

Reflecting on, and revising, international best practice principles for EIA follow-up

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ABSTRACT

Follow-up is a vital component of Environmental Impact Assessment (EIA), being essential for understanding assessment outcomes. Long-standing international best practice principles for EIA follow-up are reviewed, and revisions proposed, based on workshops with academics and practitioners, literature review and self-reflection. The proposed revision of EIA follow-up principles will feature an introduction with a simple definition and explanation of objectives for follow-up, and 15 principles. The revised principles address: objective; context; early establishment; project life-cycle; transparency; accessibility; accountability; performance criteria provision; enforcement; learning; adaptive environmental management; flexible or adaptive approach; tiering; cumulative effects and overall performance evaluation. Through publishing this proposal, it is hoped to simultaneously inform or inspire EIA practitioners to enhance their own follow-up knowledge and practices, and to seek input for further refinements that might lead to a revised set of international best practice principles for EIA follow-up.

Keywords: environmental impact assessment, follow-up, best practice, principles, learning, adaptive

1. Introduction

Environmental Impact Assessment (EIA) continues to evolve based on ongoing interpretations of its effectiveness (Bond and Pope, 2012). This leads to constant re-evaluation of what constitutes best-practice, and accordingly to the continual review and updating of the best practice principles published by the International Association for Impact Assessment (IAIA) (see: <https://www.iaia.org/best-practice.php>). EIA follow-up is one area in which there has been a considerable growth in research contributions, making this an opportune time to revisit the notion of best practice EIA follow-up. This paper deals with the updating (at the request of IAIA), of the EIA follow-up international best practice principles (Morrison-Saunders et al., 2007), hereafter referred to as the "IAIA follow-up principles". In this document, EIA follow-up was defined as: 'the monitoring and evaluation of the impacts of a project or plan (that has been subject to EIA) for management of, and communication about, the environmental performance of that project or plan' (p1). Similarly, and consistent with our former work on this topic and earlier writers such as Morgan (1998), we use "EIA" as an umbrella term for all forms of impact assessment. This includes applications of Strategic Environmental Assessment (SEA) at the level of plans (or programmes and policies).

Different scales of application of follow-up can be conceptualised depending on whether the unit of analysis is: an individual project or plan that has been subject to some form of impact assessment; the system or jurisdiction in which EIA is taking place; or the EIA concept itself. Morrison-Saunders and Arts (2004a, p6) referred to follow-up taking place at the micro, macro or meta scale respectively (and all three were included in the best practice document). For this

paper, our research is focused exclusively on micro-scale follow-up conducted on an individual decision, whether a project or a policy, plan or programme.

Also of particular relevance to our work here is IAIA's general EIA best practice principles document (IAIA & IEA, 1999). This clearly explains that follow-up is part of the EIA process, and thus all of the 'Basic Principles' set out in IAIA & IEA (1999, p3), such as that 'EIA should be': 'rigorous', 'focussed', 'adaptive', 'participative' and 'transparent' (along with nine others), should apply to EIA follow-up. We return to this point later.

The IAIA follow-up principles (Morrison-Saunders et al., 2007) were developed by the two lead authors based on the facilitation of workshops on EIA follow-up at IAIA annual conferences (starting in 2000), and the learning from preparation of various publications on the topic (journal papers and an edited book) and guest-editing of a special issue of *Impact Assessment and Project Appraisal*, all in collaboration with many other EIA practitioners and academics. This body of work was initially published as a set of international best practice principles for EIA follow-up in Marshall et al. (2005). These were subsequently published using a slightly different structure, but otherwise identical content, as the IAIA follow-up principles (Morrison-Saunders et al., 2007).

The purpose of this paper is to reflect critically on the IAIA follow-up principles with an aim to revise and update them as appropriate, to reflect advances in the field. In Section 2 we outline our methodological approach to the revision of the principles. This is followed by reflections on the framing of the principles (Section 3), before we move onto a detailed critique of each principle (Section 4). We then propose revised principles (Section 5), before ending with some concluding remarks (Section 6).

2. Methods

The starting point for our research is the current IAIA follow-up principles. We systematically examine each section or sub-section of this document in turn. Several methods underpin this review.

Firstly, we hosted workshops at two annual conferences of IAIA, attended by 29 and 33 participants respectively, in which we sought participant feedback on the existing IAIA follow-up principles (2018 conference) and on some initial proposed revisions (2019 conference). This iterative workshop approach is similar to how the principles were originally derived. Secondly, we undertook a literature review, based upon works published since 2005. The analysis of the literature was informed by the issues raised in the workshop and formed an important component of the reflection and critique of the principles. Thirdly, and overall, we adopt a reflexive approach drawing upon our own established knowledge and experience of EIA follow-up (Pillow, 2003; Fox et al., 2007).

For the purpose of the literature review, we used the Scopus database to identify every publication that has cited Marshall et al. (2005). Using GoogleScholar, we identified every publication that has cited either Marshall et al. (2005) or the IAIA follow-up principles; the latter is not included in Scopus as it is a professional institute publication rather than an academic publication. We checked for other works on EIA follow-up cited in these publications. As of August 2020, Scopus recorded 58 citations of Marshall et al. (2005), comprising 51 journal papers and seven books or book chapters. On the same day, GoogleScholar recorded 110 citations of Marshall

et al. (2005), although some were found to be duplicates, and this sample included the same 58 works identified by Scopus. GoogleScholar also recorded 65 citations of the IAIA follow-up principles, many of which were again duplicates. A small number of journal papers and book chapters were included in the GoogleScholar records that were absent from the Scopus sample; the rest however were 'grey literature' sources including conference papers, technical or guidance reports and university student dissertations. Some items were not in English (these were ignored), were incomplete (e.g. sometimes just an abstract) or could not be retrieved (internet links not working).

Ultimately, 120 works formed the basis of our literature review, with those that provided relevant contributions to our review being cited in this paper. A limitation of this method is that not all works discussing EIA follow-up published post 2005 necessarily cite the two documents we targeted. Examples here include O'Faircheallaigh (2007) and Fitzpatrick and Williams (2020), which our research nevertheless identified through following citation trails and which have been incorporated into this paper.

