key driver for such effort was President Clinton's 1994 Executive Order 12898 (President Clinton, 1994). This requires all federal agencies to take account of environmental justice in their programmes, policies and activities and demands that "each federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information assessing and comparing environmental and human health risks borne by populations identified by race, national origin, or income" and that "to the extent practical and appropriate,

federal agencies shall use this information to determine whether their programs, policies, and activities have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations". In addition applying to federal agencies, projects using federal funding have also to undertake such actions.

Notably, a memorandum accompanying the Order recognised the importance of EIA procedures under the National Environmental Policy Act for identifying and addressing environmental justice concerns. Consequently related guidance has been developed by a number of bodies notably the Council for Environmental Quality (CEQ, 1997), the US Environmental Protection Agency (USEPA, 1998; USEPA, 1999) and various agencies concerned with transport (see for example NCHRP, 2004).

For the UK context Walker *et al* (2005) examined the extent to which various impact assessment methodologies (including EIA) currently involve an assessment of the distribution of impacts likely to result from policy-making or project approval. The study found that none of the seventeen methods reviewed "currently provide for effective distributional analysis focused on environmental justice concerns" and accordingly it discusses a number of options for progressing distributional analysis within impact assessment. These include the development of a dedicated Environmental Equity Appraisal tool; the development of distributional analysis within existing impact assessment tools; and the development of such analysis through Strategic Environmental Assessment.

In light of this, below we outline how EIA could be developed to provide a framework for the assessment of the environmental equity implications associated with a planned urban development in the UK. In doing so, we recognise that currently in the absence of legal or financial incentive, developers would most likely be reluctant to undertake such assessments. However, in the UK, as elsewhere, issues of sustainability and corporate responsibility are increasingly in the public and political spotlight and the suggested approach is an attempt to begin to explore how developers could in the future address environmental equity concerns. We suggest that there are a number of advantages to developing an approach that could be undertaken within an EIA:

- EIA is an established technique in the UK providing a known context (in terms of requirements, understanding, procedures and resources) into which an environmental equity assessment could be embedded and an existing channel through which to get environmental equity assessment occurring in practice at the project level.

- While the central purpose of EIA is the correct identification of potential

environmental impacts, an obvious prerequisite for determining if impacts are distributed fairly, there is evidence that EIA is developing to give greater consideration of the relationship between environmental and socio-economic factors and of cumulative impacts (Glasson *et al*, 2005) mirroring the extension to traditional environmentalism suggested in Figure 1 and strengthening links with techniques such as Health Impact Assessment and Social Impact Assessment.

- Although the lack of public participation in EIA has been a significant problem it has long been recognised that effective participation can be critical to the success of an EIA and the environmental performance of the project (Clark, 1994; EIA Centre, 1995; United Nations, 2006). Legislative developments such as the Aarhus Convention offer opportunities for driving improvement (Hartley and Wood, 2005) as does the increasing value placed on the assessment process itself (rather then the result) for the promotion of sustainability through stakeholder mediation and individual and social learning (Saarikoski, 2000; Fitzpatrick and Sinclair, 2002; Hanna, 2005; Kaatz *et al*, 2006; SDRN, 2007).

- Such EIA based environmental equity assessments at the project level would, over time, provide valuable information for strategic considerations of the environmental equity implications of a policy, program or plan allowing more realistic predictions through the use of SEA.

- Importantly, but recognising differences in procedures, some level of guidance on developing an EIA based approach can be drawn from US experience where the EIA process, delivered under NEPA, requires consideration of environmental equity implications.

Figure 2 outlines how the EIA process could provide a framework to meet the previously listed requirements for equity assessment.

