



Planning and assessment for biodiversity conservation at a landscape-scale: *an evaluation of current approaches and opportunities in Australia*



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Purpose of Report

The purpose of the report is to analyse the strengths and weaknesses of the range of mechanisms available for planning biodiversity conservation at a landscape-scale in Australia. Particular attention was made to strategic assessment and bioregional planning because of the strong emphasis on both as 'solutions' in the Hawke Review (2009b). The report informs the Landscapes and Policy Research Hub's development of tools, techniques and policy options to integrate biodiversity into regional scale planning. It is intended as a guide for policy makers on planning and management of biodiversity at a regional scale. The report was produced by Jenny Pope (Integral Sustainability) and Susan Moore (Murdoch University) for the Landscapes and Policy Research Hub, in consultation with the Department of Sustainability, Environment, Water, Population and Communities.

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Executive Summary

Recognition of the need for landscape-scale approaches to biodiversity conservation has been clear within an Australian policy context for at least 20 years. The potential of strategic assessment and bioregional planning to achieve both biodiversity and development outcomes has been recently highlighted in the Hawke Review of the Australian Government *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act 1999). This report reviews the strengths and weaknesses of the range of planning and assessment mechanisms available for planning for (and achieving) biodiversity conservation at a landscape-scale in Australia, and makes recommendations to support the appropriate and effective use of strategic assessment and bioregional planning under the EPBC Act 1999.

To this end, in addition to strategic assessment and bioregional planning, which are both voluntary mechanisms under the EPBC Act 1999, four further mechanisms are evaluated against a framework that includes process governance, content and implementation governance elements, using case studies where possible. The mechanisms and selected case studies are: Strategic Assessment (*Melbourne Growth Boundary*); Bioregional Planning (*South-west Marine Region Bioregional Plan*); Regional Forest Agreements (RFAs) (no specific case study); natural resource management (NRM)/catchment action plans (CAPs) (*Central West Catchment Action Plan*); NSW Strategic Regional Land Use Plans (SRLUPs) (*Upper Hunter Strategic Regional Land Use Plan*); and the Victorian Environmental Assessment Council (VEAC) investigations (*Remnant Native Vegetation Investigation*).

This report highlights that strategic assessment and bioregional planning under the EPBC Act 1999 have fundamentally different purposes. The purpose of a strategic assessment is to ensure the protection of biodiversity values in the face of planned action of some kind, as outlined in the policy, plan or program that is the subject of the assessment. It is therefore somewhat reactive, notwithstanding that ideally the strategic assessment and planning processes would be fully integrated. It is similar in many ways to regional forest agreements and the NSW Strategic Regional Land Use Plans. In contrast, the purpose of a bioregional plan is to proactively establish a framework for biodiversity management into the future, whether or not development of the type that might threaten biodiversity is conceived, in many ways aligning with the objectives of natural resource management plans/catchment action plans and the Victorian Environmental Assessment Council Remnant Native Vegetation Investigation. It is also important to note, however, that while natural resource management plans/catchment action plans articulate location-specific recommendations and actions, the recommendations of the Victorian Environmental Assessment Council Remnant Native Vegetation Investigation are largely focused at a strategic policy level and thus these two mechanisms are also quite different in their approach.

The analysis suggests inherent tensions between some of the comparative criteria against which the six mechanisms were compared; for example, the concept of adaptive management does not necessarily align well with the idea of the rigorous enforcement mechanisms that may be required in the face of development or other threats to biodiversity; a legal requirement to undertake a planning or assessment process may conflict with ideals of collaboration; the need for timeliness may affect the quality of ecological data collection and interpretation processes; and integration with development planning may compromise biodiversity objectives. Therefore, what is considered a strength or a weakness in each case depends on the context and the fundamental purpose or aim of a particular plan or process. Our findings are summarised as follows:

Finding 1: The strengths of bioregional planning are that: the boundaries of the plan can be defined to ensure ecological, social and governance coherence (in contrast with strategic assessment where the boundaries are defined by the policy, plan or program under assessment); a proactive approach can be taken that establishes a framework for future management; there is potential for bioregional planning to be applied in conjunction with other mechanisms and tools including NRM planning and strategic assessment; an integrated land management approach can be promoted through which private as well as public landowners can be encouraged to participate in management strategies delivering both public and private good in areas outside protected areas that may be established as a result of the bioregional planning process; and this lends itself to an adaptive management approach to biodiversity conservation.

Finding 2: The weaknesses of bioregional planning are that: the current lack of experience and clear processes for terrestrial bioregional planning makes the uptake of this mechanism less attractive; it is not clear how the impacts of future foreseen developments might be incorporated into bioregional planning; stakeholder engagement provisions under the EPBC Act 1999 are currently inadequate, although this may be addressed as a result of the Hawke Review; the lack of monitoring, reporting and review requirements undermines the potential of the mechanism to deliver biodiversity outcomes; and at present, only the Australian Government Environment Minister is required to take account of a bioregional planning when making decisions.

Finding 3: The strengths of strategic assessment are that: the potential for streamlined development approvals under the EPBC Act 1999 provides a proven incentive for uptake of this voluntary mechanism; a degree of certainty is provided with respect to both biodiversity and development; biodiversity and development are considered simultaneously and an appropriate balance sought; the mitigation hierarchy is explicitly invoked; and biodiversity outcomes (including protected areas and strategic offsets) can be enforced through legally binding mechanisms.

Finding 3: The weaknesses of strategic assessment are that: there is no requirement that the area subject to a strategic assessment has ecological or social coherence; it is reactive to development planning and limited to consideration of development objectives and Matters of National Significance (MNES); the need for enforceable planning outcomes may conflict with the principles of adaptive management; the process is focused on protecting land with biodiversity values from development impacts, and does not seek to support underpinning ecological processes, for example, through engaging private landowners in land management activities; opportunities for engagement may be limited to statutory comment periods, which are probably too short given the quantity of information typically released; and monitoring and review mechanisms are pending implementation of the recommendations of the Hawke Review.

Finding 5: The collaborative component of both bioregional planning and strategic assessment is essential for the delivery of a range of related objectives. Since the EPBC Act 1999 is focused on Matters of National Environmental Significance (MNES) only, other objectives must be delivered through mechanisms available to the partner jurisdiction (typically state and/or local governments). This includes objectives related to protected or listed species and other environmental management priorities under state government policies and legislation (that is, issues beyond Matters of National Significance), as well as greater consideration of ecosystem integrity at a more holistic level.

Finding 6: While high quality ecological input is essential to all forms of landscape-scale planning and assessment, this input is largely independent of the mechanism itself. Equally important for delivering biodiversity outcomes are the governance arrangements supporting both the development of the plan or assessment, and its implementation. This has been the focus of this study.

Finding 7: Key governance elements associated with the development of a plan, or the conduct of an assessment, include: the provision of incentives to encourage utilisation of the mechanism; strong collaboration between Australian Government and other parties; agreement on appropriate spatial boundaries reflecting ecological, social and governance coherence; and meaningful community and stakeholder involvement.

Finding 8: Key governance elements associated with implementation include: strong enforcement mechanisms (both Australian and state governments); involvement of public and private landowners in delivering outcomes; adaptive management mechanisms; effective management of future developments in accordance with the plan or assessment; monitoring and reporting mechanisms; and mechanisms for regular review.

Finding 9: Key content elements considered include: spatial scale, scope of issues and objectives including; the types of impacts on biodiversity considered; and the nature of the outcomes generated.

