Integration of health into urban spatial planning through impact assessment: identifying governance and policy barriers and facilitators

1. Introduction

The aim of impact assessment in planning is to assess the impacts of projects, plans or policies on a range of social, environmental and economic variables, with the aim of minimising negative effects and maximising positive impacts. Growing awareness of the significance of the urban environment for health has led to a variety of different approaches being used to integrate health and well-being into these processes. Examples of impact assessment that should incorporate considerations of health include Health Impact Assessment (HIA), Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA). Evidence from two initial systematic reviews carried out by the research team suggest that appraisals has limited effectiveness in promoting health into planning. The next question for researchers is then to identify some of the factors limiting or facilitating that effectiveness.[1] The article will expose the key findings of this research.

2. Methods and Theory

The research started from the assumption that development plans are likely to result in changes to the built environment that are then likely to influence health in a number of

[1] Note that these two terms, assessment and appraisal, refer to different tools but mean much the same. The different terminology is largely due to convention. In some cases the two terms are expressly equated, as in the England's combination of SEA and SA (Sustainability Appraisal).

ways. This assumption is backed up by the conceptual literature that has moved away from the medical to a social model of public health (e.g. Whitehead an Dahlgren, 1991; Green et al, 2002; Barton and Tsourou, 2000; Corburn, 2010 for the US context) as well as by the long standing WHO policy advocating for the recognition of socio-economic development on health (Barton and Tsourou, 2000; Ison, 2009). Impact assessment can offer a tool ensuring that health impacts of developments are considered. In the UK, the British Medical Association has endorsed the need to renew the recognition of the broad range of health determinants and emphasised the need to assess the health impacts of development projects and policies (BMI, 1998) and some of the literature focuses on integrating health considerations into existing assessment tools (Bond, 2004; Mindell and Joffe, 2003; Morgan, 2003). Policy-makers have also endorsed integrating the consideration of health impact into existing statutory instruments such as EIA in the USA (Arquiaga et al, 1994; Bond, 2004) or SEA at EU level (Posas, 2011; on the integration of health considerations in England through SEA, see DoH, 2007).

The research took place within that context. First, two systematic reviews (UWE, 2011), following the NICE guidance on systematic review (NICE, 2009) examined evidence on how effective approaches to appraisal are in influencing planning decisions at the project or plan level to secure improvements in health, addressed health inequalities and health equity. The reviews considered primary case study research as well as a number of systematic reviews and overviews. They did not involve for our team to carry out primary research. The literature identified was subject to critical evaluation as to quality. Key points from papers and reports that satisfied quality criteria were systematically recorded as the basis for the subsequent synthesis of the evidence. Our

search strategy looked for scholarly evaluation of appraisals (mainly EIA, SEA, HIA and their variations) of land use plans including spatial plans which relate to a whole region, city, town or neighbourhood and can include topic plans (e.g. for transport, housing and air quality). We also looked for appraisals applying to specific development proposals requiring determination through a land use (or spatial) planning process. Full details of the search strategy, inclusion and exclusion criteria and quality appraisal are available (UWE, 2011a; b and c). Studies therefore were only included if they evaluated the effectiveness of appraisals in influencing the different stages of the planning decision-making process itself and/or the types of health outcomes obtained by the appraisal. In respect of the former, it is vital to recognise that in England, appraisal of plans is only one element at the very beginning of the land use planning decision-making process. Appraisal is intended, in good practice guidelines, to be an aid to good decision-making at every stage of a plan's (or project's) evolution. So this research looked for evidence of health consideration through appraisal at four stages of the plan making process: initial agenda-setting and scoping, substantive policy or proposal, implementation, and later assessment of actual impact. As for the evaluation of health outcomes generated by the appraisal, the primary health issues we considered included physical activity, mental health and wellbeing (including consideration of social networks) , environmental health factors (air quality, noise pollution), unintentional injury and health equity.

Following the identification of case study literature evaluating the effectiveness of appraisals (UWE, 2001a and b), the team then set to analyse in more depth barriers and facilitators for including health into planning through appraisal processes. We collected

further case study evidence from additional studies initially selected in these two reviews but later rejected at full text review stage, empirical studies collected in a call for evidence launched by NICE to a number of key stakeholders and experts, and further studies collected as background research studies in the two previous reviews. We also looked for primary research studies snowballed from the studies included in the two reviews. No studies were identified in the snowballing as they were already identified by our search strategy or did not relate to empirical research. In total, we examined 54 studies, all reported case study research and offered commentaries on barriers and facilitators based on research findings. Purely conceptual studies or studies of an advocacy nature were excluded. Critical appraisal was carried out on the studies that had not been the object of a critical appraisal in the previous two reviews using forms adapted from NICE guidance. Below is the list of studies, the country the case studies covered and the type of appraisal that was evaluated: The early hypothesis was that appraisals, although recognised as only one part of the planning process, are considered as a key and significant part of that process through which health outcomes can be examined. Long-standing guidance on appraisal emphasizes the importance of integrating appraisal throughout the planning process, from initial agreement on objectives to final evaluation (e.g. DoE 1993).

