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# Sustainability Assessment

## - What is it and how do we do it?

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### Introduction and overview

- v Sustainability Assessment as a tool for sustainability
- v WA Government commitment to conducting sustainability assessment of all Government plans, policies, programmes, legislation, Cabinet submissions etc, as well as projects of state significance (State Sustainability Strategy)
- v What is sustainability assessment?
- v Not a simple question!
- v Aim of presentation is to provide a conceptual framework sustainability assessment
- v Provides a starting point for discussions, not the final word!
- v Examines different approaches to 'sustainability assessment' described in literature
- v Considers implications for developing sustainability assessment processes in Western Australia and elsewhere

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Literature is confusing

'Sustainability assessment' used to describe a range of very different processes

Other terms: sustainability appraisal (Sheate et al 2001), integrated sustainability appraisal

(Eggenberger and Partidario 2000), integrated impact assessment (Sheate et al 2003)

Paper attempt to categorise and examine the various approaches described in the literature

Authors generally environmental assessment experts, since sustainability assessment often considered the next generation of EA (Sadler 1999)

"Environmental assessment processes...are among the most promising venues for application of sustainability-based criteria. They are anticipatory and forward looking, integrative, often flexible, and generally intended to force attention to otherwise neglected considerations" (Gibson 2001, p1) although he also recognises that "environmental assessments are not the only vehicles for specifying sustainability principles, objectives and criteria" (Gibson 2001, p19).

Ultimate aim is to have everyone using the same language and meaning the same thing

Doesn't go as far as proposing step by step processes for sustainability assessment

Not intended to be the final word – discussion and debate very welcome!

## Some definitions

- v “Sustainability assessment is...a tool that can help decision-makers and policy-makers decide what actions they should take and should not take in an attempt to make society more sustainable” (Devuyst 2001)
- v “The aim of sustainability assessment is to ensure that plans and activities make an optimal contribution to sustainable development” (Verheem 2002)
- v But what does this mean in practice?

Definitions such as these encompass a broad range of processes  
Other definitions have been proposed that are more specific, reflecting a particular approach.  
One of these to be discussed later

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## Applications of sustainability assessment

- v To be an effective tool for sustainability, sustainability assessment should be applied:
  - o To proposed new initiatives at all levels of decision-making
  - o To existing practices across all sectors
  - o To the prevailing policy and legislative paradigm
  - o To any decision with the potential to impact on patterns of production and consumption; governance and settlement
  - o By all sectors of society, including:
    - v Government decision-makers
    - v Business
    - v Individuals and households

Body of work by authors such as Steven Dovers at ANU (Dovers 2002); Bryan Jenkins, David Annandale and Angus Morrison Saunders at Murdoch (Jenkins et al 2003), international environmental assessment specialists (Noble 2002; Devuyst 2001; Verheem 2002)

## Approaches to sustainability assessment

- v Three different approaches identified from literature:
  - o EIA-driven integrated assessment
  - o Objectives-led integrated assessment
  - o Assessment for sustainability
- v Consider:
  - o Origins
  - o Aim or purpose
  - o Contribution to sustainability
  - o Challenges, benefits and limitations
  - o Examples

Terminology is mine, but based upon the work of others  
Not intended to be a detailed presentation of these processes  
Focus is on the conceptual level – what are these processes aiming to do and are they useful as tools for sustainability?

## EIA-driven integrated assessment (1)

- v What is it?
  - o Based upon traditional environmental impact assessment (EIA)
  - o Addresses social and economic, as well as environmental issues
  - o Reactive process i.e. applied after a proposal has been developed
  - o Concerned with potential environmental, social and economic impacts of proposal

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EIA has been around in legislation for 30 years (Sippe 1999)

Usually applied to project proposals

Limitations:

Applied at late stage of decision-making, so many important decisions have already been made at higher levels of decision-making (Dalal-Clayton and Sadler 2002)

Doesn't usually adequately address cumulative impacts (Dovers 2002)