Approximately half of the IAIA follow-up principles document, which runs to four pages, is introductory (or framing) text and the other half provides descriptions of 17 principles.

To guide the process of revision we applied the following decision considerations:

1. Consider perspectives expressed in literature, especially those published since the IAIA follow-up principles document.
2. Consider views expressed by workshop participants.
3. Keep framing text to a minimum, so that individual EIA follow-up principles are the central focus.
4. Only have one core idea per EIA follow-up principle.
5. Ensure that each core idea is fundamental to EIA follow-up.
6. Only express a core idea once (i.e. avoid overlap between principles).
7. Avoid overlap with the existing IAIA and IEA (1999) Principles of EIA Best Practice, unless it can be justified.

Regarding decision consideration 7, we previously noted that the 'basic principles' established in IAIA and IEA (1999, p3) already implicitly apply to EIA follow-up. This was also indicated by many workshop participants. Not wishing to duplicate the IAIA and IEA (1999) content, our goal was to focus on aspects of follow-up particular to this component of the EIA process. Where follow-up practice is demonstrably deficient (i.e. meaning that it should warrant strong advocacy) or the core idea is fundamental to follow-up (decision consideration 5), we were prepared to allow some overlap with the IAIA and IEA (1999) content. Workshop participants (in 2018) stressed the need for "some guidance, a 'toolkit', for shaping and implementing follow-up in practice", a point to which we return later.

3. Reflections on the framing of the Principles

Since their publication, the IAIA follow-up principles have not been challenged in the literature, nor did any participants in the two workshops we hosted challenge their substance. In the workshops, the definition and objectives of EIA follow-up as stated in the principles document were acknowledged, and discussion focused on strengthening the principles and practice of EIA follow-up in the following areas:

- improving accountability for follow-up and actual impacts (linking such accountability with corporate social responsibility and social license to operate);
- adding the issues of governance arrangements for managing the follow-up process itself (aligned with Pinto et al. 2019);
- employing linkages with (environmental) monitoring (e.g. big data, digitalization), evaluation and management activities;
- stressing the importance of social and environmental justice and legitimacy of decision-making;
- elaborating the linkage with tiering between different levels of decision; and
- the need for guidance to implement the principles in practice.

Some studies have used the IAIA follow-up principles as the basis for analysis of EIA case studies or jurisdictional arrangements (e.g. Jha-Thakur et al., 2009; Nadeem and Hameed, 2010; Bashour, 2016). One paper specifically used the principles, together with other publications on EIA follow-up, as the basis for deriving a specific set of ‘criteria for best practice follow-up’ (Pinto et al., 2019, p1) and then using these criteria to test a case study development project. Several other researchers (e.g. Moyer et al., 2008; Gachechiladze et al., 2009; Joseph et al., 2015; Fitzpatrick and Williams, 2020) appear to have adopted the principles, along with related content from other publications, by restating them as best practice principles in relation to their particular focus of interest (monitoring, SEA follow-up, overall EIA practice, and follow-up monitoring and adaptive management respectively). In these papers, engagement with content derived from the IAIA follow-up principles is not always explicitly noted, unlike the approach in Pinto et al. (2019).

Hereafter our discussion adopts the headings from the IAIA follow-up principles document. The remainder of this section pertains to the framing text, with the 17 principles being addressed in Section 4. We conclude each point of discussion with a statement of our recommendation for a revised set of follow-up principles.

3.1 What is EIA follow-up?

The IAIA follow-up principles document explains EIA follow-up in relation to monitoring, evaluation, management, and communication elements as per the definition reproduced in Section 1. The definition, originating from a similarly worded account of ‘EIA evaluation’ in Arts (1998, p7), was first posited in Arts et al. (2001) and appeared in several works leading up to publication of the principles. After the definition, each of the four elements was individually defined in the IAIA follow-up principles document. Pinto et al. (2019) noted that numerous research publications had subsequently adopted this conceptualisation of EIA follow-up, also remarking that they were ‘not aware of any alternative definition in common use’ (p3).

Pinto et al. (2019) used the four elements as a way of structuring and presenting their best practice criteria. However, they found it useful to ‘divide the management dimension into: arrangements for managing the follow-up process (governance); and arrangements for managing the impacts themselves (management)’ (p3). Thus, their paper ultimately established five EIA follow-up elements: monitoring, evaluation, management, communication, and governance. When deriving best practice criteria (24 in total) from the 17 EIA follow-up best practice principles in the IAIA follow-up principles document, Pinto et al. (2019) grouped these under the five elements. Each principle was critiqued in some detail drawing upon ideas from other published EIA follow-up literature. This resulted in some implied changes to the conceptualisation of EIA follow-up as expressed in the principles document, which we highlight when we review individual EIA follow-up principles below.

In preparation for the IAIA conference workshop in 2019, the two lead authors adopted ideas put forward in Pinto et al. (2019) and presented modified definitions of the original four elements plus a definition for governance. This led to considerable debate amongst workshop participants! A key point was that trying to explain EIA follow-up using the definition reproduced at the start of this paper along with further definitions of the five elements used in Pinto et al. (2019) seemed to generate confusion. One workshop participant pointed out that the objectives of EIA follow-up are not defined by the five elements (i.e. which is implicitly how we had presented it), but rather that these elements collectively describe how the objectives of EIA follow-up are accomplished. We agree.

Recommendation 1: a revised definition of EIA follow-up is warranted that emphasises the objectives of follow-up rather than the process

3.2 Objective of follow-up

Despite the title given to this section of the IAIA follow-up principles, it does not provide any clear statements representing objectives or goals of follow-up (e.g. relative to the text of Principle 1 presented later, which addresses one 'goal' for follow-up). Instead, what is described are 'three conceptually different approaches to EIA follow-up' (Morrison-Saunders et al., 2007, p1) in relation to micro, macro and meta scale considerations explained previously. Here we focus solely on micro-scale which was expressed as follows:

Monitoring and evaluation of EIA activities (micro-scale). This is conducted on a project by project basis and relates directly to specific components of EIA (or SEA) such as impact prediction, impact monitoring, compliance auditing, and implementation of mitigation and environmental management actions. A key question: *Were the project and the impacted environment managed in an acceptable way?* (Morrison-Saunders et al., 2007, p1)

Workshop participants raised some issues with this conceptualisation. One pointed out that this depiction of EIA follow-up 'lacks any sense of accountability regarding EIA outcomes or whether an EIA was carried out in an acceptable way'. The question was raised as to whether the objective of follow-up should include something about legitimacy or justice to encapsulate a sense of accountability. The recently revised Canadian impact assessment legislation identifies 'improved transparency, coordination and accountability' (Doelle and Sinclair, 2019, p3) as key to a robust follow-up process, while Joseph et al. (2015) include 'enforcement' (p241) in their framing of EIA follow-up. We return to the matter of enforcement later on.