Finding 10: The mechanisms discussed in this report are not mutually exclusive but can potentially be applied in sequence or in conjunction.

Finding 11: The holistic approach proposed for the new Australian Government regional sustainability planning mechanism has considerable potential to deliver not just biodiversity conservation outcomes with respect to Matters of National Significance and development outcomes, but also a comprehensive sustainability-focused management framework for the region.

Finding 12: Regional sustainability planning offers an opportunity to draw on the strengths of both strategic assessment and bioregional planning, for example by: defining spatial scales that are not only dictated by the expected population growth but which also reflect ecological, social and governance boundaries; taking a holistic approach based on understanding the key interactions within the socio-ecological system and considering all identified drivers for system change (the Central West Catchment Action Plan demonstrates how a systems-based resilience approach could be used in such a planning process); ensuring meaningful community and stakeholder participation in both the development of the plan and its implementation; delivering planning outcomes in the form of zoning and protection of sensitive areas, as well as land management outcomes involving public, private and corporate landowners; and ensuring robust monitoring, reporting and review mechanisms to ensure the ongoing appropriateness of the plan.



Frequently Used Abbreviations

BCAM	NSW Biodiversity Certification Assessment Methodology
CAP	Catchment Action Plan
CAR	Comprehensive, Adequate and Representative Reserve System
CBD	Convention on Biological Diversity
CfoC	Caring for our Country
CWCMA	Central West Catchment Management Authority
DPI	Department of Planning and Infrastructure (NSW)
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (Australian Government)
EIA	Environmental Impact Assessment
EPBC Act 1999	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
ESD	Principles of Ecologically Sustainable development
Hawke Review	The Australian Environment Act: Report of the Independent Review of the Environment Protection and Biodiversity Conservation Act 1999,
IBRA	Interim Biogeographic Regionalisation for Australia
MERI	Monitoring, Evaluation, Reporting and Improvement
MNES	Matters of National Environmental Significance
NAP	National Action Plan for Salinity and Water Quality
NHT2	Natural Heritage Trust 2
NRC	NSW Natural Resources Commission
NRM	Natural Resource Management
RFA	Regional Forest Agreements
RFA Act	<i>Regional Forest Agreements Act 2002</i>
SEA	Strategic Environmental Assessment
SRLUP	Strategic Regional Land Use Plans
VEAC	Victorian Environmental Assessment Council

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1. Introduction

The need for landscape-scale approaches to biodiversity conservation has been clear within an Australian policy context for at least 20 years. The potential of two forms of landscape-scale planning and assessment, strategic assessment and biodiversity planning, to achieve both biodiversity and development outcomes has recently been highlighted in the Hawke Review of the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act 1999), which identifies these mechanisms as being worthy of increased focus and utilisation (Hawke 2009a, Hawke 2009b). This report seeks to contribute to this aim by exploring experiences with landscape-scale approaches to planning and assessment for biodiversity conservation, and making recommendations to support the appropriate and effective use of strategic assessment and bioregional planning under the EPBC Act 1999 to achieve biodiversity objectives.

Bioregional planning and strategic assessment are considered in some detail in both the Interim and Final Reports of the Hawke Review (Hawke 2009a; Hawke 2009b), and also attracted considerable public comment through the submissions process. In general, most stakeholders expressed support for the increased utilisation of these strategic mechanisms, with environmentally-focused groups supporting the landscape-scale as the appropriate scale for the protection and management of biodiversity, and also providing for the consideration of cumulative impacts, and industry groups supporting the streamlining of the approvals process that the EPBC Act 1999 has offered through these mechanisms since the 2006 amendments. The final report of the Hawke Review proposes a package of reform for the EPBC Act 1999, which includes the recommendation to (Hawke 2009b, p2):

...streamline approvals through earlier engagement in planning processes and provide for more effective use and greater reliance on strategic assessments, bioregional planning and approvals bilateral agreements.

In making its response to the Hawke Review, the Australian Government agreed with this aim and the substance of Recommendation 6, which includes some more detailed recommendations (Commonwealth of Australia 2011a). The Senate Committee Review of the Operation of the *Environment Protection and Biodiversity Conservation Act 1999* reached similar conclusions (Senate Standing Committee on Environment Communications and the Arts 2009a).

Both bioregional planning and strategic assessment are voluntary mechanisms under the EPBC Act 1999, which generally require collaboration between the Australian Government and other parties such as state and territory governments. No terrestrial bioregional plans have yet been developed, but 13 strategic assessments are either underway or have been completed, and the approach is becoming increasingly well-accepted. The promise of streamlined approvals processes for actions taken in accordance with a policy, plan or program that has been endorsed through the strategic assessment process, has been a significant incentive for the uptake of this mechanism, and this situation is likely to continue. While it therefore seems that the development objectives of strategic assessment are being met, this report seeks to address the question of whether these mechanisms are equally successful in achieving biodiversity conservation objectives.

Since there remains a complete lack of experience with terrestrial bioregional planning, and the processes and procedures for strategic assessment are still evolving, this report draws on experiences with other landscape-scale approaches to biodiversity planning and assessment from Australian practice that can equally be described as ‘strategic’ or ‘bioregional’. Useful lessons can be derived from the application of these related mechanisms that may contribute to the future development and effective utilisation of bioregional planning and strategic assessment under the EPBC Act 1999. Consideration is also given to regional sustainability planning which has emerged as a promising mechanism since the completion of the Hawke Review.

The report starts in Section 2 by briefly reviewing relevant literature discussing landscape-scale approaches to biodiversity management, culminating in a comparative framework to guide the comparison of the different mechanisms considered in this report. The particular characteristics of strategic assessment and bioregional planning under the EPBC Act 1999, as well as regional sustainability planning, are outlined in Section 3. Section 4 introduces the comparative analysis and six mechanisms for landscape-scale biodiversity planning, including strategic assessment and bioregional planning under the EPBC Act 1999, are then evaluated in Sections 5-10 against the comparative framework developed in Section 2 and the strengths and weaknesses of each mechanism are highlighted. The results and implications of the comparative analysis are discussed in Section 11 and conclusions are summarised in Section 12.

2. Landscape-scale Approaches to Biodiversity Conservation

The need for landscape-scale approaches to biodiversity conservation has been reiterated in Australian policy for at least 20 years. Objective 1.2 of the *National Strategy for the Conservation of Australia's Biological Diversity 1996*, which was developed in the lead-up to the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, outlined how Australia would meet its commitments under the International Convention on Biological Diversity (CBD), by managing ‘biological diversity on a regional basis, using natural boundaries to facilitate the integration of conservation and production-oriented management’ (Commonwealth of Australia 1996). The commitment to landscape-scale approaches is reiterated in the principles of Australia’s new *Biodiversity Conservation Strategy 2010–2030* (National Biodiversity Strategy Review Task Group 2010).

Two conferences held in Australia seventeen years apart demonstrate the enduring nature of this discourse: *Approaches to Bioregional Planning*, held in Melbourne from 30 October to 1 November 1995, and the recent *Strategic Planning Approaches to Improve Biodiversity Conservation: Landscape Scale Approaches to Protect and Streamline Development Assessments*, held in Sydney, 14-15 November 2012. The proceedings of these conferences have not only provided valuable input to the preparation of this report but also insights into how the discourse has changed and developed in the intervening period.

For example, the favoured terminology has changed from ‘bioregional’ to ‘landscape-scale’¹, and the relationship between biodiversity and development planning is now more explicit, as will be discussed in more detail in Sections 2 and 3.