Rarely considers alternatives to a project

## EIA-driven integrated assessment (2)

### v Aims:

- o To identify environmental, social and economic impacts of a proposal
- o To compare these impacts with baseline conditions (e.g. 'do nothing' option)
- o To determine whether or not impacts are acceptable
- o To identify ways of making the impacts more acceptable:
  - v Modifications to proposal
  - v Mitigation of negative impacts

Based upon aims of EIA (see for example Devuyst 1999; Smith and Sheate 2001)  
Extended to include social and economic considerations as well as environmental ones

### EIA-driven integrated assessment (3)

- v Contribution to sustainability:
  - o Reflects a 'three pillar' or 'triple bottom line' approach to sustainability
  - o Conceptual model: three intersecting circles (environmental, social, economic)
  - o Aims to ensure that impacts are not unacceptably negative in any of the three areas
  - o Or in other words, aims to make sure the proposal doesn't make the world less sustainable

Term 'triple bottom line' coined by John Elkington (Elkington 1997)  
For the purposes of this discussion, will be considered an interpretation of sustainability whereby equal importance is placed on environmental, social and economic considerations



### EIA-driven integrated assessment (4)

- v Major challenge is integration:
  - o Combined impacts likely to be more than simple sum of impacts
  - o Need to consider relationships, synergies and conflicts between different impacts
  - o Difficult procedurally and institutionally
- v Benefits:
  - o Social and economic implications examined in more detail
  - o Any trade-offs are more transparent
- v Limitations:
  - o Trade-offs likely
  - o Does it make a real contribution to sustainability?

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In WA, don't have formal processes for social and economic assessment  
In jurisdictions that do environmental, social and economic assessments, likely to be undertaken by different departments, resulting in inconsistencies in method and paradigm (Lee 2002)

Eggenberger and Partidario suggest five levels of integration: substantive, methodological, procedural, institutional and policy, to be progressively implemented (Eggenberger and Partidario 2000)

Difficult to avoid trade-offs (Gibson 2001)

George (2001) and Lee and Kirkpatrick (2001) discuss the difficulties of integration in this form of assessment

EIA-driven integrated assessment (5)

- v Examples:
  - o 'Sustainability impact assessment' applied to international trade agreements
  - o Gorgon gas development assessment in Western Australia

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Application to new proposals, because embodies concept of assessment against baseline conditions (Sheate et al 2001 and 2003), usually the 'do nothing' option

George (2001) discusses sustainability impact assessment applied to international trade agreements

## Objectives-led integrated assessment (1)

- v What is it?
  - o Based upon objectives-led strategic environmental assessment (SEA) processes, which in turn developed from policy appraisal techniques
  - o Addresses social and economic, as well as environmental issues (like EIA-driven integrated assessment)
  - o Concerned with contribution of the initiative to defined environmental, social and economic objectives

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Strategic Environmental Assessment (SEA) broadly defined as the environmental assessment of policy, plans and programmes (i.e. higher levels of decision-making than projects) (Therival and Partidario 1996)

However, not all SEA is objectives-led. Some is just EIA applied to PPP's, or EIA writ large (Sheate et al 2003)

Noble describes the theoretical relationship between EIA and SEA as follows: "Ideally SEA and EIA are considered in sequence where SEA proactively examines a broad range of alternatives and selects the preferred course of action, and EIA is initiated "reactively" to determine in greater detail the potential impacts of the preferred alternative" (Noble 2000, p210).

Difference levels of decision-making (Partidario 2003):

Policy: Road-map with defined objectives, set priorities, rules and mechanisms to implement objectives;

Planning: Priorities, options and measures for resource allocation according to resource suitability and availability, following the orientation, and implementing, relevant sectoral and global policies;

Programme: Organized agenda with defined objectives to be achieved during programme implementation, with specification of activities and programme investments, in the framework of relevant policies and plans;

Project: A detailed proposal, scheme or design of any development action or activity, which represents an investment, involves construction works and implements policy/planning objectives

Objectives-led integrated assessment is derived from SEA, which is environmental assessment of PPP's; however, there is no reason why it cannot also be applied to projects as well.

