

Emphasising enhancement in all forms of impact assessment: introduction to a special issue

introduction to a special issue

Author(s)

João, Elsa; Vanclay, Frank; den Broeder, Lea

DOI

[10.3152/146155111X12959673796326](https://doi.org/10.3152/146155111X12959673796326)

Publication date

2011

Published in

Impact Assessment and Project Appraisal

License

CC BY

[Link to publication](#)

Citation for published version (APA):

João, E., Vanclay, F., & den Broeder, L. (2011). Emphasising enhancement in all forms of impact assessment: introduction to a special issue: introduction to a special issue. *Impact Assessment and Project Appraisal*, 29(3), 170-180.

<https://doi.org/10.3152/146155111X12959673796326>

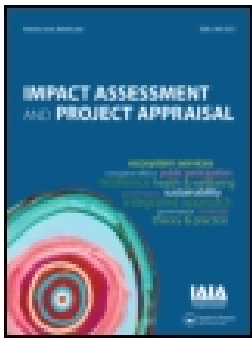


General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please contact the library: <https://www.amsterdamuas.com/library/contact/questions>, or send a letter to: University Library (Library of the University of Amsterdam and Amsterdam University of Applied Sciences), Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.



Emphasising enhancement in all forms of impact assessment: introduction to a special issue

Elsa João, Frank Vanclay & Lea den Broeder

To cite this article: Elsa João, Frank Vanclay & Lea den Broeder (2011) Emphasising enhancement in all forms of impact assessment: introduction to a special issue, *Impact Assessment and Project Appraisal*, 29:3, 170-180, DOI: [10.3152/146155111X12959673796326](https://doi.org/10.3152/146155111X12959673796326)

To link to this article: <https://doi.org/10.3152/146155111X12959673796326>



Published online: 20 Feb 2012.



Submit your article to this journal [↗](#)



Article views: 5054



View related articles [↗](#)



Citing articles: 12 View citing articles [↗](#)

Emphasising enhancement in all forms of impact assessment: introduction to a special issue

Elsa João, Frank Vanclay and Lea den Broeder

In the context of impact assessment (IA), ‘enhancement’ refers to deliberate attempts taken in the design and subsequent phases of projects, programmes, plans and policies to ensure the success of a wider range of direct and indirect positive outcomes to communities and/or the biophysical environment. This can be in the form of opportunities for social and community development, improved health and wellbeing, improved biodiversity, restored ecosystems and landscape character, and protected and respected cultural heritage. This first ever special issue on enhancement advocates that all forms of IA should consider opportunities for enhancement. Specific reference is made to strategic environmental assessment (SEA), environmental impact assessment (EIA), social impact assessment (SIA) and health impact assessment (HIA). The paper presents views from IA practitioners regarding perceptions of the barriers to greater use of enhancement in IA and suggestions for possible solutions to those barriers. Investment in enhancement initiatives contributes to sustainable development and resilience, and is consistent with corporate social responsibility obligations of proponents.

Keywords: enhancement, mitigation, offsets, positive impacts, social outcomes, resilience

IDEALLY, IMPACT ASSESSMENT should be a proactive agent in sustainable development and not just a regulatory hurdle. In impact assessment ‘the emphasis tends to be on the avoidance of problems, but impact assessment can also help ensure that benefits are fully realized’ (Barrow, 1997: 6). The focus of impact assessment therefore cannot be just on the prediction and mitigation of negative

impacts and legal compliance, as has often been past practice. The potential for enhancement of the positive impacts should not be ignored. While the mitigation of negative impacts is typically seen as a *necessity*, enhancement can be seen as an *opportunity* that can improve project design at all stages and the environment overall.

Although enhancement increases the value and business case of impact assessment to proponents and community alike (Vanclay and Esteves, 2011), unfortunately it has been largely ignored in impact assessment studies and by the professional community. McCluskey and João (2011) examined how enhancement of positive environmental impacts had been considered in strategic environmental assessment reports in Scotland. They determined that in 9 of the 15 reports assessed, enhancement had either minimal consideration or was entirely absent.

This special issue of *Impact Assessment and Project Appraisal* on ‘Enhancing positive impacts: lessons from SEA, EIA, SIA and HIA’ brings together academic and practitioner ideas on enhancement from different angles, including strategic

Elsa João is a Senior Lecturer and Director of Postgraduate Studies at the Department of Civil Engineering/David Livingstone Centre for Sustainability, University of Strathclyde, 50 Richmond Street, Glasgow G1 1XN, Scotland; Email: elsa.joao@strath.ac.uk. Her research in SEA and EIA focuses on data quality, scale and enhancement issues. Frank Vanclay is Professor of Cultural Geography in the Faculty of Spatial Sciences at the University of Groningen, PO Box 800, 9700 AV Groningen, The Netherlands; Email: frank.vanclay@rug.nl. His primary interest is social impact assessment. Lea den Broeder is a senior advisor at the National Institute for Public Health and the Environment (RIVM), PO Box 1, 3720 BA, Bilthoven, The Netherlands; Email: lea.den.broeder@rivm.nl. She has worked on HIA since the late 1990s, and is a member of the Board of Directors of IAIA.

For acknowledgements see page 179.

Special issue on enhancing positive impacts: lessons from SEA, EIA, SIA and HIA

environmental assessment (SEA), project environmental impact assessment (EIA), social impact assessment (SIA) and health impact assessment (HIA). In this introductory paper we seek to set the scene for the discussion by elaborating on the concept of enhancement and its potential role in impact assessment. To assist in that task, we present the responses to an open call for input that was sent to impact assessment practitioners. We present practitioner perceptions of the barriers to greater use of enhancement in impact assessment and their suggestions for possible solutions to those barriers.

By 'enhancement' we mean *deliberate* attempts taken in the design and subsequent phases of projects, policies, plans and programmes to ensure the success of a wider range of direct and indirect benefits that could possibly flow from the project or policy. For convenience, in this paper when we refer to 'projects and policies', we imply all forms of planned interventions, including plans, programmes, policies and strategies. The term 'benefits' means positive outcomes to communities and/or the biophysical environment in the form of opportunities for social and community development, improved health and wellbeing, improved biodiversity, restored ecosystems, increased green spaces and improved urban design, improved landscape character, and protected and respected cultural heritage. This may mean deliberately increasing the potential benefits already intended as part of the rationale for the project or policy, but may also mean broadening the range of benefits to include beneficiaries not previously considered. For example, if the building of a new road is necessary for a project, in addition to mitigating the impacts of the new road, the design of the new road could meet the immediate short-term needs of the project as well as the future needs of the local community. Thus, in a pipeline project in Nigeria, the planned construction of a temporary earth road for heavy equipment was changed to become an asphalt road to provide long-term benefit to the community in terms of facilitating the access of farm produce to market (questionnaire respondent).