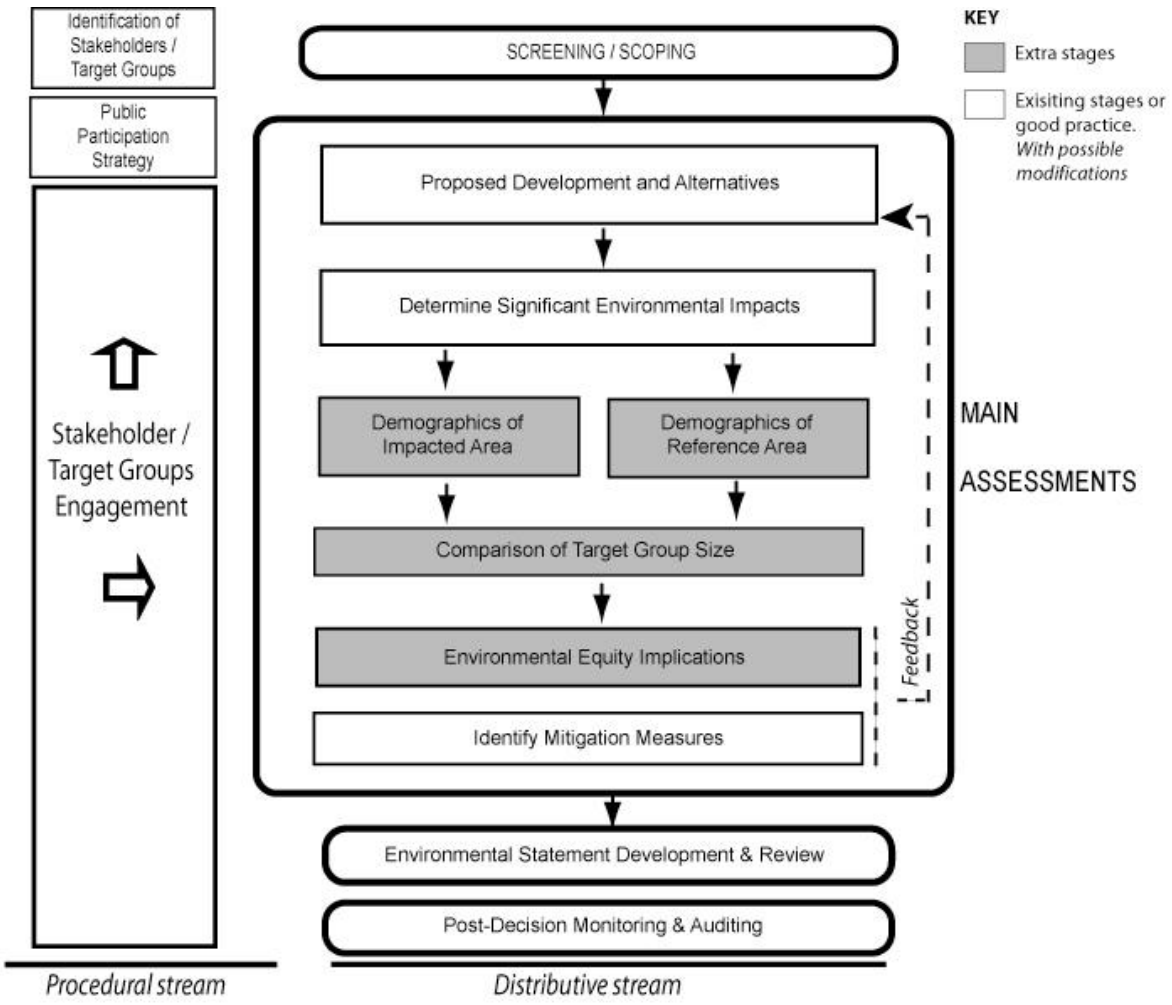

Figure 2: A process for assessing environmental equity through EIA.

The main stages extra to the traditional EIA process are shown in grey. While for existing stages (or those suggested as EIA good practice), shown in white, possible alteration of, or addition to, underlying procedures may be required (see below). The process contains both a distributive stream containing the stages for the assessment of distributive equity and a procedural stream highlighting that meaningful engagement of stakeholders, especially target groups, should be encouraged throughout the assessment.

Guidance from the US highlights that environmental equity concerns can occur throughout an EIA process and the assessment team should at each stage keep in mind three broad concerns:

- Are there target groups present in surrounding area?
- Are they likely to be impacted disproportionately?

- Have they participated in the assessment and decision-making process?