Definitions of ‘bioregions’ vary considerably, reflecting different perceptions of the relationship between ecological systems, and social and political ones. For example, Powell (1996, p22) argues that “the ‘bioregional’ contribution to planning emphasises the supremacy of natural units over other jurisdictional areas, including political divisions” while other definitions highlight the importance of both social connection and political governance structures in defining a bioregion. Along these lines, Miller (1996, p11) defined a bioregion as:

...a geographic space that contains one whole or several nested ecosystems, characterised by its landforms, vegetative cover, human culture, and history, as identified by local communities, government agencies, and scientists.

The key points encompassed in this and the many other similar definitions that proliferate are firstly that people, as custodians of the land and members of communities with shared social histories and cultural identities associated with a region, are essential to the concept of a bioregion and bioregional management (Wallington et al. 2005; Dovers & Wyborn 2009). Secondly, that political boundaries are also important to provide appropriate structures and mechanisms for governance and implementation (Miller 1996). Such definitions also highlight a significant challenge in bioregional or landscape-scale planning – the establishment of appropriate boundaries for the region that are coherent from landscape, ecological, social, cultural and governance perspectives. The need for flexibility in boundary definition to reflect the most appropriate balance of these potentially inconsistent perspectives has been identified as a principle of effective bioregional planning.

Landscape-scale, or bioregional, approaches to biodiversity management contrast with more traditional management strategies that focus at the species or genetic level (Bridgwater 1995). Such strategies often arise from international treaties and national legislation, and often involve establishing protected areas to protect ecological ‘assets’ without necessarily protecting, rehabilitating or restoring the dynamic ecological processes that support these assets (McGregor et al. 2011). They are thus reflective of an ‘equilibrium paradigm’ in biodiversity management (Wallington et al. 2005) and although protected areas can be an important component of a biodiversity protection strategy, are an insufficient one (Brunckhorst 2001). The landscape-scale is the appropriate scale at which to effectively consider these supporting and dynamic ecological processes (Brunckhorst 2002), which Bennett et al. (2009) classify under seven themes: climatic processes, primary productivity, hydrological processes, formation of biophysical habitats, interactions between organisms, movements of organisms and natural disturbance regimes.

¹ The terms appear to be used interchangeable in the literature (Brunckhurst DJ 2002) and are in this report also.

Equally, the landscape-scale is the appropriate scale at which threats to biodiversity values and supporting ecological processes, as well as opportunities for enhancement of these system components, can be meaningfully considered. Such threats and opportunities may arise directly from human interaction with the environment, which occurs mainly at the landscape-scale (Brunckhorst 2001). Changes may arise from direct impacts from planned activities such as land clearing for development (negative) or associated offset schemes (positive), or as a result of less intentional human-induced processes such as fire, feral animals and climate change. A holistic, landscape-scale approach provides a framework within which these change processes, and their causes and interactions can be considered. Ideally, the potential cumulative impacts that may arise from combinations of development or processes should be explicitly considered, although this is rarely done well in practice (Canter & Ross 2010).

Therefore, as Dovers and Wyborn argue (2009, p969): 'The strong message is that we must manage at landscape-scale, not in bits'. McGregor et al. (2011) suggest that planning and assessment processes for biodiversity conservation should deliver three inter-related outcomes: the maintenance of intact areas; the management of human activities and impacts; and the restoration and reconnection of fragmented or degraded ecosystems or ecological processes. This reflects the mitigation hierarchy of avoid, minimise and offset, which is also articulated in the *Guide to Undertaking Strategic Assessments* (Commonwealth of Australia 2012a). The fourth element of this hierarchy as expressed in the guidelines is adaptive management, which is discussed later in this section.

A number of mechanisms for regional or landscape-based approaches have been developed and applied since the original *National Strategy for the Conservation of Australia's Biological Diversity* was developed. These include Regional Forest Agreements (RFAs) and Natural Resource Management (NRM) activities funded under the Natural Heritage Trust, and subsequently the Caring for our Country program, both of which are identified in the 2010 review of the strategy as having contributed significantly to the achievement of its aims. As already discussed, the Hawke Review of the EPBC Act 1999 strongly recommends that additional available mechanisms, specifically those under-utilised ones under the Act, should be strengthened and encouraged to add to the suite of approaches (Hawke 2009b).

Australia's new *Biodiversity Conservation Strategy 2010–2030* has as a foundation principle that, 'Effective conservation of biodiversity operates at the landscape and seascape scale across public and private tenures' (National Biodiversity Strategy Review Task Group 2010, p16). This raises another important point in relation to people in the landscape, that of land tenure. As Bridgewater et al. (1996) identify, land management based on ownership is a primary cause of 'the patchwork of disconnected remnant vegetation' that characterises much of Australia and continues to undermine biodiversity conservation objectives. A fundamental aim of a landscape-scale approach is to provide connections and corridors between patches of remnant vegetation and to manage the 'unreserved matrix' (Pressey 1996) of vegetation within a broader context of mixed land use as well as formal reserves. To be effective in this, a landscape-scale planning or assessment approach must promote and provide mechanisms for biodiversity conservation on private as well as public land (McGregor et al. 2011). Dovers and Wyborn (2009) suggest that this is a particular challenge in the Australian context where

property rights reign supreme, although Robinson (2009) argues that land ownership should come with obligations as well as rights and notes the irony that it is often only when development rights have been awarded that there is a legal requirement to manage biodiversity on private land. Inducement and coercion mechanisms for private landowners may be required (Bates 2010).

To be effective in achieving objectives across mixed land tenure, collaboration and engagement with both public and private landowners in both the development and implementation of landscape-scale plans are essential (Miller 1996). As Lambert and Elix (1996, p60) note, “Critical to the concept of a bioregion is the sense of community ‘ownership’ - of being part of a ‘community of common interest’”. Neilson (1996) suggests that bioregional planning should not commence with the position that the plan will serve to constrain the activities of others but should be based on a shared vision between stakeholders. Scientific and moral arguments will not always prevail in this context (Neilson 1996) and the planning process is essentially a complex negotiation between scientific, social and administrative considerations (Lambert & Elix 1996). The important point is that biodiversity cannot be considered in isolation but must take into account all the implications of its social and economic context, and be aligned with other relevant policies and plans (Genter et al. 2008).

Taking this one step further, it has also been argued that biodiversity planning should ideally be integrated with development planning processes (Neilson 1996), although many may disagree with this position. The question here is whether planning processes should focus solely on biodiversity, or whether biodiversity objectives should be considered alongside broader sustainability (environmental, social and economic) objectives for a region. This issue is explored further in later sections of the report. Regardless of whether biodiversity planning precedes or is integrated with development planning it should provide a framework to guide future development, which could include identifying areas to be protected (‘no go’ areas for development), or offering incentives by streamlining future development approvals, as in the case of strategic assessment under the EPBC Act 1999, discussed in Section 3.2 below (Bates 2010).

In an Australian context, landscape-scale planning and assessment processes (including strategic assessment and potentially terrestrial bioregional planning under the EPBC Act 1999) are often undertaken through a formal collaboration between both Australian and state or territory government agencies (and as well as possibly local government). This facilitates the alignment of the planning process with strategic biodiversity priorities at both federal and state levels, as well as alignment with other related policies and policy instruments. While such collaborations may be essential for obtaining the necessary institutional buy-in for the planning processes, as well as providing the policy instruments and legal mechanisms through which outcomes can be implemented and enforced, they also bring challenges. These may arise due to different and potentially incompatible statutory and budgetary responsibilities, as well as the difficulties and costs of process coordination and information management across agencies (Imperial 1999).