Enhancement means going beyond pure mitigation of impacts and therefore recognising (and realising) a lasting positive future legacy from the project or policy. The mental shift needed is to think about *preferable futures* (what would we prefer to happen?), rather than just *possible futures* (what may happen?) or *probable futures* (what is most likely to happen?) — see Rubin and Kaivo-oja (1999) for futures-oriented thinking and Duinker and Greig (2006) for scenario planning.

Enhancement and mitigation overlap. What enhancement exactly is and where to draw the line between enhancement and mitigation is not always clear. The rationale for this special issue on enhancement is that by applying an integrative approach that combines knowledge from the different subfields of impact assessment, the picture would become more complete. Specifically, we also considered that the

The rationale for this special issue on enhancement is that by applying an integrative approach that combines knowledge from the different subfields of impact assessment, the picture would become more complete.

Specifically, we also considered that the fields of SEA and EIA might be able to learn from SIA and HIA, and vice versa.

fields of SEA and EIA might be able to learn from SIA and HIA, and vice versa. The International Principles for Social Impact Assessment, for example, strongly encourage enhancement and positive outcomes (Vanclay, 2003, 2006; Vanclay and Esteves, 2011). In HIA too, the emphasis is on public *health* rather than on public *disease*, and improving health and wellbeing has always been the primary focus (Quigley *et al*, 2006; Harris *et al*, 2010).

As a way of initiating this special issue, in addition to the call for papers that was circulated, in 2010 an open invitation to complete a questionnaire on enhancement was widely distributed within our impact assessment networks, primarily to members of the International Association for Impact Assessment (IAIA). Some 68 replies were received from some 15 countries from practitioners with an average of 15 years of experience in impact assessment. The results are discussed in this paper. The input received helped clarify what the term 'enhancement' means for different practitioners and established its relevance within the impact assessment community. Comments were also provided about the barriers to implementation and possible ways of overcoming those barriers.

The paper starts by discussing what enhancement is in the context of impact assessment and the challenges of embracing enhancement as a best practice approach. This is followed by an evaluation of cumulative impacts, leveraging and coordinating actions for enhancement. The paper then discusses monitoring, follow-up and evaluation of enhancement measures. The paper finishes with an analysis of formal regulations and guidance documents. After the conclusion to this part of the paper, a summary is given of the other papers in this special issue.

What is 'enhancement' in the context of impact assessment?

Enhancement is not usually mentioned in impact assessment and, where it is mentioned, it is usually

paired with mitigation. This is partly because of the infiltration of the concept of a ‘mitigation hierarchy’ into impact assessment thinking. Attributed to Mitchell (1997), this hierarchy positions enhancement at the end of a hierarchy of actions: avoid at source; minimise at source; abate on site; abate at receptor; repair; compensate in kind; compensate by other means; enhance (see Androulidakis and Karakassis, 2006; Tinker *et al.*, 2005). Although there is wisdom in avoiding impacts at source (the prevention principle), the unfortunate consequence of this hierarchy is that enhancement has had little attention (see for example DCLG, 2006). We propose that enhancement should not be seen as one of the mitigation stages, but rather be a separate but complementary stage (see Figure 1). The figure also makes it clear that compensation is not enhancement. Mitigation tends to be changes to the project to prevent harm, while enhancement tends to be a range of additional activities sometimes separate to the project (although potentially it can also be changes to the project) that deliberately promote positive benefits.

Even if ‘enhancement’ is not explicitly mentioned, it is often implicit in the impact assessment process, such as when using impact assessment to achieve sustainable development goals. Weaver *et al.* (2008), for example, discuss the concept of ‘environmental offsets’ as a framework within which impact assessment practitioners can push environmental benefits:

Environmental offsets can take many forms: for example, the restoration of an ecosystem or habitat, the development of an environmental education facility or a contribution to a research and development programme. The concept need not be linked only to environmental assets but can be extended into the social and economic domains too. It is important to emphasise, however, that the primary aim of offsets should not be to compensate or to ‘buy off’, but rather to seek synergistic opportunities to meet the proponent’s goals while also delivering broader benefits to the community and the natural environment. (Weaver *et al.*, 2008: 93)

The idea that mitigation and enhancement go hand-in-hand, and that they can be applied to environmental, economic and social and health issues, is shown in Figure 2. The figure has mitigation at its core, but then also includes enhancement as an additional, outer layer. The big question is: Will enhancement be considered only as the ‘icing on the cake’ that can be disregarded in various circumstances, for example, when time and resources are scarce? Who is responsible (in terms of money and management) is a significant challenge especially considering that enhancement might not be restricted to the ‘study area’ and measures undertaken might extend beyond project closure.