Below, the authors examine in more detail how such concerns could be addressed through the adjusted EIA process shown:

Procedural Stream

Environmental issues, and the potential need for an EIA, should be considered early in the planning and design process (Carroll and Turpin; 2002). EIAs in the UK are led by the developer who often will employ parties with particular expertise to form the team undertaking the assessment and although currently developers in the UK are not required to make their proposals public before submitting a planning application, early identification and involvement of stakeholders (including the public) is recommended and remains valuable throughout the EIA process (EIA Centre, 1995). Participation of potentially impacted communities throughout the EIA is known to improve its quality, comprehensiveness and accuracy and allows opportunity for mediation and consensus building leading to greater acceptance of the project and reduced risk of costly mistakes and forceful confrontation (Glasson *et al*, 2005). Community members have local knowledge often invaluable for the identification during screening, scoping and main assessments of potential significant impacts and, of obvious value to any environmental equity assessment, the particular location of target groups. They can aid in the identification of acceptable design alternatives and mitigation measures as well as contribute to the development and review of the environmental statement helping to ensure its comprehensiveness and accuracy and that of the monitoring and auditing of its predictions and recommendations. Concerns about procedural equity would suggest that particular effort should be made to identify target groups and involve them in these tasks.

EIA good practice advises that early involvement of stakeholders take place through the establishment of a stakeholders' working group (Glasson *et al*, 2005) bringing together the developer, planning authority and statutory and non-statutory consultees. Such a group could provide an opportunity for members of the public, including representation from initially identified target groups, to aid the development of a public participation strategy outlining when, where and how public participation should occur during the rest of the assessment. Guidance from the US Environmental Protection Agency (USEPA, 1998) reports on work by Bullard (1994) identifying that for such strategies to be effective they should promote inclusiveness, correct representation, parity and effective communication.

Within participation strategies a number of methods may be adopted including questionnaires and surveys, advertisements, leafleting, local media, displays and exhibitions, open-houses, telephone hot-lines, personal contact, community liaison staff, community advisory committees, group representations, workshops, public

meetings and public hearings and enquiries (EIA Centre, 1995; CEQ, 1997). Obviously, the choice of method should be appropriate for the local community and target groups may have particular requirements, something the participation strategy would need to consider. For example, commonly literature of public participation suggests that:

- Public meetings should be held at a time and location that doesn't make it inconvenient and costly for community members to attend and that intimidating surroundings (using raised platforms and expert-panels rather then facilitators familiar to the community) should be avoided.
- Presentations and reports should not be overwhelmingly long, they should avoid technical language and translations and versions for those with difficulty hearing and seeing should be available.
- Surveys, advertising and leafleting may be more effectively circulated through existing community networks, clubs and publications already focusing on target groups such as religious and cultural centres and community food clubs and cooperatives.

Other channels for outreach include: schools, libraries and education centres, local activist groups, medical centres, housing associations, neighbourhood watch groups and resident organisations.

Distributive Stream

Screening

Screening is the process by which a decision is taken on whether or not an EIA is required for a particular Project (EC, 2001). Projects of a particular nature or scale ("Schedule 1" projects) or those with potentially significant adverse environmental impacts or whose impacts are not fully known ("Schedule 2" projects) require and EIA. Thus, presently, concerns over the distributional equity of impacts are currently in themselves not enough to require an EIA if the impacts are known and judged not significant. However, although it is possible for environmental equity concerns to be associated with projects not requiring an EIA, given that environmental equity impacts are mediated through the environment (see Figure 1), it seems sensible that there is a greater chance that environmental inequalities would be associated with projects with likely significant environmental effects and so those projects requiring an EIA.

Scoping

Building on the information gained through screening, scoping is used to provide an initial identification of which out of all the possible impacts associated with the project and its alternatives are likely to be significant and require further analysis during the main assessment (EC, 2001). Scoping should provide an initial identification of the

characteristics, scale and significance of likely impacts on land, water, air, climate, flora, fauna, geology, building, other man-made features and human beings (ODPM, 2003). Scoping exercises often use site-visits, desk studies and expert opinion to complete checklists that explore which aspects of the project may lead to impacts and the significance of those impacts. Information on the community held by the local authority (or that is available on-line) as well as gained through a stakeholders' working group (or other aspects of a public participation strategy) could be used to provide an initial indication as to whether or not the identified impacts may be disproportionately borne by target groups. This information could in turn feed back into the initial suggested project design, alternatives and mitigation measures. In order to formalise this process scoping checklists could be developed to include questions specifically concerned with environmental equity.