A framework for data extraction and analysis derived empirically from a sample of half of the papers was developed. It was then applied to all the papers, both to any pertinent findings arising directly from either the study, or to reflections and conclusions by authors themselves within the document. This inductive research method fitted the inter-disciplinary nature of the research and literature identified (i.e. public health and planning) and allowed us to consider all empirical barriers and facilitators identified by

authors and not reject any from the beginning. However, from the initial broad sample search, four key policy and governance themes emerged as barriers and facilitating factors of integration. These themes were used to develop the data extraction form and served as our analytical framework. We found that these categories were broad enough to be able to include all the barriers and facilitators identified in the papers. They were:

- *Knowledge:* links to the conceptual understanding of health by different stakeholders. Planning, health and environmental planning have different analytical models, rationalities and assessment tools, and policy decisions in each field made using narrow based evidence (Corburn, 2010, p.88 on city planning).
- *Partnership*: refers to the governance system in place and the political context. Appraisal processes test existing institutional systems in place to consider planning decisions and policies, highlighting deficiencies and good practice in partnership working to assess health impacts.
- *Management and resources*: include the way institutions work, the responsibilities they have and their capacity and resources. Appraisals also test organisational and management structures, commitment and resources.
- *Appraisal processes*: concerns the policy process, its timeliness, comprehensiveness and inclusiveness. The appraisal process itself takes place in parallel to the planning decision-making rather than blends with it.

3. Results

52 studies are included, from a various high, medium and low income countries, encompassing a range of appraisal tools. Some papers report on a single appraisal, and a number on a series of different case studies. HIA was the subject of 33 studies, EIA of 8 studies, SEA and Integrated Appraisal (IA) of 7 studies each, Social Impact Assessment (SIA) of 2 studies, Integrated Impact Appraisal (IIA) and Equality Impact Assessment (EqIA) of 1 study each. A summary of all included studies is shown in Table 1.

As we found more papers evaluating HIA than other forms of assessment/appraisal, this inevitably means that our review is weighted towards the former, and should be read in that context. It also points to the need for more evaluation of the other techniques from the health viewpoint.

Table 1: Summary of included evaluation studies by case study country and type of appraisal

Country	Types of appraisal/references
Key	HIA: Health impact assessment SA/SEA: Sustainability assessment/strategic impact assessment EIA: environmental impact assessment IIA: integrated impact assessment EqIA: equality impact assessment SIA: social impact assessment IA: integrated appraisal
UK	HIA (Ahmad et al., 2008; Bendel and Owen-Smith, 2005; BMI, 1998;

	Douglas et al., 2007; Elliott and Francis, 2005; France, 2004; GCPH, 2007; Greig et al, 2004; Hay and Kitcher, 2004; Kemm et al., 2004; Lester and Temple, 2006; Mindell et al., 2004; PAS, 2008b; NHS London, 2008, 2009; Wismar et al., 2007; YHEC, 2006)
	SA/SEA (Burns and Bond, 2008; Fischer et al., 2010)
	EIA (Sutcliffe,1995)
	IIA (Plant et al., 2007)
	EqIA (PAS,2008a)
	SIA (Wismar et al., 2007)
NL	HIA (Bekker et al., 2005; Kemm et al., 2004)
	SA/SEA (Fischer et al., 2010)
Germany	SEA (Fischer et al., 2010)
	HIA (Wismar et al. , 2007)
Denmark	SEA (Kørnøv, 2009)
Finland	IA (Viinikainen and Kaehoe, 2007)
Hungary	HIA (Kosa et al., 2007)
Italy	HIA (Wismar et al., 2007)
Sweden	HIA (Wismar et al., 2007)
USA	HIA (Dannenberg et al., 2008; Farhang et al., 2008)
	IA (Bhatia and Wernham, 2008; Corburn and Bathia, 2007)
	EIA (Steinemann, 2000)
Australia	HIA (Blau and Mahoney, 2005; Gow and Dubois, 2007; Neville et al., 2005)
	IA (Kjellstrom et al., 2003)
	EIA (Harris et al., 2009)

New Zealand	HIA (Mathias and Harris-Roxas, 2009; Stevenson et al., 2007)
	SIA (Taylor et al., 2003)
Mali, Senegal, Mauritania	EIA (Bond et al., 2001)
Chad and Cameroon	IA (Jobin, 2003; Utzinger et al., 2005)
Tanzania	EIA (Mwalyosi and Hughes, 1998)
Canada	EIA (Bronson and Noble, 2006; Noble and Bronson, 2005, 2006)
	IA (Kwiatkowski and Ooi, 2003)
SE Asia	HIA (Caussy et al., 2003)
Hong Kong	SEA (Ng, 2005)
Countries not disclosed	HIA (Davenport et al., 2006; Taylor and Quigley, 2002; Wright et al., 2005: covers Europe) SEA (Wright et al., 2005: covers Europe)