Another related workshop comment was that follow-up offers the opportunity to correct a poor EIA. This resonates with Tung (2017) who frames follow-up as being an important aspect of taking a precautionary approach to EIA as it is intended that proponents 'monitor the operation of the approved activity...[and]... report publicly on the environmental consequences and outcomes associated with their activities' (p249). Similarly, Fraser and Russell (2016) argue that a critical function of EIA follow-up lies in addressing, reducing or resolving uncertainty in EIA in relation to predictions and other components of the pre-approval decision. These points also relate to the role of EIA follow-up in adaptive management (see the seminal work of Holling, 1978), a topic we address later on.

Another idea from the literature is the notion that EIA follow-up might be 'simultaneously a participatory exercise, a scientific process and a decision-support tool designed to gain

understanding of changes in complex systems' (Moyer et al. 2008, p654). These facets of follow-up also feature later on in our discussion of components of the Principles.

All of these ideas from the literature, workshop discussions and initial principles documents (Marshall et al., 2005 and Morrison-Saunders et al., 2007) pertain to approaches to EIA follow-up, as noted at the outset of this section, rather than objectives per se (e.g. relative to the manner in which objectives of EIA are presented in IAIA and IEA, 1999). The discussion in Section 3.1 concluded that an appropriate definition of follow-up should be framed in terms of objectives of follow-up rather than in terms of process (Recommendation 1). This would mean that separate objectives would not be necessary.

Recommendation 2: Objectives of follow-up should be incorporated into a new definition (see Recommendation 1), and do not need to be articulated separately.

3.3 Who does follow-up?

This section of the IAIA follow-up principles document notes that EIA follow-up can take many forms and be carried out by different stakeholders. The notion of 1st, 2nd and 3rd party follow-up is explained in the document corresponding to practice carried out by proponents, regulators or community representatives respectively (originally conceived and presented in Morrison-Saunders et al., 2001). These forms of follow-up may occur simultaneously or be integrated. For example, Tung (2017) maintains that 'inter-sectoral cooperation by the regulator, proponent and community is also necessary' (p250) to effectively operationalise EIA follow-up. The role of different stakeholders generated considerable discussion by workshop participants, highlighting in particular the value of having active community participation in follow-up, a topic that is also addressed in the literature. For example, Devlin (2011) outlines an approach to 'community based environmental monitoring' (CBEM) where proponents 'should invite key environmental groups in the community... to participate in a consultation process intended to create the appropriate CBEM groups for the E[I]A follow-up program' (p26). In a similar vein, Devlin and Turbino (2012) insist that 'institutionalizing continuous participation' (p112) in follow-up is warranted so that there is 'persistent community oversight... [and] participatory monitoring' (p112). We return to this consideration later on.

The value of having independent auditors and verifiers engaged in EIA follow-up is addressed in Ross (2004), Wessels and Morrison-Saunders (2011) and Wessels et al. (2018), with Wessels et al. (2015) arguing that such stakeholders 'disclose information; facilitate discussion among stakeholders; are adaptable and proactive; aid in the integration of EIA follow-up with other programs; and instil trust in EIA enforcement by conformance evaluation' (p178). A stronger stand is taken by Joseph et al. (2015) who maintain that in best practice EIA, 'monitoring is performed by an independent body' (p241) while Rathi (2019) advocates for 'mandatory third party audits' (p435). As also discussed in the workshops, these perspectives are arguably stronger and more specific than the notion of 'independent action by community members' (Morrison-Saunders et al., 2007, p2) mentioned in the IAIA follow-up principles document. Underscoring these considerations of independence in EIA follow-up, we suggest, lies a desire for transparency and credibility; i.e. two well established principles of EIA more generally (IAIA and IEA, 1999).

Indigenous (also referred to as Aboriginal or First Nations) Peoples are another particular stakeholder group singled out both by workshop participants and recent EIA follow-up literature. An IAIA best practice guide aiming 'to promote a meaningful integration of traditional knowledge as well as the respectful incorporation of Indigenous Peoples in impact assessment' (Croal et al.,

2012, p1) implicitly encompasses follow-up practice. More explicitly, Muir (2018) maintains that 'Aboriginal cultures are often inadequately accounted for in many ex-post plans of development activities and projects' (p186) and advocates for 'collaborative planning and assessment processes that in turn may also increase the blending of TEK (traditional ecological knowledge) and science into ex-post plans' (p200) to ensure that the 'other ways of knowing' (p200) characteristic of Aboriginal peoples become part of EIA follow-up practice. Solbar and Keskitalo (2017) similarly highlight the value of 'non-scientific types of experiential knowledge' (p67) being incorporated into EIA follow-up. O'Faircheallaigh (2007) points out that with 'base line data over a time frame stretching back well beyond the start of the proponent's environmental monitoring activity; the capacity to understand complex natural processes ... and a capacity to develop effective solutions to impacts that are unanticipated or have not previously been observed' (p324) indigenous TEK can play an important role in delivering 'effective EIA follow-up and adaptive management' (p324).

Upon reflection, we now question the extent to which an account of who does follow-up belongs in a set of best practice principles. For example, the IAIA and IEA (1999) best practice principles document does not identify roles of different stakeholders within EIA. This might be a topic specifically addressed in a subsequent guidance document on follow-up as was also suggested by workshop participants. In this case, we would advocate that such guidance gives consideration to Indigenous Peoples (where relevant) and the role of independent verifiers in addition to the proponent, regulator and community stakeholders.

Recommendation 3: An account of the individual roles within EIA follow-up should not be included in a revised IAIA follow-up principles document; transparency and accountability should each be addressed in an individual principle (as per Recommendations 6, 11 and 14). The roles of the various parties might be addressed in a subsequent guidance document.

