



Advancing the theory and practice of impact assessment: Setting the research agenda

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ABSTRACT

Impact assessment has been in place for over 40 years and is now practised in some form in all but two of the world's nations. In this paper we reflect on the state of the art of impact assessment theory and practice, focusing on six well-established forms: EIA, SEA, policy assessment, SIA, HIA and sustainability assessment. We note that although the fundamentals of impact assessment have their roots in the US *National Environmental Policy Act 1969* (NEPA) each branch of the field is distinct in also drawing on other theoretical and conceptual bases that in turn shape the prevailing discourse in each case, generating increasing degrees of specialisation within each sub-field. Against this backdrop, we consider the strengths and weaknesses of collective impact assessment practice, concluding that although there are substantial strengths, the plethora of specialist branches is generating a somewhat confusing picture and lack of clarity regarding how the pieces of the impact assessment jigsaw puzzle fit together. We use this review to suggest an overarching research agenda that will enable impact assessment to evolve in line with changing expectations for what it should deliver.

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1. Introduction

The theory and practice of impact assessment has continually expanded and evolved since the introduction of the National Environmental Policy Act 1969 (NEPA) in the USA. In many ways the field has diversified,

with an apparently ever-increasing number of distinct and specialised forms of practice. At the same time many of the issues and themes that have concerned practitioners and researchers (well summarised by Benson, 2003) from the earliest days remain the subject of ongoing reflection and debate. For those of us who consider that impact assessment is an essential tool (and often the only tool) for the purpose of ensuring that environmental and broader sustainability concerns are given consideration in decision-making, we recognise that it is important to periodically reflect on the state of practice—where we have come from, what we are achieving and where we are heading—in order to assess ongoing fitness for purpose.

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To this end, a recent special edition of *Impact Assessment and Project Appraisal* sought to establish the state of the art of impact assessment in 2012 with respect to six core practice areas: environmental impact assessment (EIA) (Morgan, 2012); strategic environmental assessment (SEA) (Fundingsland Tetlow and Hanusch, 2012); policy assessment (Adelle and Weiland, 2012); social impact assessment (SIA) (Esteves et al., 2012); health impact assessment (HIA) (Harris-Roxas et al., 2012); and sustainability assessment (Bond et al., 2012). The special edition was a timely update of other such comprehensive compilations, such as Petts' (1999) *Handbook of Environmental Impact Assessment* and Vanclay and Bronstein's (1995) book *Environmental and Social Impact Assessment*. As might be expected, a number of common themes emerged with respect to strengths, weaknesses, opportunities and threats. All of the papers also grappled to some extent with issues of the theoretical underpinnings, purpose and effectiveness of impact assessment. Some significant variations in focus, pertinent issues and even degrees of optimism can also be discerned, however.

Building on the special edition, this paper that has two aims: firstly to bring together these different perspectives on the state of the art of impact assessment into a more complete picture, drawing on the special edition along with other recent and not-so-recent literature; and secondly to suggest the research agenda that can best accentuate current strengths and grasp opportunities, whilst deflecting threats and mitigating weaknesses. We commence in Section 2 by briefly summarising the emergence and status of EIA, SEA, policy assessment, SIA, HIA and sustainability assessment and exploring the relationships between them, before reviewing the current state of the collective art of impact assessment in Section 3. Having identified strengths and weaknesses of impact assessment in general based upon this analysis, we then identify emerging threats and opportunities in Section 4 and consider what they may mean for the future of impact assessment. In Section 5 we offer our personal views of the state of the art of impact assessment, the challenges that lie ahead and how the research agenda could be focused to help ensure that impact assessment can continue to contribute to better decision-making for sustainable development.

2. The emergence and status of impact assessment practice

Morgan (2012) provides a concise summary of the well-trodden path from the NEPA in the USA to the present time when some form of EIA is mandated in 191 of the 193 nations of the world. He concludes, "After 40 years, it seems reasonable to say that EIA is now universally recognised as a key instrument for environmental management, firmly embedded in domestic and international environmental law" (Morgan, 2012, p6). EIA is now applied in a broad range of decision-making contexts, including international development and trade policy (Cashmore et al., 2009; Kirkpatrick and George, 2006), as well as disaster preparedness and post disaster recovery and reconstruction (e.g. Srinivas and Nakagawa, 2008).

In exploring the drivers for this burgeoning of EIA practice, Morgan (2012) highlights the significance of international agreements that mandate EIA, as well as the growing importance of international finance providers such as the World Bank, the International Finance Corporation (IFC) and lending institutions subscribing to the Equator Principles, whose standards require EIA on major projects. These standards have also been a significant driver for the expansion of SIA practice globally, particularly in the extractive resource sector (Esteves et al., 2012) and HIA practice.

Despite the fact that EIA under NEPA was originally intended to apply to strategic as well as project-level decision-making (Bina, 2007), the term EIA remains almost exclusively reserved for project level assessment (Morgan, 2012). The emergence of SEA to fill the perceived gap at the strategic levels of policies, plans and programmes (PPP) has been well-documented, and is summarised by Fundingsland Tetlow

and Hanusch (2012). The European Union (EU) Directive for SEA, which was adopted in 2001 and required SEA to be incorporated into national legislation by 2004, has been a significant driver for the development of SEA of plans and programmes in EU member states. A number of initiatives have also promoted SEA in the area of development assistance, such as the Organisation for Economic Development and Cooperation (OECD) Development Assistance Committee (DAC) guidelines on SEA (OECD, 2006).