A summary of broad barriers and facilitators identified across the studies, and the frequency with which they were reported is shown in Table 2. The following text then examines these barriers and facilitators in more detail, in particular listing specific and often procedural issues identified by the literature evaluating the appraisals. In general terms, the issues reported were consistent across different countries, different types of appraisal methodology, and different planning systems. A notable difference emerged from countries where more formal mechanisms exist to ensure the integration of the views of particular ethnic and minority groups and social groups (NZ, Canada and

USA). Studies from these areas have focussed on the integration of knowledge and expertise from these different groups in the policy process to incorporate concerns relating to health equity (Bronson and Noble, 2006; Corburn and Bhatia, 2007; Mathias and Harris-Roxas, 2009).

Table 2: Summary of key findings

Studies which have also reported specific barriers and facilitators are indicated in parenthesis in the table.

Knowledge	27 studies
Barriers	• Narrow definition of health used in appraisals by planners (7) • Focus of appraisals on physical and environmental health (2) • Lack of understanding of planning system by public health sector (1)
Facilitators	• Use of the broad WHO definition of health (4) • Health professionals developing a stronger evidence base on broader determinants of health to inform developments (3) • Closer working between health, environment and planning professionals (3) • Development and use of HIA process (3)
Partnerships	37 studies
Barriers	• Cultural and language differences between sectors (5) • Structural and strategic and differences between partners (1) • Limited dedicated resources available to develop partnership (4) • Short deadlines for conducting appraisals (1) • Lack of trust (2)
Facilitators	• Development of close partnership working and shared vision between public health and planning sectors (13) • Development of HIA to foster partnership (3)

Management and resources	31 studies
Barriers	• Lack of institutional support and delivery structure for appraisals (9) • Different sectoral priorities and lack of institutional resources (4) • Lack of funding and gaps in skills (7)
Facilitators	• High levelcommitment and leadership to guide capacity building (7) • Strategic guidance from government (2) • Knowledge sharing and partnership working (11)
Appraisal processes	37 studies
Barriers	• Late timing of appraisals in planning policy process (9) • Inadequate appraisal processes (10) • Poor quality and range of evidence base and modelling (11)
Facilitators	• Linking appraisal cycle to planning decision-making (18) • Monitoring plans and projects through appraisals (7) • Developing HIA as a participatory and awareness raising tool (19) • Developing robust HIA methodology (6) • Increase transparency of the appraisal process (5) • Use high quality and broad range of evidence from varied sources (15)

A short description of the findings under each heading is given below.

4.1 Knowledge and Conceptual Understanding

Twenty six studies addressed issues in this area. They highlighted the lack of a shared knowledge base between planners and public health practitioners, and/or identified ways to address the issues regarding deficiencies in knowledge and conceptual understanding.

4.1.1 Knowledge Barriers

Several studies note that an overly narrow definition of health is a major barrier to the better integration of health into the spatial planning system (Ahmad et al, 2008; Bekker et al, 2005; Bronson and Noble, 2006; Corburn and Bhatia, 2007; Fischer et al, 2010; Noble and Bronson, 2005; PAS, 2008b). Appraisals of planning proposals tended to focus on physical and environmental health concerns, such as air, water and noise issues, rather than on the broader social and cultural determinants of health (Fischer et al, 2010; Noble and Bronson, 2005).

Two main explanations are postulated for these findings. Firstly, it is proposed that there is a genuine lack of understanding of what health is among those who are commissioning and conducting appraisals which leads to a narrow focus (following a

medical or physical environment model), rather than a wider public health approach (Noble and Bronson, 2006; PAS, 2008b). This also leads to a focus on the negative health impacts of a development, rather than maximising the positive health impacts (Bekker et al, 2005). Secondly, public health professionals are seen as having a lack of understanding of the planning system, including the statutory assessment processes, to which they could make a valuable contribution (Burns and Bond, 2008). This prevents health professionals from engaging effectively in planning processes and with planning colleagues. The lack of understanding on both sides is seen to be an outcome of the rigid boundaries that have existed for decades in the development of knowledge in the fields of health and planning (Bhatia and Wernham, 2008).