Main assessments

The main assessment stage of EIA involves: establishing the environmental baseline; confirming the impacts identified during scoping; making predictions on their probable extent and other characteristics (such as its duration, irreversibility, whether it is direct or indirect, whether it compounds other impacts); and determining their significance (based on the impact characteristics, the receiving environment and levels of public and political concern (Glasson *et al*, 2005)). In doing so a number of tools and techniques are typically used including existing data sets, matrices and checklists, site-surveys, maps, aerial photographs, computer models, visualisation software, opinions, and geographic information systems (GIS) which are commonly used for establishing the spatial "footprint" of an impact (such as noise or pollution). For an environmental equity assessment, once the footprint of each impact is established, the demographic profile of the community within would need to be examined in order to determine the extent to which target groups are present. Information on the spatial footprint of the impact can also be used to identify the wider reference population which in the US has commonly been a local political jurisdiction that encompasses the impact footprint. The demographic profile of the reference population is then examined to determine the extent to which target groups are present and a comparison made with the size of the target groups within the footprint in order to indicate the extent to which the impact is disproportionately falling on them – the suggested measure of environmental inequity. Critically Fairburn *et al* (2005) summarises how various choices related to spatial scale of the analysis (perhaps dictated by data availability), such as the size of the geographical units with which to resolve the impact footprint and reference population when undertaking demographic profiling and the size of the reference community can greatly influence the results and so significant care is required during their selection. Accordingly, any analysis needs to be cognisant of such issues and, ideally, recognised through the methods used (see section 5).

As was the case during scoping, the information gained during main assessments is

meant to be used to inform the project design, identify alternatives and suggest mitigation measures. Alternatives may relate for example to different locations, layouts, processes and materials as well as ways of dealing with impacts while design or management based mitigation measures should be envisaged in order to avoid, reduce, remedy or compensate for significant adverse effects (ODPM, 2003). Guidance from the US suggests that identified alternatives and mitigations measures should themselves not result in disproportionate impacts on target groups. Interestingly, there may be a role for Good Neighbour Agreements (GNAs) to form part of a package of mitigation measures. GNAs are negotiated agreements between a company and surrounding community regarding aspects of the company identified by the community as being of concern and can cover access to information, access to the facility in question, public input into accident plans, agreement on measures to prevent pollution, commitments to local employment or local projects (FoE, 2004). Such agreements can provide a link between project level impact assessment and an organisation's Corporate Social Responsibility efforts.

Environmental Statement development and review

The Environmental Statement (ES) is submitted along with the application for planning to the planning authority. It should discuss the project and alternatives, the associated impacts and those impacts not addressed as well as the methods used in the assessment and details of any proposed mitigation and monitoring measures (ODPM, 2003). Checklists and guidance material exists in order that the planning authorities can determine the comprehensiveness and accuracy of the submitted ES and these could be supplemented by materials in order that the reviewer could examine if and how environmental equity issues had been addressed. For example, US guidance on the review of Environmental Statements for environmental justice concerns suggests that they should be examined to determine: the adequacy of public participation; the extent to which the potentially impacted environment and community has been studied and understood; the adequacy of the distributional impact analysis and if the results support the conclusions drawn; how environmental justice concerns have figured in the analysis of alternatives; and how mitigation measures have addressed impacts on target groups (USEPA, 1999).

Post decision monitoring and auditing

Monitoring and auditing can demonstrate a commitment among all parties to the EIA (Scottish Executive, 1999) providing further opportunity to build trust with communities. The monitoring of impacts provides information allowing corrective action to take place (perhaps as part of an Environmental Management System) and can provide data which may help reduce the risk of costly mistakes in future projects. Information gained through the monitoring is also of potential use to corporate and municipal sustainability indicators while auditing the accuracy of impact predictions may provide valuable information to other EIAs on the effectiveness of assessment tools and data sources and for the future development of EIA in general. Of particular

value to distributional equity considerations, monitoring and auditing of the distribution of impacts at the project level would provide information to policy makers to help improve the accuracy of SEA.

5 FUTURE RESEARCH AND CONCLUSIONS

This paper builds upon a discussion on the main concepts underlying environmental justice and environmental equity to identify generic requirements for their assessment. The paper examines how these requirements could be met through Environmental Impact Assessment to provide a framework for the assessment of the environmental equity implications associated with proposed urban developments in a UK context. The work forms part of ongoing research, the next stage of which will examine the suitability of existing tools and data sources for use in such a framework before the development and testing of a prototype.

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