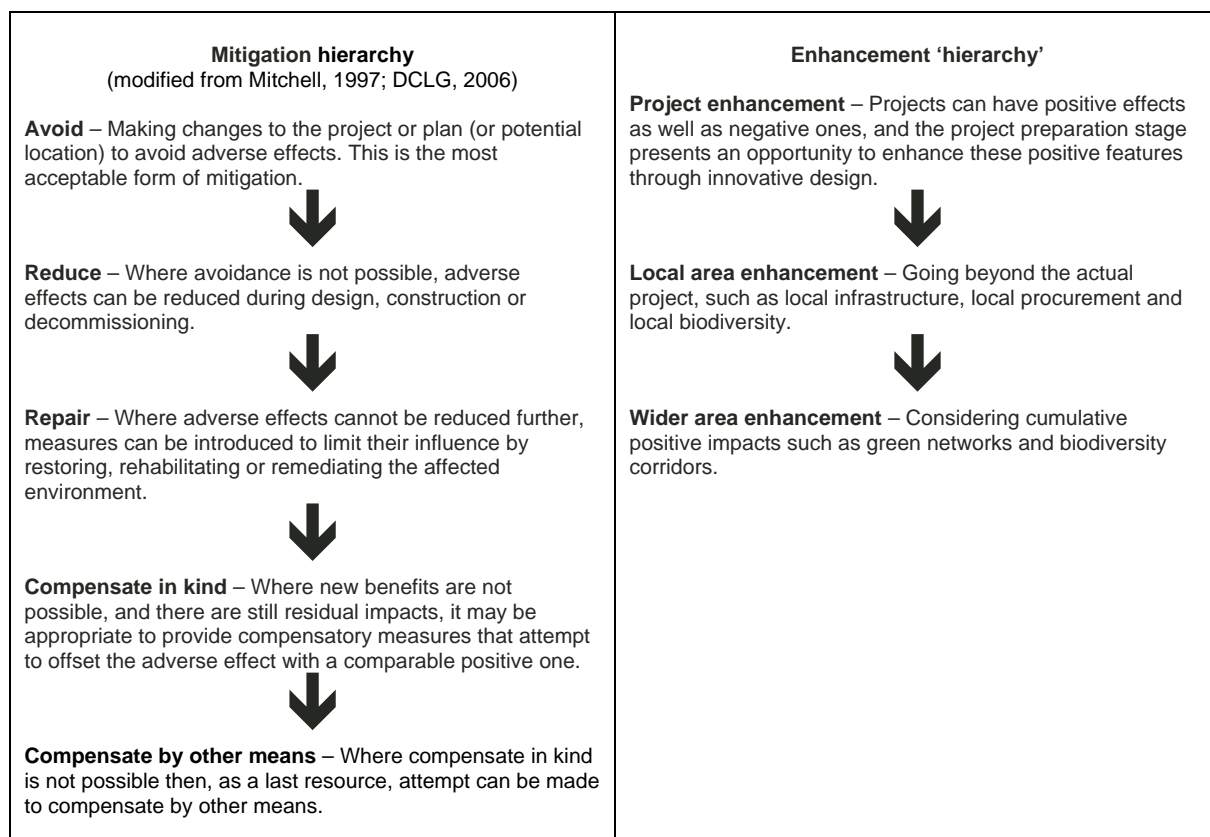


Figure 1. Enhancement as complementary activity to mitigation

- Notes:
1. Compensatory measures do not eliminate the original adverse effect, they merely seek to offset it with a comparable positive one.
 2. For enhancement the term ‘hierarchy’ is in inverted commas as it does not have the same pecking order meaning as for mitigation. Enhancement could be done simultaneously at all three levels: project, local and wider area.

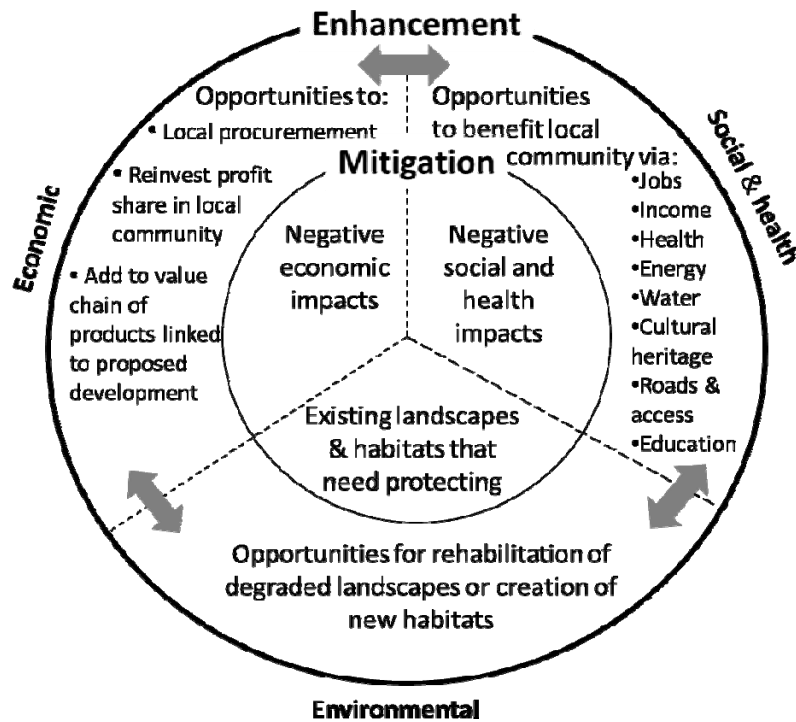


Figure 2. Enhancement as an extra layer to impact assessment
 Note: The arrows indicate that economic, social & health, and environmental impacts are interlinked.

Of the 68 impact assessment practitioners who responded to the invitation to offer comments and complete a questionnaire, more than 80% either ‘completely agreed’ or ‘agreed’ that greater promotion of enhancement should be encouraged. Respondents were also asked if they would like to see enhancement as being compulsory in impact assessment. Responses were divided: 26 people stated ‘no’, 6 were unsure, and 36 people stated ‘yes’. Perceived problems with making enhancement compulsory included: pragmatic aspects (money, time); lack of a legally defensible definition; lack of tools, data and methods; and, importantly, adding a legal requirement would risk a tick-box approach that could stifle innovation. These and other challenges are discussed below.

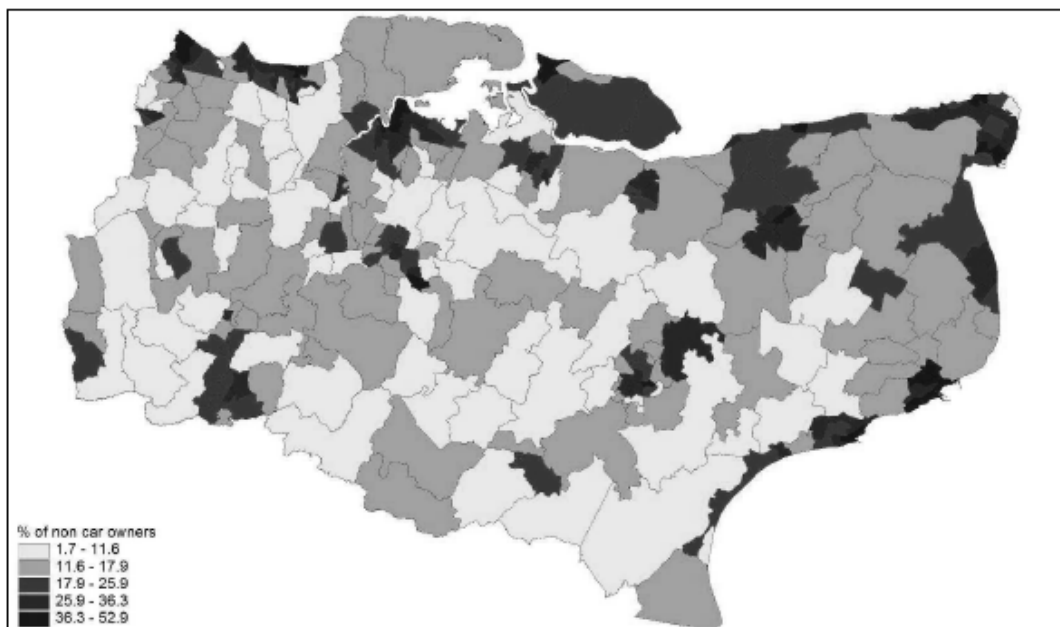
Challenges of embracing enhancement as a best practice approach