Exacerbating the challenges associated with planning for biodiversity are the limitations of ecological knowledge due to the inherent complexities of ecological systems and the consequent uncertainty

involved in making predictions for planning or assessment purposes. Furthermore, the rates of change now being observed in biological systems are unprecedented, such that knowledge and understanding are always lagging behind reality. And the stakes are high, since many changes to ecological systems or losses of biodiversity are irreversible (Dovers et al. 1996). In the face of these challenges, a pragmatic and precautionary approach must be taken that applies best available knowledge in the context of limitations of time, resources and knowledge.

Responses to these acknowledged challenges, opportunities and limitations include application of the precautionary principle in the process of informing policy in the face of uncertainty, although Dovers et al. (1996) suggest this may only be appropriate for what he calls ‘micro-problems’ which fall into the domain of applied science and quantitative risk management, as opposed to meso-problems or macro-problems that are more commonly encountered in the context of biodiversity. More recently, hope is placed in adaptive management based on sound monitoring practices (Commonwealth of Australia 2012a). The potential for adaptive management to deliver on its promises depends on implementation and feedback mechanisms that are sufficiently flexible to permit response to new information.

Adaptive management also depends on monitoring programs that not only assess compliance with the plan but whether its objectives are actually being met. Good governance principles demand that monitoring programs are established to address both of these aspects and that the results of monitoring programs should be publically available. An effective adaptive management program based on robust monitoring data should mean that the plan is continually under a process of review and amendment if necessary. Adaptive management also enables plans to be modified when new ecological and other knowledge becomes available, for example, if new species are found to be threatened.

Based on the preceding discussion, a comparative framework was developed to structure the review of landscape-scale planning mechanisms in Section 5-10. The framework has three components representing different phases of the planning process:

1. Process governance: which considers how the plan is developed;
2. Content: which considers what goes into the plan; and
3. Implementation governance: which considers how the plan is implemented.

Table 1: Comparative framework for review of landscape-scale planning mechanisms

1. Process Governance

Initiation process:

- Are there incentives to encourage the uptake of the mechanism?

Institutional arrangements:

- Is the process a collaboration between appropriate institutions?

Policy integration and alignment:

- Is the process aligned with other relevant policies and policy instruments?

Engagement:

- Is the process transparent and clearly communicated?
- Do community members and other stakeholders have sufficient opportunities for involvement?

2. Content

Spatial scale:

- Does the mechanism promote a geographic scope that is ecologically, socially and politically coherent?

Scope and objectives:

- Do the biodiversity objectives reflect strategic priorities?
- Does the process consider biodiversity objectives within the socio-economic and cultural context of the region?
- Does the process seek to deliver a broad range of sustainability objectives?

Potential impacts on biodiversity considered:

- Does the process explicitly consider the impacts on biodiversity of potential future development or activities?
- Does the process involve consideration of changes to ecological processes from other sources?
- Does the mechanism involve the explicit consideration of cumulative impacts?

Outcomes generated:

- Does the mechanism encourage application of the mitigation hierarchy (avoid, minimise, offset)?
- Does the mechanism facilitate restoration of degraded ecosystems?
- Does the mechanism deliver a clear context for future activities (for example, by identifying areas to be protected, establishing future development approvals requirements)?
- Does the mechanism deliver outcomes aimed at supporting ecological processes?
- Does the process encourage application of the precautionary principle?

3. Implementation Governance

Implementation mechanisms:

- Are implementation mechanisms legally binding?
- Are responsibilities for implementing the plan shared by public and private landowners?

Monitoring and reporting mechanisms:

- Is regular monitoring of compliance with the plan required?
- Is monitoring of the effectiveness of the plan in achieving its objectives required?
- Are the results of monitoring programs publicly reported?
- Are there provisions for adaptive management?

Review mechanisms:

- Is the plan regularly reviewed?
- Are there opportunities for community and stakeholder involvement in the review process?
- Are there provisions for the plan to be amended if necessary?

One vitally important aspect of biodiversity planning that is not included in this framework is the ecological input to the planning process. Some of the aspects that determine the overall quality of a biodiversity planning process include:

- Which tools and methodologies are utilised;
- Whether targeted studies are undertaken or whether the process utilises only existing data;
- The quality of the available data;
- Whether local and indigenous biodiversity knowledge are considered alongside scientific knowledge; and
- How issues such as complexity, irreversibility, uncertainty and change are considered.

These aspects have not been included in the comparative framework because they are independent of the mechanism itself, that is, best practice with respect to ecological data and analysis should apply to all the mechanisms discussed, and the purpose of this report is to distinguish the strengths and weaknesses of the mechanisms themselves.

Furthermore, appropriate techniques for strategic assessment (and by extension bioregional planning) are the subject of a recent report prepared by Chee et al. (2011) of the University of Melbourne for the Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC). This report provides expert advice on ecological analysis including: species and/or habitat modelling and mapping; targeted field surveys; ecological analysis and interpretations of functions and processes. Another approach to ecological analysis is offered by the NSW BCAM process (Government of NSW 2011). Once biodiversity values have been evaluated and mapped, Chee et al. (2011) also consider processes through which the impacts of proposed actions on biodiversity values can be assessed and the best available alternative selected, including hazard identification and assessment; risk assessment; and spatial conservation prioritisation.

The comparative framework is presented as a series of questions aimed at highlighting similarities and differences between the mechanisms. It is important to note that an answer of ‘yes’ does not necessarily equate to ‘good’, and likewise ‘no’ does not always mean ‘bad’, because different mechanisms have different purposes and applications. For example, some mechanisms, such as strategic assessment, are specifically aimed at reconciling development and biodiversity objectives, while others may be implemented in the absence of foreseen developments within the region. Similarly some mechanisms may be specifically focused on biodiversity while others may aim to deliver a broad range of sustainability (environmental, social and economic) outcomes. These points are discussed further in Section 3, where strategic assessment and bioregional planning under the EPBC Act 1999, as well as regional sustainability planning, are discussed in more detail.

3. Mechanisms under the EPBC Act 1999 (Cwlth)

The EPBC Act 1999 provides the legal framework for protection of Matters of National Environmental Significance (MNES), defined in Part 3 of the Act as:

- world heritage properties;
- national heritage places;
- wetlands of international importance (listed under the Ramsar Convention);
- listed threatened species and ecological communities;
- migratory species protected under international agreements;
- Commonwealth of Australia marine areas;
- the Great Barrier Reef Marine Park;
- the environment when a proposal is a nuclear action (including uranium mines).

With the exception of Commonwealth of Australia land, where broader environmental matters can also be considered, mechanisms under the EPBC Act 1999 are effectively limited in their scope to considering these eight MNES. This applies to bioregional plans and strategic assessments conducted under the Act, although the Principles of Ecologically Sustainable development (ESD), articulated in s3A of the Act, are also typically cited in Terms of Reference for strategic assessments, effectively broadening the scope somewhat. The principles of ESD are:

- a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;
- b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- c) the principle of inter-generational equity - that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
- d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making;
- e) improved valuation, pricing and incentive mechanisms should be promoted.