Fundingsland Tetlow and Hanusch (2012) report that SEA is now formally conducted in over 60 countries, compared with less than 20 in 2001.¹ They provide an illustrative snap-shot of SEA practice in selected jurisdictions, but acknowledge that a comprehensive survey of international practice in SEA has not been conducted recently, although Sadler and Dalal-Clayton reviewed the state of practice in the early 2000s (Sadler and Dalal-Clayton, 2005). Practice is known to be highly varied, in terms of application, purpose and quality, especially outside the EU where processes are less clearly mandated, as illustrated by recent reports from Australia (Stoeglehner et al., 2010), Canada (Noble, 2009) and South Africa (Retief et al., 2008).

Fundingsland Tetlow and Hanusch (2012) also point out that the 2003 Protocol on SEA (which came into force July 2012 when the sixteenth party ratified it) drawn up by the parties to the 1991 United Nations Economic Commission for Europe (UNECE) Espoo Convention on Environmental Impact Assessment in a Transboundary Context introduces a non-mandatory application of SEA to policies and legislation. As well as being applicable to all UNECE member states that ratify it (25 European states as of August 2012), it potentially supplements the EU Directive by expanding the range of decisions to which SEA is applied.

Interestingly, however, the UNECE Protocol does not find a place in Adelle and Weiland's (2012) review of the state of the art of policy assessment. Indeed policy assessment practice appears quite removed from the field of impact assessment with its concerns with sustainability: as the authors say, "environmental objectives may or may not be a significant feature of a policy assessment system, if present at all" (p25). They go on to describe how, despite the obvious potential for policy assessment to contribute to a vertically integrated framework of impact assessment, at which environmental and broader sustainability issues are considered in the appropriate degree of detail at the different levels of decision-making, in practice much policy assessment is driven by concerns about business competition and regulatory streamlining (Franz and Kirkpatrick, 2007). In the EU context this difference in focus reflects the separation of responsibility for impact assessment processes within the EU.² Policy assessment is generally poor to non-existent in developing countries (Retief et al., 2007; Sadler and Dalal-Clayton, 2005).

Esteves et al. (2012) present an up-beat view of the current status and future directions for SIA, highlighting a number of external factors supporting the expansion and evolution of SIA practice and potentially "(providing) SIA practitioners with a legitimate mandate distinct from EIA" (p38). As well as a range of international social performance standards, these drivers include: the principles of Free, Prior and Informed Consent (FPIC), human rights impact assessment (HRIA), as well as ever-strengthening commitments to local content for major projects,

¹ It is interesting to observe that SEA did not appear at all in Vanclay and Bronstein (1995).

² Project-level EIA and SEA of plans and programmes are Directives under the responsibility of the Directorate General for the Environment leading to an environmental protection bias. Policy level impact assessment, on the other hand, evolved in response to the need to implement the European Union Sustainable Development strategy, but also its better regulation agenda aiming to reduce bureaucracy and speed up development (Lee and Kirkpatrick, 2006). It is the responsibility of the Secretariat General which has oversight over all Commission activities, and is implemented by requiring individual Directorate Generals to undertake their own assessments. This has resulted in a variation in emphasis depending on the focus of the Directorate General, with many focusing on economic issues at the expense of environmental and social issues (Franz and Kirkpatrick, 2007).

particularly in the resource sector, and associated supply chain management activities in which SIA is increasingly playing a role (Esteves and Barclay, 2011). They position SIA firmly as an ongoing process of managing the social impacts of development, leaving behind the earlier, quasi-EIA process of predicting social impacts and identifying mitigation measures. They emphasise that much good SIA practice is occurring on a voluntary basis within the corporate sector where SIA is viewed as a tool to promote and maintain a corporate social licence to operate. The objectives of SIA may therefore be more closely aligned with the community and public affairs functions of an organisation than with the environmental function, and are often independent of regulatory drivers.

Like SIA, HIA has historical and theoretical foundations in fields other than impact assessment, and also like SIA has an increasing focus on promoting positive outcomes from development rather than simply mitigating negative impacts (Tamburrini et al., 2011). Harris-Roxas et al. (2012) cast their net wide in engaging with nine other members of the HIA Section of the International Association for Impact Assessment (IAIA) to compile a broadly based view of the state of the art of HIA. They present a picture of a practice that has come of age in terms of recognition and accepted methodologies but which enjoys perhaps less recognition and institutional support than some other forms of impact assessment.

Sustainability assessment is presented by Bond et al. (2012) as an evolving and promising development in impact assessment that seeks to (i) address sustainability imperatives with positive progress towards sustainability; (ii) establish a workable concept of sustainability in the context of individual decisions/assessments; (iii) adopt formal mechanisms for managing unavoidable trade-offs in an open, participative and accountable manner; (iv) embrace the pluralistic inevitabilities of sustainability assessment; and (v) engender learning throughout. Although “the point has not yet been reached at which there is universal consensus as to what sustainability assessment is or how it should be applied” (Bond et al., 2012, p53), these five objectives are presented as the basic principles of practice, and the lack of methodological definition is seen as a strength that acknowledges pluralism. This contrasts with the alternative view expressed by reviewers of other fields that agreed approaches and methodologies are a strength of practice (Adelle and Weiland, 2012; Fundingsland Tetlow and Hanusch, 2012; Harris-Roxas et al., 2012). We return to the matter of impact assessment procedures in Section 3.2.