Sheate et al 2001 and 2003 discuss the derivation of SEA from policy appraisal techniques  
Partidario 2003 emphasises the importance of integrating all forms of SEA within the decision-making process

## Objectives-led integrated assessment (2)

### v Aims:

- o To determine the extent to which a proposal contributes to defined environmental, social and economic goals
- o To identify the 'best' available option in terms of meeting these goals
- o To promote movement towards a societal 'vision' defined by these aspirational goals

Aims based upon aims of objectives-led SEA  
Second point emphasises the use of objectives-led assessment in a strategic decision-making process (Partidario 2003)

### Objectives-led integrated assessment (3)

- v Contribution to sustainability:
  - o Also embodies a 'three pillar' or 'triple bottom line' approach to sustainability (three circle model)
  - o Reflects vision of sustainability as a societal goal, or series of goals (environmental, social and economic) and measures contribution to goals
  - o Compatible with WA definition of sustainability: "meeting the needs of current and future generations through simultaneous environmental, social and economic improvement"
  - o Asks whether things get better, rather than just whether they can be prevented from getting worse

“Adopting contributions to sustainability as a key objective and test in environmental assessment clearly implies that minimization of negative effects is not enough. Assessment requirements must encourage positive steps – towards greater community and ecological sustainability, towards a future that is more viable, pleasant and secure” (Gibson 2001, p1).

Embodies the concept that sustainability is a state, which as a society we are aiming to reach. More than just not letting things get any worse, but trying to make things better.

### Objectives-led integrated assessment (4)

- v Challenges:
  - o Establishing objectives in the first place
    - v Consistent with each other
    - v Consistent across different levels of decision-making ('tiering'; 'trickledown' or 'vertical integration')
  - o Integration again, but now need to consider interrelations between different objectives rather than different impacts
- v Benefits:
  - o More positive than EIA-driven integrated assessment
- v Limitations:
  - o Do the triple bottom line objectives really reflect sustainability?

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Establishing a broad range of objectives that are compatible with each other is a challenging task (George 2001; Therivel 1996)

Concept of tiering means that assessments are conducted at the higher levels of decision making influence and guide those conducted at the lower levels. This should ensure that environmental issues are dealt with at the appropriate level, resulting in a streamlined process with minimal repetition (Therivel and Partidario 1996; Sadler and Verheem 1996; Marsden 2002; Nootboom 2000). Therefore, for tiering to work, objectives need to be consistent across sectors and between levels of decision-making (policies, plans, programmes and projects)

Many authors have pointed out that tiering does not work quite so ideally in practice (Nootboom 2000; Noble 2002; Jones 2003)

If objectives are established clearly up front, designers and decision-makers can seek synergies as they develop a proposal.

## Objectives-led integrated assessment (5)

v Examples:

- o UK Department of Environment, Transport and the Regions (DETR) 'sustainability appraisal' process for regional plans
- o 'Sustainability appraisal' defined as "a systematic and iterative process undertaken during the preparation of a plan or strategy, which identifies and reports on the extent to which the implementation of the plan or strategy would achieve the environmental, economic and social objectives **by which sustainable development** can be defined, in order that the performance of the strategy and policies is improved" (UK DETR)

UK DETR definition actually requires that the triple bottom line objectives used for the assessment define sustainability

George (2001) points out that they don't in practice, which leads into a discussion of what sustainability really is.

George (2001) also points out that the UK system does not require that the objectives are achieved, just that the extent to which they are achieved is assessed.

Could possibly also be applied to existing practices.