It is generally accepted in psychology that humans tend to concentrate on the negative rather than the positive (Baumeister *et al*, 2001). There are many reasons for this including the need to reduce harm (Sparrow, 2008). Enhancement forces impact assessment practitioners (and proponents and regulators) to think differently, to think about positive elements of development and not just the problems associated with negative impacts. A good example of looking at a problem from a positive lens is depicted in Figure 3. Normally a choropleth map shows higher values with a darker colour or shade and lower values with a lighter tone. So, normally a

map about car ownership would show the areas with more cars per capita in darker shades, perhaps to show areas with potentially more problems with air pollution or congestion. What is interesting about Figure 3 is that it shows the percentage of non car owners in darker shading. This is in order to highlight the areas where modes of transport that are less polluting are in place, or where there might be opportunities to improve accessibility using such transport methods.

Being able to think positively is where the fields of SEA and EIA might have a lot to learn from SIA and HIA. It is now considered best practice in SIA and HIA that they are more than processes that predict impacts in a regulatory context (see Quigley *et al*, 2006; Vanclay, 2003, 2006; Esteves and Vanclay, 2009; Harris *et al*, 2010; Vanclay and Esteves, 2011). SIA and HIA should be informing decision-makers about the potentialities for development and improvement. SEA and EIA should also take this next step and be seen as more than tools to get policies, plans, programmes and projects approved, and instead should strive for better environmental and social outcomes. By focusing on both positive and negative impacts, and by proposing ways to enhance the positive effects of projects or policies, HIA and SIA each help to build support, trust and legitimacy among stakeholders.

Buy-in or acceptance by politicians, decision-makers and developers of the above is critical. If the concept of enhancement is not embraced, then the motivation (and, if needed, money) will not be there to pursue enhancement suggestions and monitor if they are successful. A key recommendation of the



Source: Local Transport Plan for Kent 2006-11

Figure 3. Percentage of non-car owners for the Kent County Council in England

Note: Darker areas show where there might be opportunities to improve accessibility using modes of transport that are less polluting (Kent County Council, 2006).

findings of the first full review of ten years of Scottish SEA practice and experience was the need to promote the value of SEA:

There is a need to significantly improve the buy in to SEA beyond the immediate SEA community. In particular, improving awareness of and commitment to the practical benefits of SEA for robust policy development among senior decision-makers is a fundamental pre-requisite to improve effectiveness and proportionality. (SEPA *et al*, 2011: 21)

Vanclay and Esteves (2011, in press) argue with regards to SIA (but the same could be said for EIA, SEA and HIA) that ‘only by establishing the value for SIA to all of its stakeholders will a strong commitment to implementing SIA fully become established within the culture and practice of the fields of impact assessment, development and project management generally’. Difficulties in gaining political buy-in was also one of the barriers mentioned by respondents to our questionnaire (see Box 1).

There are various global initiatives that are promoting a change in thinking about corporate and institutional responsibilities, including ISO 26000 (guidance on social responsibility), the Equator Principles, the United Nations Global Compact, the Global Reporting Initiative, various sectoral declarations about social sustainability, and increasing attention to human rights concerns (see Vanclay and Esteves, 2011). Collectively, these initiatives emphasise corporate social responsibility, imply that corporations should make an active positive contribution to their communities, and may mean that the resistance to enhancement thinking will dissipate

over time. Suggestions provided by the practitioners regarding potential solutions to the barriers to implementing enhancement in impact assessment practice can be seen in Box 2.

Another key challenge is how data collection in impact assessment can support enhancement proposals and monitoring. For enhancement, data will need to be collected not on what ‘is there’ (actualities) but what ‘can be there’ (potentialities or aspirations). Normally, data collection for mitigation involves collecting information (baseline data) on existing resources that need protection. If information is required on potentialities, a new approach will be needed for baseline data collection. While this perhaps sounds revolutionary in an EIA setting, it is very much normal practice in HIA and SIA. In HIA and SIA, indicators are developed to align with the goals or objectives of enhancement initiatives (see Esteves, 2008a, b).

There are several difficulties in determining improvement. At its most basic, determining improvement will depend on whether improvement is measurable or observable within a particular time-scale. But, more fundamentally, deciding what constitutes ‘improvement’ is not necessarily straightforward (McLauchlan and João, 2011). Improvement will vary according to the spatial and temporal scale considered (João, 2007) and will depend on what are the receptors and their values. In the social context too, it is well known that different people are differentially positioned to take advantage of available opportunities, and thus enhancement opportunities can potentially exacerbate inequality. Furthermore, even if the target groups are clearly identified it may be difficult to predict and monitor impacts quantitatively. Many health initiatives, for

Box 1. Practitioner perceptions of the barriers to implementing enhancement in impact assessment practice (synthesised questionnaire responses)

Cost and project delays: Enhancement of positive impacts could mean project delays and more resources. There could be conflict with design engineers over costs and, where costs are high, enhancement measures could affect project feasibility.

More monitoring and follow-up needed: This could be problematic as it is already difficult to implement.

Time taken to realise outcomes: As enhancement procedures and outcomes will generally be long-term, monitoring will pose a major barrier in their implementation. A long-term enhancement could take years to see its full effect, meaning the maturity of the enhancement may be neglected or forgotten over time, if it is implemented at all.

Professional culture and public perceptions about good practice: Mitigation is ingrained in EIA practice both among practitioners and in the expectations of the general public. There could be a perception that enhancement could lead to loss of focus away from the mitigation of negative impacts, which could lead to harm.

Potential to be seen as covering-up: There might be an undermining of public confidence in EIA and the project if there was a perception that there was a lack of attention being given to the negative impacts by practitioners, or if enhancement was seen as being used to 'hide' the negative impacts.