Despite a lack of explicit legal mandate, with the exception of England where sustainability appraisal is applied to development plans prepared by local authorities, sustainability assessment has been conducted to inform approval decisions for major projects in Canada (e.g. Gibson, 2011) and Australia (Morrison-Saunders and Pope, 2013), where practice has emerged as an evolution of traditional EIA, and to inform a variety of decision-making processes (Bond et al., 2012). Morrison-Saunders and Retief (2012) demonstrate how the existing EIA provisions in South Africa can enable comprehensive sustainability assessment and call on practitioners to innovate their work in the field to incorporate sustainability thinking into EIA practice.

The brief summary of these six key practice areas above begs the question of how the various pieces of the jigsaw puzzle fit together, and we make two points to preface the following discussion.

Firstly, impact assessment practice is highly variable depending upon context, and therefore EIA (or SIA or HIA etc.) in one jurisdiction may mean something quite different in another. A simple example of this is the extent to which EIA incorporates socio-economic impacts or is focused on biophysical impacts (e.g. Morrison-Saunders and Retief, 2012). Other observations of contextual differences have been made in relation to policy assessment (Turnpenny et al., 2008) and HIA (Kemmer et al., 2004). Thus the pieces of the jigsaw puzzle have different shapes in different places and some jigsaws might fit together better than others.

Secondly, although we have concentrated on six well-established areas of impact assessment practice, there are many more forms that supplement or provide specific focus to these. These include ecological

impact assessment, considered as a subset of EIA (Briggs and Hudson, 2013; Treweek, 1999), climate change impact assessment, a concept that has been around for some time and which is now receiving particular focus as evidenced by two recent symposia on the topic convened by IAIA (www.iaia.org) and cultural heritage impact assessment, now represented by an IAIA Section. Thus some jigsaws may have more pieces than others, which in turn raises the question of whether we need all the pieces in the box.

Ambiguity regarding the relationships between different forms of impact assessment is evident even amongst the six upon which we have concentrated thus far. For example, the demarcation between SIA and HIA is an uneasy one, since both are concerned with the well-being of people. As has already been discussed, the two forms of practice have different origins and drivers but their similarities and parallels are obvious, and the relationship between the two, and the opportunities to combine efforts in the social domain, has been the topic of workshop sessions at a number of recent IAIA conferences.

Similar definitional discussions arise between practitioners of SEA and sustainability assessment. Notwithstanding that sustainability assessment can be equally applied to project proposals (Pope, 2006), if SEA is intended to contribute to sustainable development (International Association for Impact Assessment, 2002) then what distinguishes sustainability assessment from SEA? It has been argued that sustainability assessment must commence with a holistic conceptualisation of sustainability rather than a three-pillars (environmental, social and economic) approach (Gibson et al., 2005), but as this thinking is now equally evident within the SEA community, with discussions of systems, resilience and ecosystem services (e.g. Geneletti, 2011; Slootweg and Jones, 2011). The counter argument to this, that by taking a broader perspective SEA risks failing to advocate adequately for the environment, has also been made (Morrison-Saunders and Fischer, 2006) and this concern has been borne out in practice (Thérivel et al., 2009).

Something of a crisis of confidence in SEA practice has become evident in recent years, with its *raison d'être* comprehensively questioned (Bina, 2007), and an “(u)nuclear role and aim of SEA” observed (Fundingsland Tetlow and Hanusch, 2012, p21). While the preceding discussion suggests that relevance is not the exclusive concern of the SEA community, in addition to the epistemological debates there is continuing debate amongst SEA practitioners at a more fundamental level, questioning (Fundingsland Tetlow and Hanusch, 2012, p22):

Is the ultimate goal an SEA which is integral to the planning process to the extent that SEA is undertaken by the same individuals as those developing PPPs? Or does SEA need to remain a distinct process in order to ensure transparency and accountability regarding the way in which environmental and sustainability considerations are taken into account?

The question emerging here is not how SEA relates to other forms of impact assessment but how it relates to the planning process it is intended to inform. Is SEA really just good planning?

The relationship between SEA and EIA, usually expressed in terms of vertical integration or tiering, has also been a topic of concern with a number of contributions demonstrating that the concept of strategic decisions clearly and linearly guiding project decisions does not work in practice, is probably conceptually flawed anyway, and at best operates in unpredictable and non-linear ways (Noble, 2002; Nooteboom, 2000; Partidário and Arts, 2005; Turnpenny et al., 2008). Two notable exceptions that demonstrate effective vertical tiering in practice are Gachechiladze et al. (2009) and Sánchez and Silva-Sánchez (2008). Tiering has been notable by its absence from recent contributions to the literature, and potentially remains an unresolved concern.

Thus impact assessment can be characterised by its diversity of practice, and associated ambiguity. Nevertheless, in the following section we attempt to draw the different perspectives together within a common

framework to present an overview of the state of the art of impact assessment in 2013.