Bioregional plans and strategic assessments are considered together in the Hawke Review as examples of landscape-scale approaches as offering the following potential advantages, with both environmental and development perspectives represented (Hawke 2009a):

- early consideration of MNES in the planning processes;
- greater certainty to the local communities and developers over future development;
- reduced administrative burden for proponents and governments;
- increased capacity to achieve better environmental outcomes and address cumulative impacts at the landscape level including an opportunity to consider the cumulative impacts of a number of actions proposed for an area or region;

- more flexible timeframes to meet planning processes better;
- capacity to steer development toward environmentally ‘robust’ areas or away from environmentally sensitive sites;
- better capacity to consider ancillary and indirect impacts;
- capacity to better consider alternatives and better balance the principles of ecologically sustainable development;
- may allow the focus to move beyond individual species, and may provide greater protection for biodiversity in the face of climate change; and
- allow the Australian Government to take a more proactive approach to environmental management.

As has already been discussed, there has been limited experience to date with respect to these two mechanisms, particularly bioregional planning. Furthermore, almost no information is provided in the EPBC Act 1999 itself as to appropriate processes to be applied, or the circumstances under which each approach might be appropriate. The result is that the two approaches are not clearly distinguished either in the legislation or by practice. However, the Hawke Review Final Report offers the following useful distinction (Hawke 2009b, p79):

Strategic assessment allows for assessment and potential approval of actions taken in accordance with a plan, policy or program. Conceptually, strategic assessments occur where a plan, policy or program has been conceived and is being developed. Experience shows that the earlier that the Australian Government is involved in the development of the plan to be assessed, the greater the likelihood that the plan will deliver nationally focused outcomes.

Bioregional plans, on the other hand, have the potential to be developed from scratch where there is no pre-existing landscape planning or where existing landscape plans are due for review.

Thus a bioregional plan is developed proactively for the specific purpose of biodiversity conservation, although it may also consider socio-economic issues. In contrast, strategic assessment is a more reactive process, in that it is applied to a policy, plan or program developed by another party for purposes other than biodiversity conservation. Depending on the level of integration between the planning and assessment processes, strategic assessment can be considered an example of ‘biodiversity mainstreaming’ whereby biodiversity objectives are integrated into other planning processes (Ross & Dovers 2008).

A third mechanism has also emerged since the finalisation of the Hawke Review, namely regional sustainability planning, which is conceived as a key mechanism for the delivery of the *Sustainable Australia Sustainable Communities: A Sustainable Population Strategy for Australia*, (Commonwealth of Australia 2011b).

Each of these three mechanisms is discussed in turn in the following sections.

3.1. Bioregional Plans

Bioregional plans are addressed in Part 12 s176 of the EPBC Act 1999. Guidance is minimal, but the key points pertaining to bioregional plans are:

- The EPBC Act 1999 does not define a bioregion, but the Hawke Review cites the Explanatory Memorandum which uses the following definition (Hawke 2009a, p165): '[a bioregion is] an area of one whole or several interconnected ecosystems characterised by its landforms, vegetative cover, human culture, and history. In determining the boundaries of a bioregion, account will be taken of administrative and other regional boundaries. A bioregional plan provides a 'blueprint' for the ecologically sustainable management of natural resources within a bioregion, taking into account social and geographic elements';
- That the Minister may unilaterally prepare a bioregional plan for a bioregion that is within a Commonwealth of Australia area (that is, on Commonwealth of Australia controlled land);
- The Minister may also co-operate with state or territory governments or agency to prepare a bioregional plan for a bioregion that is not wholly within a Commonwealth of Australia area;
- A bioregional plan can include provisions about a range of issues, including important economic and social values as well as biodiversity values;
- In making decisions relating to a bioregion for which a plan has been prepared, the Minister must 'have regard to' the plan but is not currently required to comply with it;
- Similarly there are no mechanisms to ensure that the plan is legally binding on other parties, an issue that has already proven problematic in the context of marine bioregional planning (Hawke 2009b, p82);
- There are no clear processes or timeframes for public consultation with respect to bioregional plans;
- Under s37 of the EPBC Act 1999, future actions taken in accordance with the bioregional plan may be exempt from further approvals under the Act.

Each of these points is discussed in the Hawke Review Interim and Final Reports. The limitation posed by the restriction to Commonwealth of Australia land was noted in a number of submissions, and the Hawke Review Recommendation 6(2)(a)(ii) proposed that this be lifted to enable the Australian Government to unilaterally prepare bioregional plans for any land (Hawke 2009b). The Australian Government agreed to amend the EPBC Act 1999 to reflect this change, but made the point that unilateral action would only be taken as a last resort and that the preferred option would always be to develop plans in collaboration with other bodies, including NRM Boards.

Other Hawke Review recommendations in relation to bioregional plans were (Hawke 2009b):

- That the process be strengthened, to which the Australian Government agreed;
- That the name be changed from 'bioregional plans' to 'regional plans'. The Australian Government response was that the name would be changed instead to 'regional environmental plans'. However, since no amendments to the EPBC Act 1999 have yet been

made, and noting the potential confusion with the new term ‘regional sustainability plans’, this report retains the current terminology;

- That the Australian Government ‘ensure that the process for delineating a region is flexible’ to which the Australian Government agreed;
- That periods and processes for public participation be clarified, to which the Australian Government agreed, noting that some flexibility would be required due to the potential diversity of the plans; and
- That a broad audit power be created to assess the effectiveness of accredited systems (assumed to mean strategic assessments and bioregional plans).

Concerns were raised in some public submissions to the Hawke Review that bioregional plans may not be legally binding on the Minister, and this issue was also raised by the Australian Greens in their *Additional Comments to the Senate Inquiry* (Senate Standing Committee on Environment Communications and the Arts 2009a).

Although the purpose of bioregional plans is not clearly articulated in the EPBC Act 1999, the Hawke Review Interim Report suggests that bioregional plans have the potential to ‘provide a mechanism for identifying the biodiversity, heritage, social and economic values of a particular area, the management objectives and priorities in relation to those values, and strategies and actions for achieving those objectives’ (Hawke 2009a, p165).

Although no terrestrial bioregional plans under the EPBC Act 1999 have been developed to date, there is significant potential for bioregional plans to be utilised as a proactive planning tool that can guide subsequent planning and development processes. In identifying important environmental values to be protected and providing a level of prioritisation of those values, bioregional plans have some characteristics in common with bioregional planning or conservation planning in South Africa² and some of the strategic advice provided by the Western Australian Environmental Protection Authority (EPA) under s16(e) of the *Environmental Protection Act 1986* (WA). Both of these mechanisms make recommendations regarding appropriate and inappropriate areas for development but do not generate legally-binding outcomes.

3.2. Strategic Assessment

Strategic assessments can be undertaken under Part 10 s146 of the EPBC Act 1999, as described in the relevant section of the Department of Sustainability, Environment, Water, Population and Communities website (<http://www.environment.gov.au/epbc/assessments/strategic.html>) and in the department’s publication ‘A Guide to Undertaking Strategic Assessments’ (Commonwealth of Australia 2012a). A strategic assessment is a voluntary collaboration between the Australian Government and the party

² D Cilliers, North West University, South Africa (pers. comm. 22 Jan 2013).

responsible for the preparation of a policy, plan or program that is the subject of the assessment. Partner organisations will often be a state or territory government but can also be local governments or private organisations. The purpose of the assessment is to protect MNES from the potential impacts of the policy, plan or program through application of the mitigation hierarchy: avoidance of impacts, mitigation of potential impacts, offsets and ongoing adaptive management. The EPBC Act 1999 also includes provisions for compulsory strategic assessment of fisheries (Early 2008) but these provisions are not considered in this report.