3.4 Operationalizing EIA follow-up

This closing section of the IAIA follow-up principles document noted a need for education and capacity building for EIA follow-up. It ended with:

There is no single "right" way to conduct EIA follow-up; it can and should be adapted to suit the evolving needs of stakeholders, activity type and EIA system in question. Whatever approach is adopted, the management controls promoted through EIA follow-up should strengthen the overall structure and process for EIA, contributing to the disciplines involved and improving EIA practice and systems (Morrison-Saunders et al., 2007, p4).

Commentary in the literature pertaining to the conduct of EIA follow-up includes advocacy for 'mandatory data collection standards [and] national guidance on ex-post evaluation' (Nicolaisen and Driscoll, 2016, p22), and there is also an implication for mandatory enforcement of EIA follow-up within the account of Joseph et al. (2015) mentioned previously (a point we return to later). We generally agree with these perspectives, recognising them as being aspects of good practice. Notwithstanding this, follow-up practice clearly needs to reflect the local cultural and institutional arrangements as reflected in Principle 4 (discussed later on). While we do not believe that it is appropriate to prescribe particular standards or approaches to operationalizing follow-up on a global basis, it is important to include a principle regarding implementation of follow-up that aspires to the development and application of appropriate standards. At the very least EIA follow-up programs should be 'rigorous' and 'credible' (i.e. two of the basic principles for EIA in IAIA and IEA, 1999).

Recommendation 4: Framing text on operationalizing follow-up should not be included in revised IAIA follow-up principles; salient content regarding the importance of contextualising follow-up standards should be retained in a Principle.

4. Critiquing the individual best practice principles

As indicated previously, 17 best practice principles for EIA follow-up are outlined in the IAIA follow-up principles document. The first six are identified as ‘guiding principles’ and the remaining 11 as ‘operating principles’ (Morrison-Saunders et al., 2007, pp2–3). Previously Marshall et al. (2005) presented them under the four headings of Why?, Who?, What? and How? which resulted in a different sequence of the principles although the wording of each individual principle is identical. Here we address each in the sequence utilised in the IAIA follow-up principles document along with our reflections and recommendations regarding revision. This section ends with a set of revised principles that we suggest could form the basis of a new version of the IAIA follow-up principles document. These are cross-referenced against recommendations made in this section.

In the following sub-sections, each principle and its explanatory text is first reproduced from Morrison-Saunders et al. (2007), and is followed by our reflections.

4.1 Guiding Principles

1. Follow-up is essential to determine EIA (or SEA) outcomes.

Follow-up has the same goal as EIA, namely to minimize the negative consequences of development and maximize the positive. The emphasis is on action taken to achieve this goal. EIA has little value unless follow-up is carried out because without it the process remains incomplete and the consequences of EIA planning and decision-making will be unknown. By minimizing the negative and maximizing the positive outcomes, EIA follow-up can safeguard environmental protection (p2).

Principle 1 positions follow-up as being an essential enabler of EIA goals being achieved. Workshop participants strongly endorsed this sentiment. Pinto et al. (2019) identified a governance aspect here in regard to simply knowing that follow-up is or should be taking place, and a management aspect around achieving substantive environmental protection outcomes from follow-up. Upon reflection, we suggest that such content does not sit well as a principle per se, but could be reflected in revised objectives for follow-up to be incorporated into a revised definition.

Recommendation 5: Principle 1 should be removed; relevant content should be incorporated into revised definition for follow-up (as per Recommendation 1).

2. Transparency and openness in EIA follow-up is important.

All stakeholders have a right to feedback on the EIA process. Actions and decisions resulting from EIA follow-up should be fair, transparent and communicated directly to stakeholders. Beyond the informing role, active engagement of stakeholders in follow-up processes is preferable with genuine opportunities for involvement (p2).

Transparency is a principle within IAIA and IEA (1999) for all EIA practice as well within the *Aarhus Convention on Access to Information, Public Participation and Access to Justice in Environmental Matters* (United Nations Economic Commission for Europe, 1998), where it relates both to clarity

of communication about the process and ease of access to EIA information. Transparency and accountability are also important to follow-up, as advocated by Doelle and Sinclair (2019), Devlin and Turbino (2012) regarding participation and community oversight, and Muir (2018) for collaboration in follow-up with community, especially where Aboriginal people are affected. Hollands and Palframan (2014) advocate 'better communication between stakeholders throughout the life cycle of the project' (p51). The need for better communication about follow-up was also stressed by workshop participants. Similarly, Gachechiladze et al. (2009), Fonseca and Gibson (2020) and Fitzpatrick and Williams (2020) all emphasise the importance of both transparency and ease of access to EIA follow-up outcomes. Tung (2017) takes a stronger position calling for 'unrestricted access to information on environmental conditions to different user groups' (p249); a position also held by Nicolaisen and Driscoll (2016) who note that 'data archiving and retrieval is a widespread problem' (p1) even where there are legal mandates to do so. We have observed this too as a deficiency of practice too, even in jurisdictions with reputations for good EIA practice. In the account of Pinto et al. (2019) this principle fell within the Communication element, and the authors further noted that it overlaps or intersects with Principles 9 and 11. In our own experiences with EIA practice, we find the follow-up stages to be the least transparent and the least accessible.

Recommendation 6: The essence of Principle 2 should be retained, emphasising that both transparency and accessibility of EIA processes should extend into follow-up (as per Recommendation 3). [New Principles E and F].

3. EIA should include a commitment to follow-up.

A clear commitment to undertake EIA follow-up is needed with all parties accountable for their actions. A follow-up program needs to be provided for in the pre-decision EIA process and carried out post-decision. Thus follow-up commitments relate to program preparation and implementation of monitoring, evaluation, management and communication as necessary (p2).

As indicated previously, workshop participants considered follow-up to be an essential component of EIA, and endorsed the notion that EIA should include an explicit commitment to follow-up. We agree, especially since Morrison-Saunders (2018) noted, citing seven other works expressing similar sentiments, that 'unfortunately EIA follow-up has been regularly identified as being largely neglected in practice' (p71). A general lack of effective implementation of follow-up was also reiterated many times during the workshop discussions, by practitioners from many different jurisdictions worldwide. To a large degree, however, this principle should be redundant. As explained previously, the IAIA and IEA (1999) best practice principles already ascertain that follow-up is and should be a fundamental part of EIA.