Knowledge gaps: Proponents, practitioners and/or the public might not understand the notion of enhancement and/or might think that it was interfering in the responsibilities of other actors.

Lack of data and experience: Mitigation responds to known (predicted) impacts whereas enhancement is about open-ended possibilities, thus there is a lack of data and 'substance'. This might lead to uncertainties about the effectiveness of enhancement actions, difficulties in quantifying enhancement and in 'selling the concept' to proponents.

Political and institutional barriers: Examples include proponent reluctance due to cost concerns or identification of options that are not politically viable. Long-term plans do not show fast results, which are needed for politicians to be re-elected. Unless there is a clear political/personal gain to decision-makers, enhancement will be disregarded, as is often the current situation.

Lack of clarity about who is responsible: Conflict can arise as to who is required to carry out enhancement. Proponents, project designers, practitioners and regulatory agencies may find themselves 'pointing fingers' at each other.

example, only result in measurable outcomes after many years because the time lag between exposure (including changes in health behaviour) and improved health outcomes may be quite long.

It should be noted that assessments will always reflect specific values. McLauchlan and João (2011) argue that what is considered environmental justice (or injustice) will always depend on interpretation. 'For example, building a coal fired power station could arguably help to contain energy prices and thus ensure less people are susceptible to fuel poverty. However, the impacts can be far and wide, including problems associated with mining that will potentially have an impact on populations remote from the site of energy production and eventual

Box 2. Practitioner suggestions of potential solutions to the barriers to implementing enhancement in impact assessment practice (synthesised questionnaire responses)

Culture change: Education, funding, incentives and professional development can help create the required shift in impact assessment practice that is needed, beginning with practitioners.

Develop guidance documents: A tool to help promote understanding and best practice is to develop a guidance paper explaining enhancement, its legal status (i.e. how can it be secured), case studies (where has it succeeded and/or failed, documenting best practices), distinctions between essential core features of a plan, and possible enhancement options and add-ons, and involving all sectors (health, planning, public, success stories, capacity building, NGOs, etc.)

Develop a legally binding definition: To create commitment and consistency, and to hold practitioners, decision-makers and proponents accountable, it is necessary to develop a coherent, widely agreed definition, ideally one that is legally binding.

Legislative change: Stronger and more specific mention of enhancement is required in EIA Directives and other legislation.

Changes in government policy and regulatory approval processes: The requirement for enhancement should be introduced (or strengthened where it already exists) in all levels of government policy and regulatory approval conditions. This needs to be followed up by enforcing the message through the application of appropriate conditions in planning approvals and permits.

Embed in the scoping stage: Enhancement should be required in the scoping stage in order to identify potential enhancement actions as early as possible. Professional practitioners, peer reviewers and expert advisers, should demand to see enhancement being discussed.

Implement in the Environmental Management Plan: This and other documents need to have specific mention of enhancement.

Identify good examples: Identifying and celebrating projects where notable enhancements were incorporated would increase the profile of enhancement and provide some best practice examples for others to follow. Government projects should lead industry in terms of applying best practice and should be reinforced at all stages.

Independent assessment and auditing of enhancement: This should be practiced to safeguard against false promises.

Be pragmatic and realistic: Identifying a range of enhancement options starting with low cost and high social/political/proponent acceptability and moving forward from there.

Consider timing: Determination of potential enhancement initiatives and their implementation should not retard the impact assessment process, especially where enhancement was not the main objective of the assessment. Rather, provision should be made in project implementation for future add-ons.

Put a value on enhancement measures: Identifying the economic value of the outcomes from enhancement initiatives would establish their value and would assist in creating a business case for enhancement.

Greater budget allocation to enhancement, including at the early stages, such as visioning exercises with stakeholders.

Prioritise enhancement: For example, by having separate enhancement discussions from adverse effects in the impact assessment report or statement.

energy use' (João and McLauchlan, 2011: 6). Essentially, just as with traditional EIA, the key questions are enhancement 'of what' and 'for whom'?

A more fundamental challenge with regards to enhancement within impact assessment has to do with the fact that projects that are expected to generate positive effects might be screened out (as not requiring impact assessment) and positive impacts might be scoped out (as not being significant). This was the case with Ireland's Rural Environment Protection Scheme, which was excluded from SEA because it was expected to generate positive effects. Whelan and Fry (2011) discussed how proposals specifically aimed at delivering environmental benefits were exempt from environmental assessment, despite the fact that the benefits were often assumed rather than proven and that proposals intending to do good still have the potential to cause harm, albeit unwittingly.

Cumulative impacts, leveraging and coordinating actions for enhancement

The screening and scoping stages in impact assessment should take the potential for cumulative impacts into account. There is a real risk that a project or issue considered in isolation could easily be screened or scoped out (as having no significant effect), yet still have a likelihood of causing (or at least contributing to) significant cumulative effects. With regards to cumulative impacts, the overriding thought is normally one of negative cumulative impacts. We suggest that there is also scope for the consideration of the issues surrounding cumulative *positive* impacts.

In the SIA field, the way that the community investment (or social investment) actions of companies are utilised to ensure that they are of value to local communities is critical. If managed unwisely they can be wasted or, worse, lead to harm or division in the community. More important to note is that while philanthropic actions can be of some value, they are insignificant when compared to the potential benefits that could flow from how companies and projects source their supplies and inputs (Esteves 2008a, b).

Another key issue is that too many organisations want to fund short-term infrastructure projects that they perceive have high reputational benefit for the organisation. Sometimes what really needs to be funded does not meet this corporate criterion. There can be conflicts between different projects or companies over who will fund flagship projects, and a complete absence of willing corporate partners to fund critical projects that do not have 'PR value'. A solution to this is to ensure that there is greater transparency about such arrangements, and to have partnerships between projects and companies so that they can pool their resources. This would mean that bigger projects could be undertaken, the glamorous

and less-glamorous dimensions could be combined and better outcomes for the community could be achieved.

In the fields of public health and HIA, it is not only important to consider cumulative impacts but also to consider the potential for multiple positive health outcomes that might flow from a project. For example, a project that generates more opportunities for people to use active forms of transport (e.g. walking or cycling), and thus potentially increases the level of physical exercise in the population, could reduce the risk of multiple health problems such as mental health issues, obesity, diabetes, arthritis and certain types of cancer. If the same project also improves real or perceived safety, it would also contribute to better mental health in a direct sense. As with negative impacts and their mitigation, it is of great importance to be aware of the potential for complex causal pathways (Slootweg *et al*, 2001; Vanclay, 2002).