4.1.2 Knowledge Facilitators

Several studies recommend using the World Health Organisation's formal definition of health as a means of ensuring that health is seen from its broader environmental, social and cultural perspectives when assessing the impact of proposed developments (GCPH, 2007; Kemm et al, 2004; Noble and Bronson, 2005). The WHO definition, with its emphasis on physical, social and mental well-being, is seen to help to avoid a focus purely on negative physical environmental impacts (Noble and Bronson, 2005) and as a tool to help environmental planners to "understand and adopt a new social orientation to environmental health" (Corburn and Bhatia, 2007, p.332).

To facilitate this process, health professionals should also use data on the broader determinants of health to build up the evidence base and to make the case for an

assessment of wider health concerns (Bhatia and Wernham, 2008; Taylor and Quigley, 2002). This can provide the evidence of the health problems in localities, and explore causal pathways connecting health outcomes to wider determinants (PAS, 2008b; Taylor and Quigley, 2002).

Closer working between health, environment and planning professionals is also recommended to reinforce understanding of planners' role in the health impacts of development, and to ensure that it is not an afterthought (PAS, 2008b). Joint assessment between planners and health professionals is noted as enabling a focus on wider health issues, including health inequalities (BMI, 1998; Hay and Kitcher, 2004). Such joint working would also help health professionals to understand the planning system better and how they can best contribute.

Finally, the process of developing and undertaking HIA is viewed by some as a way of addressing gaps in knowledge and conceptual understanding. Further development of HIA is seen as a solution to the lack of health considerations and the need to take a broader role beyond statutory obligations (Harris et al, 2009; Kørnøv, 2009). HIA is also viewed as having transformed the understanding of the role of spatial planning in promoting health and reducing health inequalities (Stevenson et al, 2007).

4.2 Partnerships

Thirty seven studies identified issues relating to partnerships.

4.2.1 Partnership Barriers

Several studies note that the various organisations who need to work together in order to integrate health considerations into planning often have very different cultures, and use different languages and terminologies (Fischer et al, 2010; France, 2004; NHS London, 2009; PAS, 2008b; Stevenson et al, 2007). This can cause problems in interpretation and contextualisation of key terms such as health.

Partnership working is also hindered by the different structures of the organisations, and by differing day to day and strategic priorities (Neville et al, 2005). A number of authors cite the limited time and human resources that are available to dedicate to developing effective partnerships (Mathias and Harris-Roxas, 2009; NHS London, 2009; Noble and Bronson, 2006). This extends to conducting community engagement and participatory stakeholder workshops as a part of HIA (Bendel and Owen-Smith, 2005), and is compounded by the often short deadlines for conducting appraisals such as HIA (Bendel and Owen-Smith, 2005).

The lack of partnership working is seen to contribute to a vicious circle whereby a lack of inter-sectoral understanding, including lack of knowledge of planning among health professionals and vice versa, leads to unease among partners and a lack of trust (Greig et al, 2004), which then hinders the potential for future partnership working (Ahmad et al, 2008).

4.2.2 Partnership Facilitators

Several studies identify the need for close partnership working from an early stage, including the development of a shared vision among partners through coalition and consensus building, formalised arrangements for partnership working, and explicit roles and responsibilities (Ahmad et al, 2008; Bekker et al, 2005; Bond et al, 2001; BMI, 1998; Corburn and Bhatia, 2007; Hay and Kitcher, 2004; NHS London, 2009; PAS, 2008b; Plant et al, 2007). Joint working in England between primary care trusts (PCTs) and local authorities is viewed as having had a positive effect, with potential for more joint posts such as joint chief executives (France, 2004; NHS London, 2009).

Good communication channels, and the use of a common language among partners (including community / lay stakeholders), is also emphasised as a way of maximising participation across organisations and communities (Fischer et al, 2010). This could also include experimenting with new participatory approaches (GCPH, 2007; PAS, 2008a). As linking community engagement to health is said to "provide a hook" for planners to engage local people, it could be a way of encouraging planners to embrace health considerations (PAS, 2008b).

It is suggested that key partners should commit dedicated resources, for example, to sustain effective community participation (Greig et al, 2004; Mathias and Harris-Roxas, 2009), and to develop multi-agency training courses and master classes, which are seen not only as a way of improving knowledge and understanding of health and planning among partners, but also bringing those partners together for shared learning and

development of relationships (Dannenberg et al, 2008; Mathias and Harris-Roxas, 2009; Stevenson et al, 2007).

Institutional support by a dedicated body or broker organisation is highlighted as a way of facilitating partnership working. The Healthy Urban Development Unit (HUDU) of NHS London, in which a small team of planners were embedded in the NHS, has been seen as a key facilitator bringing together of health and planning concerns across London (Fischer et al, 2010; YHEC, 2006). Strategic alliances such as Local Strategic Partnerships and multi-disciplinary task forces are also seen as being helpful in promoting better partnership working (Burns and Bond, 2008; Caussy et al, 2003; Greig et al, 2004).