Recommendation 7: Principle 3 should be removed; relevant content should be incorporated into framing content.

4. Follow-up should be appropriate for the EIA culture and societal context.

There is no single formula for undertaking successful EIA follow-up. It should be custom-made for the legislative and administrative, socio-economic and cultural circumstances; and dovetail with existing planning, decision-making and project management activities. There may be no need to invent completely new procedures for EIA follow-up as other mechanisms may suffice; for example, environmental management systems (EMS) or state of environment reporting (p2).

Principle 4 has much in common with the text on operationalizing EIA follow-up described in Section 3.4. Upon reflection, however, the notion of 'no single formula' or being 'custom-made' (in Principle 4 above) may be at odds with the pursuit of developing universal principles. As Pinto et al. (2019) observed: 'to allow comparability across jurisdictions, international best practice should be the benchmark, notwithstanding that legal compliance locally may be less or more stringent than this' (p7). They subsequently excluded this principle from their best practice criteria. Our view is that it is important to acknowledge that follow-up must be appropriate to local culture and context (a point emphasised throughout Morrison-Saunders (2018) for all aspects of EIA practice).

Recommendation 8: Principle 4 should be retained in an appropriate form (see also Recommendation 4). [New Principle B].

5. EIA follow-up should consider cumulative effects and sustainability.

Application of EIA follow-up at the individual project level is intrinsically limited in terms of dealing with cumulative effects of multiple developments and sustainability issues. This may necessitate application beyond the individual project level; for example, strategic level or area-oriented approaches (p2).

We observe that the 'operating principles' of IAIA and IEA (1999) advocate that EIA processes should address 'biophysical impacts and socio-economic factors... and cumulative effects consistent with the concept and principles of sustainable development' (p4). In addressing Principle 5, Pinto et al. (2019) assigned this to the monitoring element of follow-up noting that such efforts should 'reflect and be proportional to impact significance' (p10). Acknowledging that there is a large and long-standing literature on the challenges associated with cumulative effects assessment, which also underscores the importance of doing it effectively to advance EIA practice, we believe it is appropriate to include a principle on this relating to follow-up.

With regards to sustainability, this is often an underlying objective of EIA overall (e.g. IAIA & IEA, 1999; UNEP, 2018) and thus the notion that follow-up should consider this is already implicitly applied. While the notion of sustainability assessment follow-up at the project level is explored in Morrison-Saunders et al., (2014), which could in turn lead to a suite of specific sustainability-oriented principles, we consider that a simpler approach is warranted in the context of the Principle 5 as expressed above. Where cumulative effect refers to impacts on the same component of the environment from multiple activities of the proponent and of others in the region, we suggest that what is meant by sustainability here is the overall performance of the proponent's project, taking into account all activity impacts together. There is a long-standing criticism that EIA processes and practices tend to be 'reductionist' (Morrison-Saunders, 2018 p142) by treating each impact in isolation. In the jurisdiction of Western Australia, recent practice has emphasised the need to include 'a holistic assessment of the acceptability of the whole project' (EPA, 2020, p35) during pre-approval EIA. We suggest that follow-up should be directed to an equivalent evaluation of overall performance of the activity.

The second part of the explanatory text for Principle 5 reproduced above extends the scope of EIA follow-up beyond the micro-scale alone, and hence is beyond our intended frame of consideration in working towards revised principles.

Recommendation 9: Principle 5 should be the basis of two new principles, reflecting the importance of cumulative effects and an overall perspective of impacts, respectively. [New Principles N and O].

6. EIA follow-up should be timely, adaptive and action oriented.

Adaptability and pro-activity are key to maximizing the benefits of EIA follow-up as environmental management issues are best tackled in this way. Monitoring data collection and evaluation activities should be sufficiently frequent such that the information generated is useful to stakeholders, but not so frequent as to be a burden to those implementing the process. Actions must be efficacious to meet the defined goals of EIA follow-up programs (pp2–3).

The need to give consideration to the timeliness of EIA activities is accounted for by IAIA and IEA (1999) when outlining the aims of their best practice principles. We therefore do not consider it warrants inclusion in revised EIA follow-up principles in this manner.

The notion of follow-up being 'action oriented' and 'useful' in the original explanation reproduced above implies that follow-up is intended to inform ongoing environmental management actions. In the workshops participants stressed the importance of the timing of EIA follow-up activity, such that monitoring data are available to inform management approaches as pro-actively as possible. Monitoring and auditing efforts will typically be directed towards predicted impacts and associated mitigation measures identified within pre-approval decision EIA documents. This approach enables testing and evaluation of performance in relation to expected outcomes.

Principle 6 also introduces the adaptive management concept for the first time, and as pointed out by Pinto et al. (2019) it also appears in Principles 13, 16 and 17. While being adaptive is also a basic principle for EIA best practice (IAIA and IEA, 1999), the notion of adaptive management is so fundamental to EIA follow-up (e.g. Morrison-Saunders et al. 2004b) we believe it warrants attention in the revised principles, but in a consolidated manner. This is because it is a topic that has attracted considerable focus in its own right with several works focusing specifically on it (e.g. Morrison-Saunders et al., 2004b; Devlin, 2011; Lee and Gardner, 2014; Fitzpatrick and Williams, 2020) or otherwise devoting considerable content to it within broader discussion of follow-up (e.g. Arts et al., 2001; O'Faircheallaigh, 2007; Pinto et al., 2019).

However, best practice would ideally also enable unexpected consequences to be revealed and to be addressed as appropriate (i.e. subject to a significance test as per all phases of EIA), to enable effective adaptive management. Pinto et al. (2019) note mechanisms such as complaints systems and other 'supplementary monitoring undertaken by other stakeholders' (p11) as means for identifying such matters, notwithstanding observations a proponent may make. This level of detail is addressing EIA follow-up techniques, rather than higher level principles, however, and therefore should not be reflected in revised follow-up principles. The key point here is that adaptive management is about realising learning and continuous improvement in and through EIA follow-up.