### 'Assessment for Sustainability' (1)

- v What is it?
  - o Largely a theoretical process (no real life applications at Government level)
  - o Asks the question: Is this initiative (proposal or existing practice) sustainable?
    - v Compare with EIA-driven integrated assessment: Are the 'triple bottom line impacts' acceptable?
    - v And objectives-led integrated assessment: Does this make a positive contribution to 'triple bottom line' goals?
    - v Both measure 'direction to target', or, are we heading the right way?
  - o 'Assessment for sustainability' asks: Are we there?
  - o Not necessarily a substitute for other forms of assessment

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'Distance from target' approach also possible at regional or national scale, perhaps using Bill Rees's 'ecological footprint' concept (Sadler 1999) While 'direction to target' approaches have their place, it has been suggested that they do not go far enough, and that assessment can make a greater contribution to sustainability than this (Fuller 2002; George 2001).

George (2001) proposes the approach of 'assessment for sustainability' after reviewing the UK DETR process, whereby regional plans are developed to meet certain TBL objectives and then assessed against different TBL objectives which are supposed to define sustainability (but don't, in his view).

He acknowledges the need for TBL objectives to guide planning, but calls for 'sustainability criteria' to be defined against which the assessment should be conducted.

Embodies the concept, not only that sustainability is a societal state to which we should be aspiring, but that it is a state that can be defined.

What does this state look like?

According to Dr Karl-Henrik Robert of The Natural Step: "When the global society is sustainable, pollution will no longer increase, nature will no longer be impoverished through physical degradation, and within that frame, human needs will be met globally" (The Natural Step 2001, p10).



## 'Assessment for Sustainability' (2)

- v Implications:
  - o Requires very clear vision of what sustainability really means
  - o Requires that this vision is translated into clear 'sustainability criteria'
  - o Assessment process then asks whether these 'sustainability criteria' are met
    - v If yes, then sustainable
    - v If not, then not sustainable

The use of 'sustainability criteria' implies clarity as to the 'rules' of the assessment, which is generally desirable, particularly for proponents (Gibson 2001)

While vagueness has advantages in terms of flexibility, these come at a cost (Gibson 2001)

### 'Assessment for Sustainability' (3)

- v Challenges:
  - o Agreeing on an interpretation of sustainability
  - o Defining 'sustainability criteria' (rules versus flexibility)
- v Benefits:
  - o Potentially makes most positive contribution to sustainability of models discussed
- v Limitations:
  - o Need to ask ourselves whether this is really what we want to do when we talk about 'sustainability assessment'
  - o Political will?

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Starting with a concept of sustainability and then defining it in terms of criteria can be considered a 'top-down' approach, whereas developing triple bottom line objectives reflecting improvement over the current situation is a 'bottom up' process.

Problem with bottom up process is knowing whether you have extended far enough to reach the goal of sustainability!

Interpretations of sustainability can vary considerably, which will become evident in the following discussion of alternative sets of sustainability criteria.

**'Assessment for Sustainability' (4)**

- v Starting points for development of sustainability criteria:
  - o 'Triple Bottom Line'
  - o Sustainability principles
- v 'Triple bottom line' approach:
  - o Promotes conflict between the three pillars
  - o May describe series of positive outcomes without describing sustainability (UK example)
  - o Reductionist (sum of the parts less than the whole)
- v Principles approach:
  - o May avoid some limitations of the 'triple bottom line'
  - o Rio Declaration principles versus more generic principles

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Already discussed whether triple bottom line objectives can define sustainability. George's work in the UK demonstrates that this is difficult. If attempts are made to assess for sustainability using goals or criteria that do not actually define sustainability, this could lead to false conclusions being drawn (Fuller 2002).

Inherent limitations of the triple bottom line as an interpretation of sustainability. Starting from three separate pillars tend to emphasise competition between different interests and encourage trade-offs (Gibson 2001) Integration is difficult, as already discussed.

"The sum of the parts is less than the whole" (Eggenberger and Partidario 2000), so must be sure we are defining the whole (difficult with a bottom up TBL approach)

Gibson points out that the three pillars "reflect more or less conventional modern disciplinary categories" (Gibson 2001, p7) whereas sustainability should be "necessarily an attack on conventional thinking and practice" (Gibson 2001, p6).