3. The state of the art of impact assessment

Retief (2010) presents a conceptual framework identifying three main areas of debate in impact assessment and highlighting that effectiveness (what we are achieving) is strongly linked to both theoretical grounding (what is EIA?) and quality (how to conduct EIA). Following Morgan (2012) we adopt Retief's (2010) framework but recast the quality dimension as 'practice', in order to explore these dimensions (starting with theory and practice to set the building blocks for a consideration of effectiveness) across the breadth of impact assessment practices, and identify the current strengths and weaknesses.

3.1. Theoretical grounding

Since Lawrence (1997) called for more coherent EIA theory-building, arguing that EIA theory is essential to "further understanding of human activity, the environment, and critical interactions between the two" (p81), theoreticians of impact assessment have responded by discerning different substantive goals of impact assessment as well as different mechanisms by which it may function. The topic of SEA theory-building has been particularly fruitful, with a special edition of Environmental Impact Assessment Review devoted to SEA theory in 2007, in which the very foundations of SEA are challenged (Wallington et al., 2007).

This evolution of impact assessment theory has involved exploring other related and better-theorised fields for insights, including political science (e.g. Bartlett and Kurian, 1999), policy theory (e.g. Kørnøv and Thissen, 2000), decision theory (e.g. Nitz and Brown, 2001) and planning theory (e.g. Hilden et al., 2004). It is interesting to note, however, that Esteves et al. (2012) position SIA somewhat uniquely from a theoretical perspective, focusing less on the relationship between SIA and decision-making and instead calling on the SIA community to "revisit core concepts, such as culture, community, power, human rights, gender, justice, place, resilience and sustainable livelihoods" (p34), concepts that support their definition of SIA as the ongoing management of the social issues associated with planned interventions.

From a theoretical perspective, the origin of EIA in the 'information processing' or 'linear rational' model of decision-making is well recognised (Morgan, 2012). This model conceptualises EIA as 'knowledge speaking to power', whereby "(t)he information generated by this predictive process contributes (albeit in a variety of ways) to the environmental design of development proposals and the formulation of decisions on whether, and potentially on what terms, development consent should be granted" (Cashmore et al., 2004, p296).

It has long been recognised, however, that this is only the immediate purpose of impact assessment and that the influence of impact assessment can extend well beyond individual decisions to influence the values and behaviours of organisations and society at large through processes of learning and change (Bartlett and Kurian, 1999). Wallington et al. (2007), in relation to SEA in particular, see a spectrum from 'procedural strategies' focused on a specific decision to broader 'transformative strategies', recognising that in practice EIA functions according to combinations of these models and that causal pathways are complex. Cashmore et al. (2008) make a similar point and identify categories of the transformative potential of EIA: developmental outcomes; learning outcomes; governance outcomes; and, attitudinal and value changes, which are by nature longer term and often less tangible (Cashmore et al., 2009).

Bartlett and Kurian (1999) responded to the lack of theoretical development for EIA by introducing some possible models for how EIA can have an effect: as well as the information processing model they identify the symbolic politics model; the political economy model; the organisational politics model; the pluralist politics model; and the institutionalist model. These models are by no means fully accepted,

however, and tend to oversimplify, reflecting the lack of theoretical maturity associated with research in this field (Lawrence, 1997). Nevertheless, they provide a useful framing for discussions of effectiveness and what it means, and this will be explored in relation to the models of Bartlett and Kurian (1999) in Section 3.3.

3.2. Practice

Early impact assessment research and literature focused necessarily but almost exclusively on ongoing issues with basic procedural steps (Cashmore et al., 2004; Retief, 2010). This was at least partly attributed to judicial interpretations of NEPA focusing on procedural rather than substantive aspects (Ortolano and Shepherd, 1995). Courts typically do not interfere in matters of substance where discretion afforded to decision makers is considered a democratic mandate, instead they focus on whether specific duties imposed by legislation (i.e. steps in the impact assessment processes) have been carried out.

Recent contributions to the literature reflect a degree of comfort that procedures are now fairly well established for many forms of impact assessment, and considerable process guidance is available to practitioners (Adelle and Weiland, 2012; Esteves et al., 2012; Harris-Roxas et al., 2012; Morgan, 2012). IAIA has published core documents including: Principles of Environmental Assessment Best Practice, SEA Performance Criteria, International Principles for SIA, HIA International Best Practice Principles, as well as similar best practice principles on Biodiversity in Impact Assessment, EIA Follow-up, Public Participation, and Climate Change in Impact Assessment (all available at <http://www.iaia.org/publications-resources/downloadable-publications.aspx>).

Several authors caution, however, that the availability of guidance does not necessarily correlate to good practice; for example Morgan (2012, p11) suggests that "(t)here is concern in many countries over the poor quality of impact assessment information" and Adelle and Weiland (2012, p26) emphasise that "in some countries a large gap between the policy assessment system and assessment practice exists". To an extent, the gap between mandated system and practice can be considered a capacity development issue, whereby the skills and institutions needed to conduct the process need time to develop and mature (VanDeveer and Dabelko, 2001). However, whilst provision of guidance is generally regarded as being a valuable means of building capacity (Wood, 1999), the point has also been made that too much guidance can actually be a hindrance to practitioners who must try and assimilate multiple and lengthy sources (Waldeck et al., 2003).