Recommendation 10: Principle 6 should be replaced with a new principle focused on adaptive management. [New Principle K].

4.2 Operating Principles

7. The proponent of change must accept accountability for implementing EIA follow-up.

As the polluter, proponents must pay careful consideration to the consequences of their actions and the necessity of EIA follow-up. They should be responsible for the mitigation of adverse effects and for the communication of follow-up results to stakeholders.

Proponents should take advantage of the benefits of EIA follow-up as a project management instrument and to realize cost savings (p3).

The 'polluter pays' principle is one of the older principles promoted in international environmental law (Hey, 2016, p76) and 'underpins EIA thinking' (Morrison-Saunders, 2018, p24). Workshop participants concurred, but also noted some challenges in practice regarding the common practice in large projects of proponents 'transferring' follow-up responsibilities to subcontractors. As we noted previously, EIA follow-up involves a range of stakeholders in sometimes inter-related ways. In Pinto et al. (2019) this principle was related to the Governance aspect of EIA follow-up where they indicated that proponents 'accept responsibility for the follow-up process and accountability for the environmental impacts of the development' (p16). They also included best practice criteria regarding the role of EIA regulators and other stakeholders. We consider the role of individual EIA follow-up stakeholders to fall outside the ambit of EIA follow-up principles (notwithstanding it might usefully be included in a supporting guidance document, see Section 3.3). Such an approach would be consistent with the other best practice principles in the series published by IAIA which address the whole community of impact assessment practitioners for the relevant topic collectively and do not single-out particular stakeholders. In line with workshop discussions, however, we do recognise the importance of explicitly addressing accountability for EIA follow-up (Recommendation 3), if not the roles other stakeholders might play.

Recommendation 11: Principle 7 should be combined with Principle 8 below to reflect the importance of accountability for EIA follow-up. [New Principle G].

8. Regulators should ensure that EIA is followed up.

Regulators should determine the need for EIA follow-up and ensure that it is implemented well. This comprises meeting regulatory requirements, securing a balance between the interests of both proponent and community, ensuring proponent compliance and promoting learning from experience. Where the regulator is also the proponent, the competing roles of developer, funder, provider and decision-maker should be clearly distinguished to avoid conflicting interests (p3).

As with our previous point, the EIA follow-up principles should not address individual stakeholders. Regulatory requirements will be context specific (i.e. vary between jurisdictions) and this matter was discussed previously (Recommendation 8). The issue of carefully dealing with conflicts of interests is related to governance and is a relevant component for the framing content. The learning component is relevant to Principle 11 and is addressed later on.

Recommendation 12: See Recommendation 11.

9. The community should be involved in EIA follow-up.

At the very least, the community should be informed of EIA follow-up outcomes, but direct community participation in follow-up program design and implementation is desirable. Benefits may flow from active community involvement in EIA follow-up including sharing of special local knowledge, focussed program design, building trust and partner-ships (p3).

We previously discussed the roles of different stakeholders, including the community, in Section 3.3, where we concluded that it is not appropriate to outline the various roles different stakeholders might play in follow-up in a set of principles. Principle 10 (below) already specifies that the community should, as a principle, be a participant in the follow-up process. We reiterate that details on the nature of that participation will best be explained in a separate guidance document.

Recommendation 13: Principle 9 should be removed.

10. All parties should seek to co-operate openly and without prejudice in EIA follow-up.

Proponent, regulator and community interests are often intertwined, and their cumulative interest should initiate practicable and reasonable EIA follow-up programs. Despite individual interests, EIA follow-up will be successful where a shared sense of purpose to avoid, reduce, or remedy adverse environmental effects is acknowledged. Participants to the EIA follow-up process should seek consensus on procedural and methodological approaches. All parties must be committed to carrying out their required tasks and to respond constructively to the findings of EIA follow-up (p3).

Workshop participants pointed out that Principle 10 relates closely to the governance of EIA follow-up and as such to Principle 12. As framed above, it addresses all stakeholders simultaneously, which is generally in keeping with other IAIA best practice principles as noted in relation to Principle 9 (albeit the text here identifies different parties in turn). One workshop participant suggested that attention be given to issues of power differences for different stakeholders and ensuring just outcomes. Upon reflection, we consider that this principle relates to EIA in general and is not specific to follow-up and is therefore unnecessary here.

Recommendation 14: Principle 10 should be removed.

11. EIA follow-up should promote continuous learning from experience to improve future practice.

EIA follow-up should not be static; it should always strive to maximise learning from experience through active feedback. Thus good EIA follow-up requires good communication (p3).

Learning is fundamental to EIA follow-up and was discussed at some length during our workshops with practitioners. Learning occurs at different scales and in different contexts. Firstly, there is the learning in the context of ongoing project management. This is addressed in Principle 6 in relation to adaptive management. Secondly, there is learning to inform the management of other similar projects regardless of whether they are operated by the same or other proponents. For example, Joseph et al. (2015) advocate that 'Knowledge gained from monitoring and enforcement activities is recorded and transmitted to future E[I]As' (p241). Going further, Fitzpatrick and Williams (2020) advocate that 'to maximize learning, it is important to ensure that the results of any follow-up and monitoring program are available for integration into subsequent sustainability assessments, cumulative assessments, regional assessments, or subsequent Project specific E[I]As' (p17). This makes it clear that learning may also occur through tiering between specific strategic and project-based EIA activities, a point not reflected in the current principle and to which we return in Section 4.3. It may also occur at the macro-scale; for example, where performance of individual projects helps inform the re-design of regulations for EIA, though this application falls outside the scope of

this paper. We conclude this principle should be retained to reflect learning between decisions but that the topic of tiering in follow-up warrants further discussion (see Section 4.3).

Recommendation 15: Principle 11 should be retained in an appropriate form. [New Principle J].

12. EIA follow-up should have a clear division of roles, tasks and responsibilities.

A clear division of roles, tasks and responsibilities is required. The roles in EIA follow-up should be identified in pre-decision EIA documentation and subsequent EIA approvals and management systems. This should be set down as a series of clearly defined steps outlining tasks and responsibilities within and between the different parties, and all practitioners involved must be competent to their tasks (p3).