Another lesson to be drawn from HIA and SIA is about the potential for interactions between different types of impacts, despite being apparently separate and diverse. In public health, and more specifically in health promotion, it is common to identify and implement the best mix of interventions to realise health gain. For example, reducing the number of traffic injuries can be accomplished by combination of interventions such as specific road design, media campaigns, increasing slow transport (walking and cycling) instead of car use, regulations such as speed limits, alcohol prevention, and accessories such as bicycle helmets and (mandatory) safety belts in cars, each of which separately would not produce the same effect as the whole package (Peden *et al*, 2004). When reflecting on enhancement it is necessary to take such interrelations into account. A relatively unimportant change in the environment (e.g. building a new connection road) may lead to many meaningful changes that enable enhancement of population health and wellbeing in various ways. Changing health behaviours (e.g. changing transport modes for the sake of health) can also lead to improvements in environmental conditions (such as air quality).

Monitoring, follow-up and evaluation of enhancement measures

Just as in relation to mitigation commitments, follow-up in relation to enhancement proposals is critical, otherwise how would it be possible to determine if enhancement was actually being carried out as promised and whether it was effective? Eales and Sheate (2011: 50) highlight a 'blind faith in mitigation' and an inability to ensure that 'mitigation measures will be delivered or that they will be successful' as some of the areas of poor performance in sustainability appraisals and SEA. When it comes to enhancement, the follow-up challenge increases

When it comes to enhancement, the follow-up challenge increases because, while the polluter pays principle might hold for mitigation, there is a lack of impetus to hold organisations responsible for enhancement.

because, while the polluter pays principle might hold for mitigation, there is a lack of impetus to hold organisations responsible for enhancement.

Monitoring is important to ensure that enhancement actions are proceeding smoothly and that they are achieving their objectives. It should be noted that, even though enhancement measures are intended to deliver positive outcomes, there is a potential that they can cause unintended harm and therefore a monitoring process is essential. A process of adaptive management (Noble, 2000) is necessary to correct any enhancement action that is having unintended negative consequences or is not fully achieving its intended positive outcomes.

Just as with every other activity, evaluation is important to identify how things could be improved in the future. Esteves (2008a) provides a methodology to describe how evaluation of enhancement actions in the social-community sphere can occur. However, enforcement could be challenging when it is difficult to demonstrate that enhancement conditions have actually been met, particularly where there may be a long time lag between doing enhancement work and the results.

Formal regulations and guidance documents

It is unfortunate that the definitions of 'impact' and 'impact assessment' in legislation in most countries of the world focus only on adverse environmental effects (Donnelly *et al*, 1998). Ideally both mitigation and enhancement should be required to be considered. Interestingly, the recent Scottish SEA review concluded that 'greater emphasis should be placed on using SEA to promote enhancements' (SEPA *et al*, 2011: 26).

Different countries or institutions nevertheless have approaches that could be related to enhancement. For example, the Canadian Department of Fisheries and Oceans (DFO, 1986) has adopted a 'no-net-loss' principle, the Western Australian Environmental Protection Authority (EPA, 2008) has applied the principle of environmental offsets, and the Environment Agency (2009) in England and Wales endeavours to provide enhancement in all its projects and plans in order to comply with the UK

Environment Act and its corporate strategy requires that all projects and plans should 'create a better place'.

In some countries there is (or in the case of The Netherlands was) a requirement that the 'most environment-friendly alternative' be considered in EIA procedures (see Stolp *et al*, 2002, for an example of where the concept has been applied). This requirement has been problematic to implement because of difficulties establishing what the most environmentally friendly alternative would be. Such problems would no doubt be exacerbated where the potential for enhancement actions is unlimited. Nevertheless, in principle there is no reason why legislation and related regulatory procedures should not encourage the consideration of one or more scenarios (options/alternatives) that address enhancements.

Irrespective of whether EIA legislation specifically discusses enhancement, a range of other legislation arguably promotes enhancement. The European Water Framework Directive, for example, advocates improvement in water quality and ecological status. The Convention on Biological Diversity advocates the rehabilitation and restoration of degraded ecosystems and the recovery of threatened species. Any number of management principles, including ISO 14001 Environmental Management Systems (EMS) advocate continuous improvement and innovation in relation to environmental performance. Carruthers and Vanclay (2007) demonstrate how EMS can also be inferred as applying to social considerations as well as to biophysical concerns. The newly released ISO 26000 Guidance on Social Responsibility argues that the social responsibility of organisations includes that they contribute to sustainable development as well as to the health and welfare of society (Vanclay and Esteves, 2011). Thus enhancement is at least implicit in these international conventions and standards. The overarching premise of this paper is that enhancement should be dealt with in more explicit ways.

Conclusion

Resilience, variously defined as the capacity to withstand shocks or as the ability of a system to return to its original state after disturbance, is a key concept that is much discussed in impact assessment and related fields (Adger, 2000; Gunderson, 2000; Slootweg and Jones, 2011; Walker *et al*, 2004). In effect, traditional forms of impact assessment sought to ensure that pre-existing environments were maintained, or at least restored. Enhancement (and resilience) thinking no longer accepts that as being adequate. One of the key resilience thinkers, Carl Folke, argues that:

there is also another aspect of resilience that concerns the capacity for renewal, re-organization and development, which has been

less in focus but is essential for the sustainability discourse ... In a resilient social-ecological system, disturbance has the potential to create opportunity for doing new things, for innovation and for development. (Folke, 2006: 253)

In many cases, such as a degraded environment, a marginalised or unhealthy population, or an inequitable distribution of ecosystem services, wealth and health, it is not desirable that the eco-social system be maintained in its original state. Sustainable development that improves the lives of the worst-off members of society — and therefore enhancement — is clearly the goal of impact assessment (Vanclay, 2003).

Although there should be increasing attention given to enhancement in all forms of impact assessment, we stress that mitigation and proper assessment of the negative impacts will still be important. O’Faircheallaigh (2010), for example, warns how organisations who want to get projects approved might avoid mentioning many of the potential negative impacts and instead may exaggerate positive impacts. Enhancement efforts should not be used by proponents to win public favour for projects that are harmful to the environment or to the public. Furthermore, while the concept of offsetting may work in ecological situations, it is unlikely to be acceptable or appropriate with respect to social impacts. As the United Nations Special Representative John Ruggie (2008: 17) declared, ‘because the responsibility to respect is a baseline expectation, a company cannot compensate for human rights harm by performing good deeds elsewhere’. Impact assessment would lose credibility with the community if it were to be seen to be advocating for the projects being assessed. Nevertheless, working between the proponent and the community in the development of Impact and Benefit Agreements has real potential to contribute to sustainable development (Vanclay and Esteves, 2011).