### 'Assessment for Sustainability' (5)

- v Example 1:
  - o Based upon principle of the Rio Declaration 1992
  - o Sustainability means intra- and intergenerational equity
  - o Intergenerational equity boils down to preservation of biodiversity and ecological integrity
  - o Terms of international conventions on climate change and biodiversity
  - o If no risk of irreversible damage, 'weak sustainability' can be applied and natural capital can be converted to other forms of capital
  - o 'Sustainability criteria' developed in accordance with this model of sustainability
  - o Applied retrospectively to several proposals as a trial
    - Clive George, University of Manchester

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Other Rio Declaration and Agenda 21 principles used include participation principle (Principle 10); the local communities principle (Principle 22); and the precautionary principle (Principle 15)

Precautionary principle should be applied to determine whether strong or weak sustainability should be applied.

George (2001) recommends strong sustainability (no conversion of natural capital) for climate change and biodiversity issues

Recognises that the terms of international conventions on climate change and biodiversity don't go far enough, but proposes them as a 'stepping stone'

## 'Assessment for Sustainability' (6)

v Example 2 - Environmental Sustainability Assurance:

- o Similar to Example 1, but more focused on preservation of biodiversity and ecological integrity

Principles upon which criteria are based are:

- v **Avoid irreversible changes;**
- v **No or minimal impact on critical resource and ecological functions;**
- v **No net loss or deterioration of natural capital;**
- v **Renewable resources should be depleted (harvested or used) at a rate equal to their regeneration;**
- v **Non-renewable resources should be depleted at a rate equal to their replacement by renewable substitutes;**
- v **Waste emissions should not exceed the assimilated capacity of the environment or cause harmful effects to human health;**
- v **Conserve biological diversity, comprising the variability of ecosystems, species and gene pools**

- Barry Sadler in Petts (Handbook of EIA)

## 'Assessment for Sustainability' (7)

- v Example 3 - The Natural Step:
  - o 'System conditions' for sustainability
    - v Substances from the earth's crust must not systematically decrease in nature;
    - v Substances produced by society must not systematically increase in nature;
    - v The productivity and diversity of nature must not be systematically deteriorated;
    - v Basic human needs must be met everywhere

The Natural Step (2001)

**'Assessment for Sustainability' (8)**

- v Western Australian sustainability foundation principles:
  - o Long-term economic health
  - o Equity and human rights
  - o Biodiversity and ecological integrity
  - o Settlement efficiency and quality of life
  - o Community, regions, 'sense of place' and heritage
  - o Net benefit from development
  - o Common good from planning
- v Could these form the basis of 'sustainability criteria' for 'assessment for sustainability'?
  - o Need context-specific criteria
  - o Need to ensure that criteria reflect sustainability

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Gibson (2001), in rejecting the triple bottom line as an interpretation of sustainability, proposes a principles-based approach.

"We have therefore chosen here to propose a slightly different approach – one that avoids constructing the edifice of sustainability criteria on the conventional pillars...The alternative, which is perhaps only superficially different from the pillar approach, is to begin not with categories based on the usual areas of concern (ecological, social etc.) but with a list of the key changes needed in human arrangements and activities if we are to move towards long term viability and well-being" (Gibson 2001, p8).

Gibson proposes criteria which are similar conceptually and substantially to the WA sustainability principles (foundation principles, as opposed to process principles) (Government of Western Australia 2002)

## Conclusions

- v The term 'sustainability assessment' (or something similar) used to describe range of different processes with different aims and different concepts of and contributions to sustainability
- v Need to be clear about what we mean by 'sustainability assessment':
  - o EIA-driven integrated assessment
  - o Objectives-led integrated assessment
  - o 'Assessment for sustainability'
- v Different approaches may be suitable for different applications
- v 'Assessment for sustainability' requires:
  - o Clear concept of what sustainability is
  - o 'Sustainability criteria' against which assessment is conducted

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