Strategic assessment under s146 is offered as an alternative mechanism to project-by-project assessment under Parts 7, 8 and 9 of the EPBC Act 1999 that can support a number of objectives (Commonwealth of Australia 2012a):

- Greater certainty over future development due to clear ‘goalposts’ being established for MNES;
- Reduced administrative burden due to a reduction in numbers of project-level assessments required, and avoidance of duplication of process by different levels of government;
- Better environmental management outcomes, particularly with respect to cumulative impacts;
- Coordinated establishment and management of offsets; and
- Flexible assessment timeframes to align better with planning processes.

The broad steps involved in undertaking a strategic assessment are (Commonwealth of Australia 2012a):

- Scoping of the assessment;
- Agreement to conduct a strategic assessment;
- Terms of reference for the assessment;
- Preparation of draft program³;
- Preparation of draft strategic assessment report;
- Public comment on both draft program and draft strategic assessment report;
- Submission of final strategic assessment report and program for endorsement;
- Endorsement of the program;
- Approval of actions or classes of actions associated with the endorsed program; and
- Implementation of the program.

Thus the strategic assessment process is conducted in parallel with the process of developing the policy, plan or program, and ideally informs the process, in line with the notion that biodiversity and development planning should be integrated. The integrated planning and assessment process has both planning and biodiversity conservation outcomes. A key point is that although engagement in the mechanism is voluntary, since the 2006 amendments the outcome of a strategic assessment can be the approval of subsequent actions under the policy, plan or program, which may or may not include

³ Program in this sense refers to the policy, plan or program under assessment

conditions (Early 2008; Stoeglehner et al. 2010). This offers advantages to proponents and developers whose subsequent projects may be exempt from future impact assessment but poses challenges with respect to flexibility and adaptation, particularly given that the time frame within which these approvals are valid can be very long, for example, 30 years in the case of the Melbourne Growth Boundary strategic assessment (Seamer 2012). Strategic assessment is thus promoted as a mechanism for enhancing the timeliness and efficiency of the approvals process.

Strategic assessment under the EPBC Act 1999 (Cwlth) has some important distinguishing features when compared with strategic environmental assessment (SEA) as it is practiced internationally. A useful and recent review of the state of the art of SEA theory and practice is provided by Fundingsland Tetlow and Hanusch (2012). By definition, SEA is applied to policy, plans or programs, and in this respect Australian practice aligns with international practice. Although the basic process steps are similar, there are some interesting points of difference between the Australian system and SEA as practised in Europe, where a European Union Directive for SEA has been in place since 2001, and from where much of the literature concerning SEA has emerged. Under the European Union (EU) SEA Directive (European Commission 2001), SEA is compulsory for certain classes of plans and programs (interestingly not policies), which include land use plans and certain sector plans, such as energy and water. SEA under the EU Directive does not generate legally binding outcomes and decision-makers are only required to take into account the SEA outcomes (Stoeglehner et al. 2010).

Furthermore, SEA under the EU Directive seeks to deliver a range of sustainability (environmental, social and economic) outcomes, whereas strategic assessment in Australia is limited in scope to consideration of MNES. It has been argued that the integrated approach as undertaken in Europe and elsewhere is not always effective in delivering biodiversity outcomes (Morrison-Saunders & Fischer 2006) and recent research in England has validated this concern (Thérivel et al. 2009).

The Hawke Review made the following recommendations with respect to the strategic assessment provisions under the EPBC Act 1999 (Hawke 2009b):

- That the process be strengthened, to which the Australian Government agreed to develop guidelines;
- That mandatory required information for strategic assessments should be specified, in response to which the Australian Government agreed to produce guidelines;
- That an 'improve or maintain' test be inserted for the approval of a class of actions in accordance with an endorsed plan, policy or program, to which the Australian Government did not agree;
- That provisions for public engagement be enhanced. The Australian Government agreed that two periods of public consultation (for the draft terms of reference and draft plans and draft reports) should be retained but did not agree that the period of consultation should be extended from 28 to 60 business days as this was seen as a disincentive to proponents;
- That a 'call in' power for plans, policies and programs likely to have a significant impact on Matters of National Environmental Significance should be created, and amending the term

‘action’ to incorporate these plans, policies or programs. The Australian Government did not agree to this recommendation, arguing that it would undermine the collaborative nature of strategic assessment;

- That a broad audit power be created to assess the effectiveness of accredited systems, to which the Australian Government agreed, stating that ‘all accredited systems will be required to have in-built review and performance audit mechanisms, to be triggered no less than every five years.

As of February 2013, a total of 13 strategic assessments were listed on the DSEWPac website (<http://www.environment.gov.au/epbc/notices/strategic.html>), including four which have been completed to the point of Ministerial endorsement of the plan or program and approval of associated actions. Table 2 summarises these.

Table 2 highlights the emerging diversity of strategic assessment, as purposes for which it applies expand.⁴ Seven of the strategic assessments listed in Table 2 relate to urban planning, and state and territory governments are the partner organisations in five of these with one (Mt Peter) also involving a local government. Three strategic assessments relate to industrial development and the partner in two of these is a private organisation (BHP Billiton and Rio Tinto). Two (South Australian fire policy and Midlands Water Scheme) relate to policies. The Great Barrier Reef strategic assessment is taking a broad approach that commences not with a particular plan or program but with an environmental and heritage asset, and seeks to identify plans or programs that may impact on this asset. The strategic assessment approach may well be appropriate for an even broader range of applications as confidence and experience with the approach grow.

⁴ The list in Table 2 is presented in the same order as on the Department of Sustainability, Environment, Water Population and Communities website <http://www.environment.gov.au/epbc/notices/strategic.html>

Table 2: Current and Completed Strategic Assessments under the EPBC Act 1999 (Cwlth)

Strategic assessment	Partner organisation	Subject of assessment	Status
1. Hamersley Iron Ore Pty Ltd (Rio Tinto) iron ore mining in the Pilbara	Hamersley Iron Ore Pty Ltd (Rio Tinto)	Mining and transporting iron ore and developing and maintaining related infrastructure in the Pilbara region of Western Australia	Strategic Assessment Agreement signed 18/12/12
2. BHP Billiton iron ore mining expansion in the Pilbara, Western Australia	BHP Billiton	Expansion of existing operations; upgrade to existing support infrastructure; new mines and associated infrastructure	Strategic Assessment Agreement signed 18/9/12, draft Terms of Reference currently available for public comment
3. Urban development in Gungahlin, ACT	Government of ACT, Environment and Sustainable Development Directorate and the ACT Government Economic Development Directorate	Urban development and infrastructure	Strategic Assessment Agreement and Terms of Reference signed 2/10/12, strategic assessment in progress
4. Great Barrier Reef, Queensland	Government of Queensland (land component) and Great Barrier Reef Marine Park Authority (marine component)	Current and future development policies and plans that may impact on the Great Barrier Reef World Heritage Area and adjacent coastal zone	Strategic Assessment Agreements signed 16/2/12, final Terms of Reference approved 30/8/12, strategic assessment in progress.
5. Perth and Peel Region, Western Australia	Government of Western Australia, Ministers for Planning and Environment	Urban development outlined in the Western Australian Government's framework <i>Directions 2031 and Beyond — Metropolitan planning beyond the horizon</i> , relating to planning and delivery of housing, infrastructure and services	Intent to conduct a strategic assessment announced 18/8/11.
6. Browse Basin LNG Precinct	Government of Western Australia, Minister for State Development	Site for proposed LNG processing Precinct	Strategic Assessment Agreement and Terms of Reference signed 6/2/2008. Strategic assessment under WA Environmental Protection Act, completed preparation of plan for submission to Australian Government in progress.
7. Melbourne's Urban Growth Boundary	Government of Victoria, Ministers for Planning and Environment and Climate Change	Melbourne's urban growth boundary expansion and associated regional rail link and outer ring road	Complete. Program document <i>Delivering Melbourne's Newest Sustainable Communities: Program report</i> (December 2009) endorsed by Australian Government