It is crucial to move beyond doing just enough to get a project or policy approved, and instead use the impact assessment process to make projects and policies the best they can be. However, it may be difficult for impact assessment to be used as a design tool to improve the proposal if it starts too late in the process and the developer is already committed to a detailed proposal. It is important that impact assess-

ment starts early, even before the design process has begun, and further research is needed on how best to integrate impact assessment in project design. Above all, it is necessary to increase the awareness of the use and benefits of enhancement in all forms of impact assessment, as has been the goal of this paper and this special issue overall.

The papers in this special issue

Combining academic and practitioner perspectives, this special issue of *Impact Assessment and Project Appraisal* on ‘Enhancing positive impacts: lessons from SEA, EIA, SIA and HIA’ brings together a range of ideas on enhancement and some examples of where it has been implemented.

The paper by **Asha Rajvanshi, Susie Brownlie, Roel Slootweg and Roshni Arora** discusses maximising benefits for biodiversity using four case studies in India undertaken between 2005 and 2010. It proposes that ecological enhancement should lead to better ecosystem management, improved protection, enhanced areas for biodiversity conservation and improved ecosystem services. It suggests that achieving the best outcome for biodiversity and ecosystem services from proposed development should be the standard practice in EIA globally.

The paper by **Ame-Lia Tamburrini, Kim Gilhuly and Ben Harris-Roxas** discusses enhancing benefits in HIA through stakeholder consultation using three case studies conducted in Australia and the USA, between 2004 and 2008. The case studies illustrate the broad definition of possible positive impacts in HIA. The paper concludes that, although HIA practitioners do focus on positive impacts, regulatory requirements and better guidance are two ways in which this field can be moved forward.

SIAs also often promote positive impacts but this may not always be carried out with regards to the procurement practices of project proponents. The paper by **Ana Maria Esteves and Mary-Anne Barclay** discusses the enhancement of the benefits of local content (the proportion of inputs to a product or service that have been made in that country rather than imported). Drawing on research in the mining, oil and gas sectors, the paper applies impact assessment methodologies to local procurement by integrating social and economic impact assessment (SEIA) into procurement strategies. Esteves and Barclay’s paper concludes that when integrated into contract strategy SEIA can be an effective tool to promote collaboration and enable communities to be active agents in their social and economic futures.

Marielle Rowan and Tom Streather continue the SIA theme and discuss converting project risks to development opportunities through SIA enhancement measures. Their paper suggests four practical steps to promote the implementation of enhancement measures in projects: (1) early consideration of positive impacts, benefits and beneficiaries; (2)

It is crucial to move beyond doing just enough to get a project or policy approved, and instead use the impact assessment process to make projects and policies the best they can be.

meaningful consultation and empowerment of beneficiaries; (3) including benefit enhancement measures in project finance agreements; and (4) independent monitoring of project benefits. The paper emphasises the importance of monitoring positive impacts; for example, with regards to employment generation it is necessary to review who gains from the employment opportunities and how equitably the benefits are distributed within affected communities.

Arguably, a possible test of enhancement is to what extent development is contributing to sustainability. The paper by **Robert Gibson** discusses the application of a contribution to sustainability test by the Joint Review Panel for the Mackenzie Gas Project, Canada's most fully developed approach to the pursuit of enhancement through advanced sustainability based assessment. The paper evaluates how this contribution to sustainability test compared the cumulative effects, equity and legacy implications of a range of project pace and scale alternatives. The overall premise of Gibson's paper, and of this special issue, is that there needs to be confidence that the enhancement delivered through impact assessment and every approved undertaking will move us positively towards a desirable, resilient and durable future.

Acknowledgements

Thanks for the suggestions and constructive comments received from Angus Morrison-Saunders and Deanna Kemp. Thanks as well to Matthew Mosher (MSc student, McGill University, Canada) for work done with the enhancement questionnaire as part of an internship at the University of Strathclyde.