In many if not most jurisdictions, SIA and HIA are not legally mandated, in contrast with some other forms of impact assessment. Although both areas of practice are now well established with ever-increasing numbers of self-identified practitioners and considerable consensus on approaches and methodologies, a picture is painted to some extent of a continual struggle for relevance, resources and the attention of decision-makers to enable the full potential of these specialist forms to be realised. It is in this context that the earlier discussion of demarcation between SIA and HIA must be considered.

At present, some SIA practice still retains aspects of its earliest conceptualisation as a subset and subordinate form of EIA, or is limited largely to baseline studies rather than consideration of social change and impacts (Esteves et al., 2012), while HIA often remains limited to environmental health considerations within an environmental impact statement in practice, with only rare examples of integration into the decision-making processes of other sectors (Harris-Roxas et al., 2012). Limited or poor quality baseline data is identified as a weakness for both SIA and HIA, as is the need for methodological rigour particularly with respect to methods, sources, assumptions and degrees of uncertainty. An opportunity is highlighted in both cases for further awareness raising and education of developers and decision-makers to increase capacity to commission and establish terms of reference for SIA and HIA studies.

In the case of sustainability assessment the lack of consistent and agreed methodology is perceived as a strength allowing for flexibility and context-specific approaches (Bond et al., 2012), although this view is based on the authors' view of what effectiveness means (see the Section 3.3 below). In the case of SEA, however, despite IAIA principles having been established in 2002 subsequently supplemented with a plethora of guidance documents from a variety of sources (for example European Commission, 2003; OECD, 2006) there is still a lack of clarity regarding process. Recently Noble et al. (2012) found that the tendency in guidance documents to advise that appropriate tools and processes should be selected by practitioners to suit context and circumstances, based on an assumption that practitioner capacity is appropriate, is actually causing confusion for the significant percentage of practitioners who lack the experience and expertise to make such judgments.

Other contributors have highlighted other practical challenges specific to assessment at the strategic levels of decision-making; for example Ortolano and Shepherd (1995) identified very early in the evolution of SEA that strategic decisions evolve over time, making it difficult to identify what the policy, plan or programme actually is and to what the SEA should therefore be applied. In the same vein, Dalkmann et al. (2004) refer to the many 'decision windows' present through the development of a policy, plan or programme which an SEA should be designed to influence. These characteristics also make it difficult to determine the influence of SEA on decision-making (van Buuren and Nooteboom, 2009). More recently, Lyhne (2012) traces the trajectory of a Danish planning process, exploring the complexities and political nature of this multi-actor process and highlighting the challenges for SEA in responding meaningfully to the many convolutions of the process. The influence of political processes, particularly those that occur in the later stages of decision-making after the assessment process has been formally completed, is also identified as a particular challenge for policy assessment (Adelle and Weiland, 2012).

A number of specific procedural issues emerged in several of the special edition papers, which are also ongoing areas of concern in practice and the literature more generally. These are: cumulative effects; public participation, and consideration of alternatives. We touch upon each of these briefly below.

The prediction and management of cumulative effects is a perennial issue in the literature and a key component of any consideration of impact assessment effectiveness, as evidenced by the 2008 special conference on the topic convened in Calgary by IAIA and the subsequent special edition of *Impact Assessment and Project Appraisal* in December 2010. Morgan (2012) notes that cumulative effects practice is 'under-developed' in general, while Esteves et al. (2012) note the lack of consideration of cumulative effects in SIA, calling for more cooperation between proponents operating in the same area, incorporation of SIA practices into SEA and further involvement of regional authorities. Cumulative effects are also noted to be a weakness in SEA, even though better management of cumulative effects is one of the underpinning justifications for SEA (Fundingsland Tetlow and Hanusch, 2012). Canter and Ross (2010) acknowledge that the practice of cumulative effects assessment and management (CEAM) is patchy at best, but highlight some aspects of good practice and offer a six-step process to guide practitioners.

Public participation is a well-established field of its own, as evidenced by organisations such as the International Association for Public Participation (IAP2) (www.iap2.org) with strong representation within the impact assessment community (Stewart and Sinclair, 2007). While it has long been recognised that instrumental forms of public participation or engagement, whereby members of the public are invited to comment on proposals or draft impact statements, are entirely inadequate, trends towards more deliberative and empowering forms of engagement have been slow, even in SIA (Adelle and Weiland, 2012; Esteves et al., 2012). Recent contributions have explored the purposes and substantive outcomes of

public participation in impact assessment and policy-making more generally (O'Faircheallaigh, 2010), and the concept of public participation as a process of social learning has gained particular traction in recent years, where the focus is less on an individual decision and more on long term outcomes through processes of transformation (Sinclair and Diduck, 2001; Sinclair et al., 2008).

Consideration of alternatives has been recognised as universally weak for some years (Steinemann, 2001), a point that has been reiterated recently in relation to policy analysis (Adelle and Weiland, 2012), HIA (Harris-Roxas et al., 2012) and SEA, where a failure to even provide justification for the chosen alternative is noted (Fundingsland Tetlow and Hanusch, 2012). Although the issue of alternatives appears to have received little attention in recent literature, Desmond (2007) seeks to address perceived shortcomings within a European context by proposing a set of criteria to support the identification of appropriate alternatives at different levels of decision-making.