Finally, HIA itself is highlighted as a useful process for bringing together partners, developing greater understanding, facilitating a change in priorities in planning strategies and highlighting the role that health considerations have in the appraisal process (Neville et al, 2005; Stevenson et al, 2005). HIA should be promoted as a non-threatening and constructive process (Bendel and Owen-Smith, 2005).

4.3 Management and resources

31 studies identified management and resources as problematic but studies also concluded that institutional leadership and commitment can facilitate better integration between health and planning. Since management approaches and partnership working

are interdependent, aspects of inter-organisational collaboration are further developed in the section.

4.3.1 Management and Resource Barriers

Studies identified lack of support and delivery structures as key barriers preventing planning decisions, even those on which HIA has been applied, to take health considerations into account (Bekker, 2005; Burns and Bond, 2008; Davenport, 2006; Elliott and Francis, 2005; Fischer et al., 2010; Hay and Kitcher, 2004; Utzinger et al., 2005; Wismar et al, 2007; YHEC, 2006). This encompasses a lack of institutional steering from government, or from institutions themselves, to a lack of supportive mechanisms available to integrate appraisals into the planning decision-making process (Davenport et al., 2006; NHS London, 2009; Wismar et al. 2007). The latter can lead at best to delays in appraisal or, at worst, to ineffective appraisals based on little data. For instance, management roles between different organisations involved in assessments can be unclear, or the organisational structure for assessment too small, in particular if seen as an activity on the margin of projects and planning decision-making (Bekker, 2005; Fischer et al. 2010; Hay and Kitcher, 2004).

Organisations (local authorities or health) tend to prioritise other issues or may be too heavily involved in other areas of work to promote health, so tend to have limited time available to spend on taking part in appraisals (Ahmad, 2008; Blau and Mahoney, 2005; Davenport et al., 2006; Stevenson, 2007).

Two reasons can be put forward to explain these issues: lack of funding and gaps in skills and knowledge, although the latter can also be symptomatic of a lack of funding

itself. Indeed, several authors (Dannenberg et al., 2008; Davenport et al., 2006; Steineman, 2000; Wismar et al., 2007) see lack of funding for both HIA and for resources to build sufficient capacity as impeding the health effectiveness of appraisals. Skill gaps lead to missed opportunities as the poor awareness by local authorities or health authorities of tools, and fear and confusion over assessment processes, means that integration of health issues into planning can be piecemeal (Blau and Mahoney, 2005; Burns and Bond, 2008; Davenport et al., 2006; Kjellstrom et al., 2003; NHS London, 2009; Wismar et al., 2007; YHEC, 2006). Skill gaps range from the inability to understand HIA methodology and to drive HIA within the broader planning process itself, lack of knowledge about local communities and areas, including demographic trends, emerging healthcare needs, underestimation of scientific and consultative resources needed (Wismar et al. 2007; Burns and Bond, 2008; Davenport et al., 2006; Kjellstrom et al. 2003; NHS London, 2009; YHEC, 2006).

4.3.2 Management and Resource Facilitators

A clear organisational commitment to HIA at the senior level (Ahmad et al., 2008; Blau and Mahoney, 2005; Davenport et al., 2006; Neville et al., 2005; Stevenson et al., 2007) can strategically guide HIA capacity building and practice (Ahmad et al., 2008; Douglas et al., 2007; Farhang et al., 2008). In the absence of statutory mechanisms, national strategies and guidance can provide a context for higher levels of commitment required (Fischer et al., 2010). For example, in England, the Department of Health in 1999 encouraged health and local authorities to act as health champions using HIA to

encourage health considerations in non health policy fields, and in 2004, the Department for Environment, Transport and the Regions (DETR) gave local authorities a new power of well being to develop multi-sectoral approaches to HIA (Greig et al., 2004).

However, in practice, in the UK at least, it is generally up to individual authorities to develop the will to work with the health sector to address its requirements in the field of urban development (Plant et al., 2007). Organisational resources can be increased through knowledge sharing and partnership working , as the previous section demonstrated (Ahmad et al., 2008; Bendel and Owen-Smith, 2005; Davenport et al., 2006; Elliott and Francis, 2005; Fischer et al., 2010; GCPH, 2007; Hay and Kitcher, 2004; NHS London, 2009; PAS, 2008b; Plant et al., 2007; YHEC, 2006). Practical measures suggested include improving the links between planning and corporate policy at the level of the organisation (GCPH, 2007), setting up cross-departmental or multidisciplinary team working to facilitate policy integration (Bond et al., 2001; Hay and Kitcher, 2004; PAS, 2008b), regular meetings between health and planning authorities (NHS London, 2009; Plant et al, 2007), building programme-management skills (Neville et al. 2005), building the capacity to engage with stakeholders and work inter-sectorally (e.g. Blau and Mahoney, 2005, France, 2004; Greig et al. 2004, Neville et al. 2005; PAS, 2008a), and involving decision-makers in knowledge production, in assessment process or involving outside experts or outsourcing (Davenport, 2006; Elliott and Francis, 2005).