Strategic assessment	Partner organisation	Subject of assessment	Status
			Minister 2/2/2010. Two classes of actions approved: regional rail link and 28 precincts.
8. Molonglo Plan, ACT	Government of ACT, Minister for Planning	Molonglo and North Weston Structure Plan	Complete. Plan endorsed by Australian Government Minister 7/10/2011, actions under Plan approved 20/12/2011.
9. Heathcote Ridge, NSW	Gandangara Local Aboriginal Land Council (GLALC)	Proposed listing of 850 ha site as State Significant and rezoning to allow for: 514 hectares of conservation land; 236 hectares of residential land (2700 dwellings); 70 hectares of employment land; and new roads, bridges and community facilities.	Strategic Assessment Agreement signed 16/11/2011. Draft <i>Heathcote Ridge Program Report</i> and draft <i>Heathcote Ridge Strategic Assessment Report</i> available for public comment Dec 2011 – Feb 2012, final reports in preparation.
10. Western Sydney Growth Areas	Government of NSW, Ministers for Climate Change and Environment, and Planning	Managing Sydney's Growth Areas Plan	Complete. Sydney Growth Centres Strategic Assessment: Program report endorsed by Australian Government Minister 20/12/2011, classes of actions approved 28/2/2012
11. Fire Management Policy, South Australia	Government of South Australia, Minister for Conservation and Environment	Fire management on conservation lands	Strategic Assessment Agreement signed 15/1/2010, draft Terms of Reference released for public comment in 2010, final Terms of reference not yet released.
12. Midlands Water Scheme, Tasmania	Government of Tasmania, Minister for Primary Industries and Water	Water Access Program for the Midlands Water Scheme	Complete. Program endorsed by Australian Government Minister 11/4/2011, three separate actions subsequently approved.
13. Mt Peter Master Planned Area, Queensland	Government of Queensland, Minister for Infrastructure and Planning and Cairns Regional Council	Mt Peter Master Planned Area	Strategic Assessment Agreement signed 25/2/2010.

Given the variety of applications and the fact that no detailed methodologies are prescribed in the EPBC Act 1999 or by the Department of Sustainability, Environment, Water, Population and Communities, the strategic assessment has varied considerably in each case. This flexibility can be viewed as an advantage, though it does require a willingness on the part of all parties to engage in a somewhat open-ended process that is developed as it occurs. It would be reasonable to expect that processes for particular applications of strategic assessment, such as spatial analyses and planning, will quickly become more streamlined and standardised as experience is gained. It is also noted that the decision to undertake a strategic assessment has sometimes been taken well after the relevant plan has been developed and in some cases endorsed by the state government; for example, the plan for *Managing Sydney's Growth Areas* had been gazetted as a State Environmental Protection Policy and awarded biodiversity certification under the NSW process prior to the commencement of the strategic assessment under the EPBC Act 1999. Ideally, the strategic assessment would be undertaken concurrently with the plan development, as indicated in the guide (Commonwealth of Australia 2012a), to inform the development of the plan. An increasing focus on the planning process itself is also an intent of the sustainable regional planning initiative, closely related to strategic assessment, which is discussed in Section 2.3 below.

The Hawke Review recommends that strategic assessment of plans should include as a minimum (Hawke 2009b, p85):

- a) *collation of reasonably available information, and should identify and fill critical knowledge gaps:*
 - *information should include the spatial extent of threatened species, ecological communities or heritage areas;*
 - *the assessment should present maps of habitat for listed threatened species, ecological communities, heritage areas and other important environmental components; and*
 - *the process should include a call for relevant, existing data from researchers, consultants and others;*
- b) *identification of MNES and establishment of outcome objectives for the plan, policy or program;*
 - *the assessment should state the minimum acceptable conservation outcomes for each of the environment and heritage values that the plan considers;*
- c) *examination of development and land-use options with the aim of minimising impacts on protected matters and retaining ecological integrity;*
- d) *an analysis of the consequences of the different options including:*
 - *estimates of impacts;*
 - *how the plan avoids, offsets and mitigates impacts on protected matters; and*
 - *a measure of the uncertainty associated with the analysis;*

- e) *a description of mitigation measures, and quantification of expected benefits including:*
 - *how future conservation ‘gains’ will be funded, measured and enforced; and*
 - *analysis of the adequacy of the extent of habitat that will exist following the implementation of the plan, policy or program; and*
- f) *a description of adaptive management approaches in the plan, policy or program – these should:*
 - *indicate what actions will follow, should planned conservation actions not be implemented, or should expected outcomes from conservation actions not be achieved (that is, contingency plans should be clearly documented to account for environmental uncertainties); and*
 - *allow for the unexpected, including new discoveries of species, habitats and/or communities of conservation concern in areas to be impacted by the proposed development.*

3.3. Regional Sustainability Planning

Regional sustainability planning has emerged as a new mechanism to deliver the Australian Government’s Sustainable Regional Development Program under *Sustainable Australia Sustainable Communities: A Sustainable Population Strategy for Australia*, (Commonwealth of Australia 2011b). Four regional sustainability planning processes were underway as of February 2013: the Lower Hunter Region in NSW (as part of a process that will involve updating the existing Lower Hunter Regional Strategy and Lower Hunter Regional Conservation Plan); the Perth-Peel Region in Western Australia; the Upper Spencer Gulf (South Australia); and the Great Barrier Reef.

The distinguishing features of regional sustainability plans compared with strategic assessment were clarified by Cameron (2012) as follows:

- Regional sustainability planning specifically targets economic and population growth pressure areas;
- Regional sustainability planning incorporates strategic assessment under the EPBC Act 1999, but goes beyond this to also provide guidance for sustainable development in the region;
- It is therefore intended that the scope extend beyond MNES and Commonwealth of Australia interests to include sustainability considerations such as resource management, growth and infrastructure, well-being and population dynamics, which are the responsibility of the partner organisations with which the Australian Government will engage, which may include local governments, state and territory governments, NRM Boards and Industry; and
- More emphasis on the planning process, with the Australian Government as an active partner in plan development together with the partner organisations:
 - Providing funds for plan creation and capacity building; and
 - Providing funds for data collection (social, economic, environmental).

The potential for biodiversity conservation objectives to be achieved within a regional sustainability planning framework is considered further in Section 11.