3.3. Effectiveness

Cashmore et al. (2004) speak of 'the interminable issue of effectiveness', and the effectiveness of impact assessment practice certainly continues to receive considerable attention, including in the IAPA special edition on the state of the art of impact assessment. Morgan (2012) provides an overview of the status of thinking about impact assessment effectiveness, particularly as it relates to theory. And, as Adelle and Weiland (2012) remind us, evaluations of effectiveness depend entirely upon the perceived purpose of impact assessment processes and the mechanisms by which they work, a point also made by Jay et al. (2007).

If the purpose of impact assessment is considered to be to influence decision-making (in accordance with Bartlett and Kurian's 'information processing' model), this can mean that proposals are modified in response to impact assessment findings (the most common example of this being the identification of appropriate mitigation measures for predicted impacts) or that proposals are rejected based upon impact assessment findings. While Dutch research cited by Ortolano and Shepherd (1995) found examples of EIA leading to the withdrawal of unsound projects, legitimisation of sound projects, improved location, improved project plans, and improved goals and responsibilities, Cashmore et al. (2004) have more recently found that such modifications are typically very minor, while Harris-Roxas et al. (2012) similarly note a lack of research into the influence of HIA on decision-making.

Cashmore et al. (2004, p302) go on to conclude that "EIA was considered relatively inefficient at ensuring: impacts were minimised; irreversible impacts were avoided; and sustainable development was facilitated," suggesting failure against the aims of EIA as defined in the 1996 effectiveness study (Sadler, 1996). Thérivel et al.'s (2009) findings in relation to English sustainability appraisal largely resonate with these less optimistic conclusions. Bond et al. (2012) emphasise that these basic requirements are fundamental tenets of the emerging practice of sustainability assessment, of which there remain few good examples to date. With cautious optimism Gibson (2011) demonstrates how the 'contribution to sustainability' test was applied to a major resource project in Canada, leading to significant recommendations by the assessment panel to both proponent and Government as to how sustainability expectations could be met. The negative response of Government to these recommendations, however, ultimately undermines the shift towards sustainability and once again raises the question of the degree of influence over decision-making exerted by impact assessment.

Also on a positive note, Morrison-Saunders and Bailey (1999) identify highly successful environmental management outcomes through EIA in Western Australia. While most management measures were found to be identified in pre-approval decision stages of EIA, when new and unexpected impacts emerged during proposal implementation, they reported similarly positive environmental management responses. It has also been postulated for some time that, "(t)he greatest contribution of EIA

may well be in reducing adverse impacts before proposals reach the decision-making stage” (Wathern, 1988, p6) or even that EIA may act as a deterrent to proponents of environmental harmful projects such that they are not put forward to decision-makers in the first place, although there is little empirical data to support this intuitively logical argument (Cashmore et al., 2004).

Such changes in the behaviour of developers are clearly more towards the transformational end of the spectrum, aligning with Bartlett and Kurian's (1999) 'organisational politics' model of EIA. Some recent research also finds evidence of the 'institutional politics' model, whereby political institutions are equally transformed over time as organisational knowledge accumulates (Sánchez and Morrison-Saunders, 2011) and mutual learning occurs through relationships between regulators and consultants working on behalf of developers (Morrison-Saunders and Bailey, 2009). Such learning amongst decision-makers, at both the organisational and the individual level, has recently also been an important theme in the effectiveness literature (e.g. Fitzpatrick, 2006; Jha-Thakur et al., 2009).

Bartlett and Kurian's 'political economy' model, whereby the private sector seeks to influence “financial opportunities, risks and constraints with attendant internalisation of externalities leading ultimately to the anticipation and prevention of environmental harm” (Bartlett and Kurian, 1999, p419) has played an increasingly important role in underpinning impact assessment practice since the introduction of the IFC Performance Standards on Environmental and Social Sustainability and subsequent Equator Principles, with their requirements for EIA, SIA and HIA of major projects as a condition of financing (Esteves et al., 2012; Harris-Roxas et al., 2012; Lawrence, 2009; Morgan, 2012).

Although the undertaking of impact assessment as a condition of finance may also be viewed by some critics as being more closely aligned with Bartlett and Kurian's 'symbolic politics' model, whereby impact assessment is “used to suggest accordance with certain values, but not necessarily holding to those values” (Morgan, 2012, p8), the management of so-called 'non-technical risks' has recently become a hot topic in the resource sector, where it is recognised that project delays and cost over-runs are far more often due to environmental and social issues than to technical engineering ones (e.g. Brewer and McKeeman, 2011; Davis and Franks, 2011; Wagner and Jones, 2004). The requirement for corporate management of non-technical risk can also be argued to be a driver in bringing about organisational transformation. For example, resource companies are increasingly hiring environmental and social experts to facilitate the management of these risks and the work of these professionals is now clearly supported by business drivers such that transformation is no longer dependent upon “the sheer force of their beliefs” (Bartlett and Kurian, 1999, p427).