Building the capacity of actors and stakeholders is another way to improve health consideration through appraisals (Ahmad et al., 2008; Bhatia and Wernham, 2008; Blau and Mahoney, 2005; Bond et al., 2001; Caussy et al., 2003; Corburn and Bhatia, 2007;

Neville et al., 2005; NHS London, 2009; PAS, 2008a; Utzinger et al., 2005; YHEC, 2006). In practice, it includes for instance the creation of an HIA post at a strategic level, developing on-going institutional skills (not only individual skills), consultation mechanisms, skills to conduct assessment, providing support for developers, and developing quantitative, qualitative and advocacy skills. The creation of an HIA support unit, and/or dedicated time and staff to research healthcare trends, needs of local communities and to collaborate within local planning authorities are also suggested (Blau and Mahoney, 2005; Douglas et al., 2001; France, 2004; PAS, 2008a, Stevenson et al., 2007).

4.4 Appraisal Processes

Thirty six studies identified barriers and/or facilitators in the appraisal methodology and the policy process.

4.4.1 Appraisal process barriers

A key issue, identified in relation to a variety of assessment types, is the late timing of appraisals, treated as end-stage evaluation rather than support throughout the planning process. This limits the ability of the assessment to influence planning decisions (Bekker et al., 2005; Bendel and Owen-Smith, 2005; Bronson and Noble, 2006; Burns and Bond, 2008; Fischer et al., 2010; Mathias and Harris-Roxas, 2009; Mwalyosi and Hughes, 1998; Noble and Bronson, 2005, 2006). A particular concern is how to "fit" a

non statutory assessment (HIA) into a statutory planning framework. There are challenges in undertaking participatory HIA if policy developments are needed quickly

Inadequate assessment processes remain a key obstacle (Bekker et al., 2005; Blau and Mahoney, 2005; BMI, 1998; Bronson and Noble, 2006; Davenport et al., 2006; Harris et al., 2009; Kørnøv, 2007; NHS London, 2008; Wismar et al., 2007; YHEC, 2006). As far as HIA is concerned, authors refer to its narrow focus, over emphasis on negative environmental health impacts rather than positive benefits on social infrastructures (Bekker et al. 2005; Bronson and Noble, 2006) or health equality (Blau and Mahoney, 2005), and process too demanding or voluminous for policy makers (Wismar et al., 2007). SEA does not necessarily report on health impacts in a satisfactory way either. Kørnøv, reporting on the practice of SEA in Denmark, outlines in particular the lack of a scoping stage, and environmentally orientated reports not highlighting health specifically (Kørnøv, 2007).

The quality and range of the evidence base used in the appraisals to evaluate the health impacts of spatial planning is identified as a barrier, along with a lack of robustness and relevance to local context (Bekker et al., 2005; Bhatia and Wernham, 2008; BMI, 1998; Bronson and Noble, 2006; Burns and Bond, 2008; Corburn and Bhatia, 2007; Dannenberg et al., 2008; Neville et al., 2009; Noble and Bronson, 2005; PAS, 2008b; Wismar et al., 2007). There is a lack of guidance on how to prioritise sources of evidence and methods for analysis of health effects (Bhatia and Wernham, 2008; Neville et al., 2009). There is a perceived over-reliance of evaluation of health impact through regulatory thresholds or single sources of evidence, without assessment of the

cumulative impacts of multiple pollutants, and failure to take account of the impacts of a combination of chemical, physical and social hazards (Corburn and Bhatia, 2007; Neville et al. 2009). This is compounded by the uncertainties of modelling, quantifying and predicting health impact (BMI, 1998; Dannenberg et al., 2008; Wismar et al., 2007), and a lack of data on how social forces influence human health (Corburn and Bhatia, 2007). The paucity of qualitative methods in HIA is also seen as a problem (Bekker et al., 2005).

4.4.2 Appraisal Processes Facilitators

Ensuring that appraisal is linked to the same cycle as the planning decision-making process can facilitate the inclusion of health considerations in planning (Bekker et al., 2005; Bond et al., 2001; Burns and Bond, 2008; Dannenberg et al., 2008; Davenport et al., 2006; Fischer et al., 2010; France, 2004; Greig et al., 2004; Kosa et al., 2007; Mathias and Harris-Roxas, 2009; Mindell et al., 2004; NHS London, 2009; Noble and Bronson, 2005; PAS, 2008b; Plant et al., 2007; Steineman, 2000; Taylor and Quigley, 2003; Wismar et al., 2007). In particular, tackling assessment on the same time cycle as plan-making or project development provides opportunities to feed in advice throughout the decision-making process (Davenport et al., 2006; Fischer et al., 2010; France, 2004; Greig et al., 2004; Kosa et al., 2007; Mindell et al., 2004; Plant et al., 2007; PAS, 2008b; Steineman, 2000). Delivering timely appraisals is facilitated by robust governance arrangements and sound policy implementation, in particular strategic partners involving public/stakeholders at an early stage (Bekker et al., 2005; Mathias