It returns to the theme of Who does follow-up?, although in this case with an emphasis on the division of roles and responsibilities. Fonseca and Gibson (2020) uphold a similarly worded principle when they state that best practice EIA follow-up ‘has clear assignment of responsibilities and resources for implementation of post-approval programs’ (Table 2, p7). Pinto et al. (2019) position it within the governance element; as such it has much to do with the specific regulations that apply in a jurisdiction.

Given our earlier decision that it is not appropriate or necessary to specify roles for different stakeholder groups at the level of principles (Recommendation 3), that accountability for EIA follow-up is covered by Recommendation 11, and it seems unnecessary to state that practitioners should be competent, we conclude that this principle is not necessary.

Recommendation 16: Principle 12 should be removed.

13. EIA follow-up should be objective-led and goal oriented.

To be most effective, EIA follow-up should seek to achieve defined objectives or goals, which may include:

- (i) Controlling of projects and their environmental impacts
- (ii) Maintaining decision-making flexibility and promoting an adaptive management approach to EIA and project management
- (iii) Improving scientific and technical knowledge
- (iv) Improving community awareness and acceptance of projects
- (v) Integrating with other information (e.g., state of the environment reports or EMS).

This is an integral task of scoping in EIA follow-up (p3).

The relevance of having clear objectives for EIA follow-up was emphasised in the workshops and also features in literature. For example, Fitzpatrick and Williams (2020) establish ‘Clarifying the purpose of follow-up and monitoring’ (p16) as their lead aspect of best practice. We agree with this suggestion and consider that this is sufficient. The topics of adaptive management and learning (i.e. ‘improving knowledge’) have been addressed in previous principles, while it does not seem necessary specify that something should achieve its goals. Reflecting Principle 4, we note that follow-up objectives may vary depending on jurisdiction and context.

Recommendation 17: Principle 13 should be reframed to highlight the importance of clarifying the objectives of follow-up processes in a specific context. [New Principle A].

14. EIA follow-up should be "fit-for-purpose."

EIA follow-up must be commensurate with the anticipated environmental effect. As each project is unique in terms of specific design, location and affected stakeholders, so too must EIA follow-up programs be tailored to the proposed activity, its stages and dynamic context. To maintain focus, ongoing scoping is needed in EIA follow-up. There is also a need to keep EIA follow-up practicable and feasible—to focus on the "art of the possible" (p3).

Much of the content within Principle 14 has been addressed previously in relation to context (Principle 4; Recommendation 8) and being adaptive (Principle 6; Recommendation 10). Where the latter promotes adaptive management as an activity in its own right, here there is acknowledgement that EIA follow-up processes themselves should be dynamic or flexible and thus able to be adapted as necessary (a point also raised in the workshops). We consider this appropriate to retain. Scoping is addressed in Principle 16 (and Recommendation 20).

Recommendation 18: The notion of follow-up being flexible should be retained and incorporated into a new principle [New Principle L].

15. EIA follow-up should include the setting of clear performance criteria.

Performance criteria used in EIA follow-up actions or programs should be rigorous and reflect best practice. This should be enacted through well-defined methodologies or approaches to monitoring, evaluation, management and communication. Such actions should produce useful information and outcomes which can be easily measured, and unambiguously appraised against clear criteria (p3).

Principle 15 relates to clear environmental outcomes as the basis for follow-up activities. Pinto et al. (2019) assigned this principle to the evaluation element of EIA follow-up (notwithstanding mention of the other elements), adopting slightly modified wording of the headline principle as a best practice criterion. Lee and Gardner (2014) note that adaptive management is predicated on determining 'substantive limits on project impacts' (p247) during project assessments that are binding (e.g. in EIA approval conditions) so as to 'provide clear boundaries within which adaptive management may occur' (p248). Previously Au and Hui (2004) had noted the importance of having 'Environmental Quality Performance Limits' (p214) established within EIA follow-up, while more recently Fitzpatrick and Williams (2020) similarly noted the importance of including 'metrics through which success (or failure) [of EIA follow-up] is established' (p12).

Recommendation 19: Principle 15 should be retained. [New Principle H].

16. EIA follow-up should be sustained over the entire life of the activity.

The need for and content of EIA follow-up should be determined early, for example, during screening and scoping during EIS preparation. EIA follow-up actions or programs should cover not only the design and construction of a development, but also the operation and where relevant the decommissioning phase. It should not be restricted to one specific life stage of development. EIA follow-up must also be responsive to long-term and short-term environmental changes (p3).

The existence of follow-up is a reminder that EIA does not end with the approval decision. As noted in Morrison-Saunders (2018):

Proponents are expected to implement their development and mitigation measures, and to account for outcomes through monitoring and other follow-up activity. The notion of EIA thus continues throughout development implementation into operation and, where relevant, decommissioning and restoration of the area to an agreed post-development land use. (p13)

We consider this to be an important aspect of EIA to emphasise in revised principles. At the same time though, Principle 16 largely serves to describe the role of EIA follow-up and it overlaps in part with Principles 6, 11 and 13 around the notions of learning and adaptive management.

One important aspect of Principle 16 that is implied only concerns the early determination of need for EIA follow-up which ought to be part of the screening and scoping stages of EIA (Arts and Meijer, 2004; Baker, 2004; Arts et al. 2011). Workshop participants emphasised that follow-up is an intrinsic part of the full life-cycle for plans and projects, in the sense that that consideration of follow-up needs should commence early in the EIA process (e.g. during the screening and scoping stages) and thereafter be acted on as appropriate.

Recommendation 20: Principle 16 should be represented by two new principles to captures plan or project lifecycle applications and emphasise the role of screening/scoping stages of EIA in follow-up. [New Principles C and D].

17. Adequate resources should be provided for EIA follow-up.

EIA follow-up must be cost-effective, efficient and pragmatic. Time, staff and capacity needs must be appropriately provided for in advance. EIA follow-up should be done to best practice standards and should ensure that real actions are taken adequately when needed (p4).