This trend is highlighted by Esteves et al. (2012), who explain how SIA is increasingly applied by organisations as a tool for corporate risk management as part of community relations strategies and suggest that this is now a key driver for the expansion and broader acceptance of SIA, particularly in the resources sector. They also highlight evolving applications of SIA as an organisational tool, for example to inform social investment strategies and supply chain management associated with projects, as well as to provide the mechanism through which concepts such as FPIC can be delivered. These applications of SIA offer alternative perspectives on effectiveness. Also discussing SIA effectiveness, O'Faircheallaigh (2009) focuses on the contribution of SIA to the empowerment of marginalised groups and finds reasons for optimism. Thus SIA, perhaps more evidently than other forms of impact assessment, is finding a clear role beyond an information processing application to exert influence and support transformation in other ways.

Bond et al. (2013) develop an alternative framework for evaluation of impact assessment effectiveness based on six categories: procedural (related to required stages), substantive (related to outcomes), transactive (related to efficiency), normative (related to normative interpretations), knowledge and learning (acknowledging that all stakeholders do and should learn through impact assessment practice) and

pluralism (recognising there are different views associated with what effectiveness means within each category). The inclusion of a category on pluralism recognises that views differ on how impact assessment does and should work to promote change. The derivation of such a framework for evaluation acknowledges the underdevelopment of theory in relation to impact assessment (Lawrence, 1997), and attempts to accommodate elements from different theoretical framings based on an assumption that they each offer some insight and validity (as the discussion above has demonstrated), without fully explaining what impact assessment is achieving. Such a framework is unlikely to be the last word on evaluating effectiveness, although it moves the debate on by acknowledging that evaluation of what is achieved will always be based on what the observer *wants* impact assessment to achieve—and different observers are likely to have different views on this. A simple example here in relation to Government views illustrates this point: Governments are particularly focused on cost effectiveness in times of recession (as at the time of writing), and are therefore likely to focus most on transactive effectiveness. Failure to deliver on this measure could well pose a threat to impact assessment in the future, a point upon which we elaborate in the following section.

3.4. The strengths and weaknesses of impact assessment

Notwithstanding the diversity evident within the broad field of impact assessment, we can make some general observations on the strengths and weaknesses of the field based upon the preceding discussion.

We consider that strengths of impact assessment include:

- The widespread incorporation, particularly of EIA, into legislation and international agreements, and the increasing acceptance of other, supplementary forms of impact assessment;
- The generally good availability of procedural guidance and the value of this for the purposes of both procedural effectiveness and capacity building, notwithstanding that some practice areas are better established than others and that debates continue regarding the appropriate extent and level of prescription of such guidance;
- A strong international body of practitioners including a growing number of theorists, resulting in a continually evolving field;
- Evidence that impact assessment is having effects through different mechanisms although these may not be direct or immediately apparent;
- Diverse practices that incorporate a range of different perspectives and theoretical bases, although diversity is something of a double-edged sword as discussed below.

Weaknesses include:

- Poor quality of practice and continued capacity issues in many countries;
- Persistent universal areas of weak practice, including consideration of alternatives, meaningful public participation and cumulative effects assessment and management;
- An ever-expanding range of discrete forms of practice, each with its own literature and body of practitioners, with unclear relationships between all other areas of practice, and in some cases even an ambiguous *raison d'être*;
- A lack of integrated consideration of broader sustainability issues within impact assessment, which could be due to factors including increasing specialisation and resultant silos within the profession as well as lack of recognition and hence resources allocated to non-regulated forms of impact assessment.

Unfortunately, we feel that the weaknesses of impact assessment are perhaps more apparent to those in power than its strengths, and that this is potentially problematic. In particular we suggest that the number of discrete forms of impact assessment now existing in the literature and practice may have exceeded manageable levels,

potentially confusing practitioners with overlaps and gaps in regulatory requirements and guidance, as well as regulators and decision-makers. In the following section we explore the emerging threats and opportunities that will define the context for impact assessment in the future and potentially determine its ongoing viability.

4. Threats and opportunities for impact assessment

While practice is well established and it is hard to imagine impact assessment ever going away, the threat of it being streamlined to the point of ineffectiveness by political institutions that perceive it as a barrier to development is real. Impact assessment may not quite conform to [Weston's \(2010, p370\)](#) picture of “a state led process of development management” in which “both planning and EIA are there to serve the interests of capitalism”, but there is a danger of impact assessment being ‘watered down’ under the influence of such forces, particularly in the wake of the Global Financial Crisis ([Adelle and Weiland, 2012](#); [Bond and Pope, 2012](#); [Fundingsland Tetlow and Hanusch, 2012](#); [Morgan, 2012](#)). EIA processes are under review in a number of countries, underpinned by an agenda of increasing efficiency and streamlining approvals processes for developers. [Gibson \(2012\)](#) provides an account of recent dramatic and destructive changes to federal Canadian impact assessment along these lines, and similar reviews into the EIA systems are underway in many parts of the world, including Europe, Australia, South Africa and New Zealand.