and Harris-Roxas, 2009; PAS, 2008b; Wismar et al., 2007). Monitoring plans or outcome evaluation are identified as key aspects of appraisals to ensure that plans and projects meet their health objectives (Bond et al., 2001; Burns and Bond, 2008; Dannenberg et al., 2008; Fischer et al., 2010; Mindell et al., 2004; Noble and Bronson, 2005; Plant et al., 2007).

HIA is seen as a mechanism to improve involvement of communities and to raise awareness of health in the planning system (Bendel and Owen-Smith, 2005; Bond et al., 2001; BMI, 1998; Bronson and Noble, 2006; Dannenberg et al.; 2008; Davenport et al., 2006; Elliott and Francis, 2005; Fischer et al., 2010; France, 2004; Kørnøv, 2009; Mindell et al., 2004; Mathias and Harris-Roxas, 2009; Neville et al., 2005; NHS London, 2008, 2009; Plant et al., 2007; PAS, 2008b; Utzinger et al., 2005; Wismar et al., 2007;YHEC, 2006). Other positive features of HIA methodology that make it a robust tool include: use of clearly defined stages and standards in an HIA blueprint model with flexibility to adapt to local context (Bekker et.al, 2005; BMI, 1998); the use of the precautionary principle and a social justice frame (to increase health benefits and reduce health inequalities) (BMI, 1998; Kørnøv, 2009); examining broad determinants of health rather than just evaluating predicted health impacts (e.g. transport) (BMI, 1998; Douglas et al., 2007); use of a checklist for planners on key health considerations (NHS London, 2008); cost-effectiveness of planning options incorporated into the HIA (Bekker et al., 2005).

Features which increase the transparency of the appraisal process are considered to improve the effectiveness of appraisal. This can include: clear hypotheses (Fischer et

al., 2010); transparency of the appraisal report, in particular as regards the evidence used (Neville et al., 2005) ; appropriate dissemination (Mathias and Harris-Roxas, 2009) that also includes availability of non-technical report (BMI, 1998); coordination between the various appraisals (Fischer et al., 2010), prioritisation of recommendations (Mathias and Harris-Roxas, 2009;); use of external consultants (Fischer et al., 2010); realistic recommendations and tailored presentation of report with recommendations to reflect organisational concerns (Mathias and Harris-Roxas, 2009) ; intersectoral/interdisciplinary HIA leading to common language and good communication with decision-makers throughout process (BMI, 1998; Stevenson et al., 2007).

The use of a high quality and a broad evidence base in the appraisal process can facilitate the integration of health into planning (Bekker et al., 2005; Bhatia and Wernham, 2008; Corburn and Bhatia, 2007; Davenport et al., 2006; Douglas et al., 2007; Elliott and Francis, 2005; Fischer et al., 2010; France, 2004; Greig et al., 2004; Kjellstrom et al., 2003; Kørnøv, 2009; Mindell et al., 2004; Neville et al., 2009; NHS London, 2008; PAS 2008a), particularly if it considers the natural, physical, social and behavioural factors and assesses the capacity of the *social* infrastructure in larger developments. This will incorporate expert and lay knowledge, qualitative and quantitative evidence, a multi-disciplinary evidence base, and may use computer models to assess options. Consistency must prevail between the methods used at different stages of planning. This requires transparency of evidence, weighting, clarity on who is involved and on what basis decisions are made. A tool such as ENCHIA (Eastern Neighbourhoods Community HIA in San Francisco) can allow integration of knowledge

and expertise from a range of disciplines and life experience (Corburn and Bhatia, 2007).

5. Discussion and conclusion

This analysis of barriers and facilitators to the integration of health into spatial planning through appraisals comes from a large cross section of countries set in different legislative and planning contexts and across different types of appraisal methods. Whilst a substantial proportion of these studies related to the use of HIA as opposed to other types of appraisal, similar issues were raised in relation to all types. We will review these barriers and facilitators below.

One preliminary comment, however, must be made in terms of the scope and limit of the research. The prevalence of HIA evaluations is not surprising given our focus on health. But the relative paucity of commentaries on EIA and SEA (both standard international requirements) is noted. The strong evidence identified in relation to HIA means that our findings are slanted towards it and that the lack of evaluation of the other techniques from the health viewpoint offers many research opportunities. The lack of evidence at post-implementation stage for all types of appraisal techniques also suggests the need for researchers to revisit some of the case studies identified and develop methodologies and analytical tools to assess whether appraisals have delivered a variety of health outcomes on the ground.