Core principles for EIA generally are to be cost-efficient and efficient (IAIA and IEA, 1999), while the notion of upholding best practice standards appears to be unnecessary in a document purporting to advocate international best practice principles. There is also overlap with the timeliness of follow-up discussed under Principle 6. As such Principle 17 appears to be redundant. Nevertheless, workshop participants indicated that resourcing of EIA follow-up is important in its own right; something we see does tend to get overlooked in practice with the undue focus on the approval decision (Morrison-Saunders, 2018). It is linked with Principles 1 and 3 regarding commitment to undertaking EIA follow-up in the first place, and perhaps best addressed within framing content.

Recommendation 21: Principle 17 should be removed but material relating to resourcing of EIA follow-up included in framing content.

4.3 Missing Principles

Workshop deliberations and our review of literature alike revealed some principles for EIA follow-up missing in the current IAIA follow-up principles. Here we address issues of enforcement and tiering in turn.

The IAIA follow-up principles document is silent on enforcement of EIA approval conditions and/or follow-up requirements. As a continuation of Principles 1 and 3 with respect to the importance of EIA follow-up, workshop participants were especially vocal around the need for enforcement to be emphasised. In the literature Joseph et al. (2015) put forward a ‘monitoring and enforcement’ category for ‘good practices’ in EIA advocating that ‘E[I]A is supported by compliance monitoring

and enforcement, as well as effectiveness monitoring and requirements for remedial action if mitigation is found ineffective or if unanticipated impacts occur' (p241). Fitzpatrick and Williams (2020) advocate for the inclusion of 'penalties for non-compliance' (p17) noting the follow-up 'should be enforceable'. They subsequently point out that while there can be various approaches utilised to 'promote "good behaviour", it is also important to identify the consequences for non-compliance' (p17). Fonseca and Gibson (2020) similarly advocate for EIA best practice regarding follow-up to include 'sanctions and penalties for post-approval noncompliance with conditions and environmental and sustainability legislation' (p7).

Recommendation 22: A new principle regarding enforcement is warranted. [New Principle I].

While the discussion of Principle 11 above notes that EIA follow-up for a particular development activity does not sit in isolation, but should inform other EIA processes, this can be taken further to embrace the concept of tiering. For example, Marshall and Arts (2005) addressed the issue of tiering in follow-up, meaning how best to filter follow-up activities from plan stage follow-up through to project stage follow-up, but also the other way around, how follow-up from individual projects can inform future plans and other strategic initiatives. Several authors emphasise the importance of tiering within impact assessment generally and explicitly link this with follow-up (for example, Therivel and González, 2021; Partidário and Arts, 2005; Wallgren et al., 2011; Arts et al., 2011; Cherp et al., 2011; Sánchez and Silva-Sánchez, 2008). Given the importance of this issue, and the lack of mention of tiering in the general EIA best practice principles (IAIA and IEA, 1999), we feel it is appropriate to include a relevant principle here; similar to the approach taken in Gachechiladze et al. (2009) and also Fitzpatrick and Williams (2020).

Recommendation 23: Incorporate a principle reflecting that follow-up activities and outcomes should inform and be informed by follow-up activities at other levels of decision-making (tiering). [New Principle M].

5. Towards revised EIA follow-up principles

Taking into account our seven decision considerations and 23 recommendations we arrive at revised content for the Principles document outlined below. It is presented as content to be incorporated into framing content and statements of each principle.

5.1 Framing content

What is EIA follow-up?

In line with suggestions made during the workshops and in Pinto et al. (2019), the original definition of EIA follow-up should be revised from four, to five elements: monitoring, evaluation, management, participation, and governance. Follow-up is a fundamental component of EIA and essential if outcomes of a plan or project subject to EIA are to be known. Thus, a commitment to follow-up should be present for every EIA whether this is through inclusion in legislative provisions for EIA or within individual approval decisions. This includes appropriate resourcing for all EIA follow-up undertakings.

Objectives of EIA follow-up

Revision of (the description of) the objectives of follow-up is warranted. Objectives or purposes of follow-up should be tailored to context, thereby reflecting jurisdictional requirements and/or the

norms and cultural characteristics under which EIA more broadly is undertaken in a given system. Understanding outcomes of EIA requires transparency, coordination, and accountability and may include enforcement provisions – relating to governance arrangements for managing the follow-up process itself. It utilises monitoring, evaluation, management and communication of performance to facilitate learning. This in turn can be used to understand the effectiveness of EIA processes (e.g. impact prediction, monitoring, mitigation) along with actual environmental outcomes (e.g. impacts that occurred or were avoided) that can be applied in ongoing project management as well as in other future EIA applications. Other purposes include opportunities to engage stakeholders, including assigning roles and responsibilities for particular tasks to different actors.

5.2 Revised EIA follow-up best practice principles

We put forward 15 revised EIA follow-up best practice principles, based on our earlier recommendations.

EIA follow-up should:

A: state the objective of each EIA follow-up activity and the overall program.

B: be tailored to context.

C: commence early in the EIA process (e.g. during screening and scoping stages).

D: be carried out throughout the plan/project life-cycle.

E: be transparent.

F: be accessible to all EIA stakeholders.

G: provide clear accountability for EIA follow-up responsibilities.

H: provide clear, pre-defined and well-justified performance criteria.

I: specify enforcement provisions.

J: promote continuous learning from experience to improve future practice.

K: facilitate adaptive environmental management.

L: be flexible according to emerging needs.

M: inform and be informed by follow-up for other relevant activities at different levels of decision-making (tiering).

N: consider cumulative effects.

O: consider the overall effects of the proposal.

6. Conclusion – next steps

Through self-reflection, workshop discussions and literature review we have critically reviewed existing best practice principles for EIA follow-up and delivered a proposal for their revision. This process has culminated in some initial ideas for text to frame a revised set of principles, along with a list of 15 preliminary principles expressed in a succinct fashion. From here we will seek reactions from the international community of EIA academics and practitioners, either through papers published in response to our suggestions here and via ongoing workshops that we will host at conferences or other similar events. It is our intention to further refine, amend or otherwise improve the suggestions put forward in this paper through a consultative and adaptive approach. It is envisaged that ultimately a new set of EIA follow-up principles will replace the current document hosted by IAIA. We also intend to develop supporting guidance material that could inform implementation of revised principles by practitioners. To these ends, we welcome

reactions from the journal readership accordingly. Meanwhile we hope that the ideas presented in this paper may inspire or inform practitioners involved in EIA follow-up.

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