There is also a risk that the spirit of impact assessment becomes neutered through excessive use of checklists, protocols, guidance or standards so that it is reduced to a licensing exercise with negligible discretionary decision-making opportunities. This has been an intention behind recent amendments to EIA legislation in South Africa, for example, because of perceived lack of capacity by regulators to apply professional discretion in making decisions ([Kidd and Retief, 2009](#)). One of the remarkable aspects of impact assessment has been the innovation that it has promoted for all levels and types of development activity, along with the concepts of follow-up and adaptive management that specifically promote taking a flexible (and arguably creative) approach. Excessive regulation serves to stifle the creative side of impact assessment and we suspect takes along with it innovation in environmental protection and management.

Another trend is for responsibility for EIA (and impact assessment generally) to be allocated to government agencies whose mandate is development rather than those whose mandate is environmental protection. For example in Western Australia in response to perceived stalling of development because of the need to satisfy several regulatory processes (including EIA), an administrative system was put in place in March 2011 whereby the Premier or relevant Minister will nominate a lead agency to manage a project through all of the approvals processes ([DPC, undated](#)). Similarly in South Africa environmental assessment for mining projects falls directly under the mining ministry. This is significant because the controlling institution shapes the approach to impact assessment, and this apparent elevation of development interests above environmental and sustainability mandates that previously prevailed in these jurisdictions marks a significant shift in values and attitude. On this front it is perhaps worthwhile noting that impact assessment was scarcely mentioned in the recent Rio + 20 outcomes document ([United Nations, 2012](#)) relative to its prominence in the original Rio Declaration on Environment and Development where Principle 17 established EIA as a national instrument to be employed by signatories.

On a more optimistic note, emerging opportunities for the future of impact assessment include: an increasing focus on climate change, incorporating both mitigation and adaptation concerns ([Sok et al., 2011](#); [Wende et al., 2012](#)) and further incorporation of concepts such as systems dynamics, resilience and ecosystem services into impact assessment ([Chen et al., 2011](#); [Cooper, 2010](#); [Rajvanshi et al., 2011](#); [Slootweg and Jones, 2011](#)). The greatest opportunity, however, may

be deeper reflection upon the state of the art of impact assessment and perhaps confronting some less than comfortable truths about our field and our profession, particularly in the context of current global challenges. We present some thoughts on the future of impact assessment in our concluding section.

5. Concluding remarks: re-focusing our research attention

In the preceding sections we have attempted to provide an overview of the state of the art of impact assessment in 2013, focusing particularly on EIA, SEA, policy assessment, SIA, HIA and sustainability assessment. We have reviewed the emergence of practice in these core areas and discussed the current theoretical debates and practical challenges. We have considered the strengths and weaknesses of current practice and the opportunities and threats that stimulate and challenge us as impact assessment professionals. We have noted the increasing degree of specialisation within our field, which in turn has promoted broader and stronger theoretical foundations and probably better practice. Overall this suggests a healthy and robust field.

However we have also observed some confusion of purpose amongst this diversity, with energy apparently devoted to struggles for identity and relevance, interspersed with crises of confidence. Fundamentally, the jury is still out on effectiveness: despite the success stories we know the world is *not* getting better ‘one undertaking at a time’ ([Gibson et al., 2005, p188](#)) or at least not fast enough. And while impact assessment theory and practice continues to evolve and increase in sophistication, impact assessment is faced with serious and potentially fatal threats to its existence from governments and others to whom impact assessment is nothing but an expensive and time-consuming regulatory hurdle.

Our proposed research agenda stemming from this review draws on the strengths, weaknesses, opportunities and threats that we have identified. There continues to be a need for the development of theory surrounding impact assessment, but specifically we conclude that the need for theory associated with the effectiveness of impact assessment in different decision contexts is as strong now as it has ever been. The IAIA *Principles of Environmental Impact Assessment Best Practice* decree that impact assessment should be: purposive, rigorous, practical, relevant, cost-effective, efficient, focused, adaptive, participative, interdisciplinary, credible, integrated, transparent and systematic ([International Association for Impact Assessment and Institute for Environmental Assessment, 1999](#)). This is a comprehensive list which many attempts to categorise effectiveness have failed to fully encompass. We would argue there is a need for theory development guided more explicitly by these principles.

Our review has also identified a rich diversity of impact assessment processes that can cause confusion and jeopardise cost effectiveness, a significant threat to the acceptance of impact assessment in times of recession. We would therefore further suggest that research needs to identify how best to simplify the seemingly overly complex ‘jigsaw puzzle of impact assessment’. The recent introduction of specific sessions at recent IAIA conferences dealing with the so-called fundamentals of impact assessment is perhaps a reflection of this need to again engage with basic concepts such as significance, screening, scoping, alternatives, and the like. The point is that we as impact assessment practitioners seem to have created boxes for and distinctions between approaches and tools that over emphasise uniqueness and neglect commonalities.

It is our view that the field of impact assessment is much more homogeneous than this situation would suggest. We acknowledge that the large array of different decision contexts which impact assessment is expected to support is a complicating factor, and one which exacerbates the potential for normative disagreements over the effectiveness of impact assessment in delivering expectations. How can EIA, SEA, HIA, SIA, policy assessment and sustainability assessment be brought together to deliver the principles of impact assessment in more coherent and rigorous fashion? However, it is an opportune time to again explore and strengthen this common identity, and to take every opportunity to

reiterate our core purpose and the common sense approach it represents. In fact we suggest that to do so is imperative not just for the ongoing development of impact assessment but for the very survival of this vital tool for sustainable development.

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