References

- Adger, W 2000. Social and ecological resilience: are they related? *Progress in Human Geography*, **24**(3), 347–364.
- Androulidakis, I and I Karakassis 2006. Evaluation of the EIA system performance in Greece, using quality indicators. *Environmental Impact Assessment Review*, **26**(3), 242–256.
- Barrow, C 1997. *Environmental and Social Impact Assessment — An introduction*. London: Arnold.
- Baumeister, R, E Bratslavsky, C Finkenauer and K Vohs 2001. Bad is stronger than good. *Review of General Psychology*, **5**(4), 323–370.
- Carruthers, G and F Vanclay 2007. Enhancing the social content of Environmental Management Systems in Australian agriculture. *International Journal of Agricultural Resources, Governance & Ecology*, **6**(3), 326–340.
- DCLG, UK 2006. *Environmental Impact Assessment: A Guide to Good Practice and Procedures: A consultation paper*. 27 June 2006. London: Department for Communities and Local Government (DCLG).
- DFO, Department of Fisheries and Oceans, Canada 1986. *Policy for the Management of Fish Habitat*. DFO/4486. Ottawa: Department of Fisheries and Oceans. Available at <<http://www.dfo-mpo.gc.ca/habitat/role/141/1415/14155/fhm-policy/index-eng.asp>>, last accessed 24 July 2011.
- Donnelly, A, B Dalal-Clayton and R Hughes 1998. *A Directory of Impact Assessment Guidelines* (2nd edition). London: International Institute for Environment and Development.
- Duinker P and L Greig 2006. Scenario analysis in environmental impact assessment: improving explorations of the future. *Environmental Impact Assessment Review*, **27**(3), 206–219.
- Eales, R and W Sheate 2011. Effectiveness of policy level environmental and sustainability assessment: challenges and lessons from recent practice. *Journal of Environmental Assessment Policy and Management*, **13**(1), 39–65.
- Environment Agency, UK 2009. *Creating a better place 2010–2015: Our Corporate Strategy*. Environment Agency. Available at <<http://www.environment-agency.gov.uk/aboutus/work/35702.aspx>>, last accessed 24 July 2011.
- EPA, Environmental Protection Authority, Western Australia 2008. *Environmental Protection Bulletin No. 1 — Environmental Offsets — Biodiversity*. Perth: Environmental Protection Authority. Available at <http://www.epa.wa.gov.au/docs/2787_EPABULL1_Enviro_offsets_Biodiv18808.pdf>, last accessed 24 July 2011.
- Esteves, A M 2008a. Evaluating community investments in the mining sector using multi-criteria decision analysis to integrate SIA with business planning. *Environmental Impact Assessment Review*, **28**(4–5), 338–348.
- Esteves, A M 2008b. Mining and social development: refocusing community investment using multi-criteria decision analysis. *Resources Policy*, **33**(1), 39–47.
- Esteves, A M and F Vanclay 2009. Social Development Needs Analysis as a tool for SIA to guide corporate–community investment: applications in the minerals industry. *Environmental Impact Assessment Review*, **29**(2), 137–145.
- Folke, C 2006. Resilience: the emergence of a perspective for social–ecological systems analyses. *Global Environmental Change*, **16**(3), 253–267.
- Gunderson, L H 2000. Ecological resilience — in theory and application. *Annual Review of Ecology and Systematics*, **31**, 425–439.
- Harris, P, B Harris-Roxas, M Wise and L Harris 2010. Health Impact Assessment for urban and land-use planning and policy development: lessons from practice. *Planning Practice & Research*, **25**(5), 531–541.
- João, E 2007. A research agenda for data and scale issues in Strategic Environmental Assessment (SEA). *Environmental Impact Assessment Review*, **27**(5), 479–491.
- João, E and A McLauchlan 2011. Strategic Environmental Assessment as a tool to contribute to high-level policy objectives. *Journal of Environmental Assessment Policy and Management*, **13**(1), 1–7.
- Kent County Council, England 2006. *Local Transport Plan for Kent 2006–11*. Available at <<http://www.kent.gov.uk/static/local-transport-plan/index.html>>, last accessed 1 July 2011.
- McCluskey, D and E João 2011. The promotion of environmental enhancement in strategic environmental assessment. *Environmental Impact Assessment Review*, **31**(3), 344–351.
- McLauchlan, A and E João 2011. The utopian goal of attempting to deliver environmental justice using SEA. *Journal of Environmental Assessment Policy and Management*, **13**(1), 129–158.
- Mitchell, J 1997. Mitigation in environmental assessment: furthering best practice. *Environmental Assessment*, **5**(4), 28–29.
- Noble, B 2000. Strengthening EIA through adaptive management: a systems perspective. *Environmental Impact Assessment Review*, **20**(1), 97–111.
- O'Faircheallaigh, C 2010. Public participation and environmental impact assessment: purposes, implications and lessons for public policy making. *Environmental Impact Assessment Review*, **30**(1), 19–27.
- Peden, M, R Scurlfield, D Sleet, D Mohan, A Hyder, E Jarawan and C Mathers (eds) 2004. *World report on road traffic injury prevention*. Geneva: World Health Organisation.
- Quigley, R, L den Broeder, P Furu, A Bond, B Cave and R Bos 2006. *Health Impact Assessment International Best Practice Principles*. Special Publication Series No. 5. Fargo, USA: International Association for Impact Assessment.
- Rubin A and J Kaivo-oja 1999. Towards a futures-oriented sociology. *International Review of Sociology*, **9**(3), 349–371.
- Ruggie, J 2008. *Promotion and Protection of all Human Rights, Civil, Political, Economic, Social and Cultural Rights, including the Right to Development — Protect, Respect and Remedy: A Framework for Business and Human Rights*. Report of the Special Representative of the Secretary-General on the Issue of Human Rights and Transnational Corporations and Other Business Enterprises, John Ruggie, UN Doc. A/HRC/8/5.
- SEPA, Historic Scotland and Scottish Natural Heritage, Scotland 2011. *Scottish Strategic Environmental Assessment Review — A summary*. Available at <http://www.sepa.org.uk/planning/strategic_environmental_assess/scottish_sea_review.aspx>, last accessed 24 July 2011.

- Slootweg, R and M Jones 2011. Resilience thinking improves SEA: a discussion paper. *Impact Assessment and Project Appraisal*, **29**(4), forthcoming, DOI: 10.3152/146155111X12959673795886.
- Slootweg, R, F Vanclay and M van Schooten 2001. Function evaluation as a framework for the integration of social and environmental impact assessment. *Impact Assessment and Project Appraisal*, **19**(1), 19–28.
- Sparrow, M 2008. *The Character of Harms: Operational Challenges in Control*. Cambridge: Cambridge University Press.
- Stolp, A, W Groen, J van Vliet and F Vanclay 2002. Citizen values assessment: incorporating citizens' value judgements in environmental impact assessment. *Impact Assessment and Project Appraisal*, **20**(1), 11–23.
- Tinker, L, D Cobb, A Bond and M Cashmore 2005. Impact mitigation in environmental impact assessment: paper promises or the basis of consent conditions? *Impact Assessment and Project Appraisal*, **23**(4), 265–280.
- Vanclay, F 2002. Conceptualising social impacts. *Environmental Impact Assessment Review*, **22**(3), 183–211.
- Vanclay, F 2003. International Principles for Social Impact Assessment. *Impact Assessment and Project Appraisal*, **21**(1), 5–11.
- Vanclay, F 2006. Principles for Social Impact Assessment: a critical comparison between the international and US documents. *Environmental Impact Assessment Review*, **26**(1), 3–14.
- Vanclay, F and A M Esteves 2011. Current issues and trends in social impact assessment. In *New Directions in Social Impact Assessment: Conceptual and Methodological Advances*, ed. F Vanclay and A M Esteves. Cheltenham: Edward Elgar, in press.
- Walker, B, C S Holling, S R Carpenter and A Kinzig 2004. Resilience, adaptability and transformability in social–ecological systems. *Ecology and Society*, **9**(2), article 5. Available at: <<http://www.ecologyandsociety.org/vol9/iss2/art5>>, last accessed 11 July 2011.
- Weaver, A, J Pope, A Morrison-Saunders and P Lochner 2008. Contributing to sustainability as an environmental impact assessment practitioner. *Impact Assessment and Project Appraisal*, **26**(2), 91–98.
- Whelan, J and J Fry 2011. The lack of SEA to support agri-environmental objectives in Ireland's Rural Environment Protection Scheme. *Journal of Environmental Assessment Policy and Management*, **13**(1), 101–127.