In terms of the research findings, some cross-cutting key points must be made in relation to the 4 recurrent themes of knowledge, partnership, management/ resources and process.

Firstly, the narrow definition of health focused on physical and environmental health used to analyse project and plans' health outcomes and the lack of a knowledge base shared between planners and health professionals must be highlighted. It even prevailed in the practice of HIA. In terms of governance and policy, authors have commented that the lack of institutional steering or policy drivers and guidance, lack of leadership at institutional and partnership levels as well as silo mentality/sector-based legal requirements and lack of investment in capacity building could be reasons explaining this lack of common knowledge base. Using a broad definition of health should drive partnerships between health and planning professionals, better quality and range of evidence considered and refocus the problem definition towards the consideration of positive health impacts of plans/projects. More specifically in terms of partnership, several tools can be used to promote multi-level (i.e. national/local) and cross-sectoral partnerships (i.e public health/local authority) to help assist needs assessment, including targets, sharing of resources such as joint public health specialist/consultant posts funded by the health and local authority. In terms of research, there is also scope to develop conceptual and methodological framework examining which governance, policy and institutional arrangements can ensure better effectiveness of appraisals.

Secondly, the mainstreaming of appraisals in the plan/project process is also required to ensure their effectiveness. Many studies emphasised this point. In particular, it is important for appraisals to be integrated into the early stages of the planning process to ensure that they can comprehensibly influence that process. In addition, as we said

earlier, the lack of evidence at post-implementation stage means that it is difficult to assess the actual effectiveness of appraisals. A stronger requirement for monitoring the actual impact of planning decisions as well as further empirical research would help remedy this gap.

A third key element that came out of the research is the part that HIA approaches play as a means of ensuring community stakeholder engagement. One study refers to health as providing *a hook* for planners to engage local people. Developing better participatory models and broad based partnerships, based on common languages can help the integration of different forms of knowledge, expertise and life experience and can in turn help identifying broader problem definition to consider health outcomes of planning decisions.

Finally an unresolved question is whether HIA - or *other* forms of appraisal - provide better integration of health considerations in planning decisions. While HIA is generally used on a voluntary rather than statutory basis, its development across Europe has not been uniform and its use at central government level is limited. In a traditional planning framework, HIA is not easily adapted to current institutional practices and may encounter bureaucratic resistance, particularly for example in the development of innovative participatory processes (Bekker et al., 2005; Bhatia and Wernham, 2008; Burns and Bond, 2008; Corburn and Bhatia, 2007; Davenport et al., 2006; Fischer et al., 2010; Harris, 2009; Mathias and Harris-Roxas, 2009; Neville et al., 2009; NHS London, 2009; Noble and Bronson, 2006; PAS, 2008b; Steineman, 2000).

EIA is a rather different case. In all high income countries, and a number of low/medium income countries, EIA is a statutory requirement for certain categories of project, or those deemed to have potential for 'significant impact'. It therefore represents the most obvious opportunity for health-integrated appraisal. But despite including some explicit health concerns (pollution in particular) this opportunity has not been taken.

Some local authorities require a form of SA to accompany particular applications for development. SA, being in theory a comprehensive assessment, should as a matter of course include health criteria. This review has found no evidence one way or the other – a significant gap in the research. It is possible on occasion for all three types of assessment – EIA, HIA and SA – to be undertaken for the same proposal, which can result in duplication. More rarely the different aspects may form part of an Integrated Appraisal (IA), and from very limited evidence this is the most successful way of incorporating health..

As for the plan level, all countries in the European Union must apply European Directive 2001/42/EC (the SEA Directive) to certain plans and programmes. This assessment must include an assessment of the effects on the human population. Whilst SEA is prevalent in most high income countries, its use in middle/low income countries is a relatively new concept and so is patchy. We found no specific evidence in the literature on how the concept of health is captured in SEA practice.

One of the key recommendations to emerge therefore is that - whilst there is some legislative, regulatory and structural support for appraisals at both national and EU to promote the consideration of health through appraisal - more could be done to ensure

health impacts are more explicitly considered through either statutory HIA requirements, more explicit guidance on the inclusion of health into existing statutory appraisals or development of a more holistic integrated appraisal.

Finally, we need to be mindful that appraisal processes, while an important aspect, represent only one part of the planning process and therefore are not the only one way of integrating health concerns into planning. The main question remaining for policy-makers is to consider the most cost effective way to integrate health into planning; not only through appraisal mechanisms, but also by directly by imposing new requirements on planning authorities through for instance policy, funding, institutional mechanisms, by directly integrating health considerations into strategic plans or/and development planning, and on developers through quality and design criteria set within a strict monitoring process.

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