3.4. Summary

Several key points arise from the preceding discussion in relation to bioregional planning and strategic assessment under the EPBC Act 1999:

- Both mechanisms are voluntary and intended to be a collaboration between the Australian Government and other parties, typically but not exclusively state or territory governments. This is already explicit in the legislation with respect to strategic assessment and the collaborative dimension of bioregional planning is to be enhanced as part of the reform process arising from the Hawke Review. Collaboration is important given the narrow focus of the EPBC Act 1999 on MNES, as it ensures that other important environmental and sustainability issues emerging from the process can be managed in accordance with the mechanisms available to the collaborating party. The available mechanisms will clearly depend on the partner jurisdiction(s);
- A strategic assessment requires something to assess, that is a policy, plan or program – hence it is somewhat reactive (even if it commences in parallel with the planning process, as in the case of Melbourne). For land use plans, the main purpose is likely to be the identification and protection of MNES within the area in the face of known development that is either the purpose of the policy, plan or program (for example, the Browse LNG Precinct) or will occur in accordance with it (for example, Sydney Growth Areas and Melbourne Growth Boundary);
- Bioregional boundaries can be defined for the purpose of a bioregional plan, whereas a strategic assessment in most cases will be defined by the proponent of the policy, plan or program;
- Strategic assessments are by definition examples of environmental policy integration since the assessment is applied to a policy, plan or program developed to achieve other, usually social or economic goals, whereas bioregional planning is focused on biodiversity;
- The EPBC Act 1999 does not prescribe a process for either bioregional planning or strategic assessment, and while some very high level process steps are outlined in the *Guide to Undertaking Strategic Assessments*, the process is essentially developed on a case-by-case basis. This has the advantage of offering flexibility, but may compromise objectives of process clarity and transparency; and
- Furthermore, beyond the focus on MNES, no guidance is provided as to the forms or standards of ecological knowledge required to inform the process, nor to the tools that should be utilised to undertake the ecological assessment.

4. Comparison of Landscape-scale Approaches to Biodiversity Conservation

The aim of this report is to review the potential of strategic assessment and bioregional plans under the EPBC Act 1999 to achieve biodiversity conservation objectives. The analysis is supported by a review of other landscape-scale mechanisms with similar aims that have been implemented in Australia, and which offer valuable lessons for the further development of bioregional plans and strategic assessments under the EPBC Act 1999. The following mechanisms were identified for this purpose:

1. Regional Forest Agreements (RFAs) - Section 7;
2. Natural Resource Management (NRM) Plans - Section 8;
3. Strategic Regional Land Use Plans (SRLUPs) developed under the NSW Strategic Regional Land Use Policy - Section 9; and
4. Victorian Environmental Assessment Council (VEAC) investigations - Section 10.

Each of these is briefly described in the following sections and reviewed in the context of the comparative framework developed in Section 2, using specific case studies where appropriate. The purpose of the analysis is to identify the strengths and weaknesses of the mechanism itself, rather than to analyse the specific case studies in detail. The case studies are used where appropriate to demonstrate how the various mechanisms have been implemented in practice, and to highlight examples of the good (and poor) practices that are possible within the broad framework of the mechanism in question to promote the quality and effectiveness of its outcomes.

It is important to note that the source and quality of the information supporting the analysis is not consistent across the examples. No primary data have been collected for the purposes of this analysis and hence information sources are limited to those in the public domain, which include reports available from government websites, conference proceedings, and the various documents associated with the Hawke Review and relevant Senate Inquiries. The maturity of the mechanisms influences the availability of information sources; for example, although four strategic assessments have been completed, almost no peer-reviewed literature reflecting on these case studies has yet been published. In contrast, there are many contributions to the literature discussing the more established RFA and NRM mechanisms and this analysis draws on some of this literature.

5. Strategic Assessment: Melbourne Growth Boundary

The Melbourne Growth Boundary strategic assessment has been selected as the illustrative case study because it was the first one completed and encompasses some interesting approaches, particularly with respect to implementation mechanisms.

5.1. Process Governance

Initiation process:

- Are there incentives to encourage the uptake of the mechanism?

As already discussed, a strategic assessment is initiated via a voluntary agreement between the Australian Government and the party responsible for a policy, plan or program, which may be a state or territory government. Since the 2006 amendments, the EPBC Act 1999 has offered the incentive that approved actions consistent with a program that has been endorsed through a strategic assessment process may not require project-level environmental impact assessment. In the case of Melbourne, the future regional rail link project, as well as 28 precincts, have now been designated as approved actions.

Institutional arrangements:

- Is the process a collaboration between appropriate institutions?

A strategic assessment is by definition a collaborative process between the Australian Government and the party responsible for the policy, plan or program, the terms of which are formalised in a Strategic Assessment Agreement under s146(1) of the EPBC Act 1999. While other stakeholders, including community members, within the geographic area under assessment do have opportunities to contribute to the process through formal engagement mechanisms (see below), the objectives are established by the developing body and not by any other stakeholders such as private landowners. In terms of biodiversity management, strategic assessment cannot be therefore considered a collaboration between all appropriate parties.

Policy integration and alignment:

- Is the process aligned with other relevant policies and policy instruments?

It is the responsibility of the partner organisation to ensure alignment, for example, with state or territory government priorities and policies. In the case of Melbourne, for example, the process was guided by Victorian policy with respect to biodiversity, including the Department of Sustainability and Environment's *Biodiversity Precinct Planning Kit* and *Vegetation Quality Assessment Manual* (DSE 2010)

Engagement:

- Is the process transparent and clearly communicated?
- Do community members and other stakeholders have sufficient opportunities for involvement?

The broad strategic assessment process has been defined and is available online. However, each strategic assessment is likely to be unique in many respects, depending on the partners involved and the scale and objectives of the process, amongst other factors, and therefore it is important that the community and other stakeholders are kept up to date with the process as it evolves. This was done in the case of Melbourne via newsletters and bulletins, and Australian and Victorian Government websites.

The statutory public review period is 28 days for the draft plan and the draft strategic assessment report, and there are no plans to extend this despite the Hawke Review finding this period inadequate. In the case of the Melbourne strategic assessment a number of separate documents were released simultaneously for public review, relating to the urban growth boundary, rail corridor, ring road and impacts on MNES, potentially making it difficult for groups and individuals to review them all within the statutory period and limiting the effectiveness of public engagement.

5.2. Content**Geographic scope:**

- Does the mechanism promote a geographic scope that is ecologically, socially and politically coherent?

The geographic scope of a strategic assessment is determined by the scale of the policy, plan or program under assessment. In the Melbourne case, the spatial boundary of the investigation area was defined by the planning report '*Melbourne @ 5 million*' in 2008. There is nothing to require the boundaries of the assessment to define a bioregion, that is, to have ecological, social or political coherence. Although it is likely that the spatial scale for a policy, plan or program will be larger than might be expected for an individual project this is not necessarily the case.

Scope and objectives:

- Do the biodiversity objectives reflect strategic priorities?
- Does the process consider biodiversity objectives within the social-economic and cultural context or the region?
- Does the process seek to deliver a broad range of sustainability outcomes?

Under the EPBC Act 1999, the purpose of the strategic assessment is to protect MNES, and in this sense the mechanism is strongly aligned with strategic biodiversity priorities. The subject of the assessment is a policy, plan or program that will usually have social and economic drivers, so there is some level of integration in the combined planning/assessment process and decisions about MNES are made in this context.

In the case of the Melbourne strategic assessment these plans (the definition of an urban growth boundary for Melbourne, a regional rail link and an outer ring road supporting this urban expansion) were focused on development and urban expansion objectives, and therefore the process did not explicitly seek to deliver a broad range of sustainability outcomes. Indeed there is nothing to require that a strategic assessment should do so, and in practice this will be at the discretion of the other bodies (particularly state, territory and local governments). Regional sustainability planning offers a mechanism through which more comprehensive planning and assessment for sustainability can supplement strategic assessment and enable consideration of a broader range of issues.

Potential impacts on biodiversity considered:

- Does the mechanism require consideration of the impacts of potential future development?
- Does the process consider biodiversity objectives within the social-economic and cultural context or the region?
- Does the process seek to deliver a broad range of sustainability outcomes?

The subject of a strategic assessment is a policy, plan or program which will usually represent some form of impact on biodiversity, as in the case of establishing an expanded urban growth boundary for Melbourne. Thus the consideration of impacts of development on biodiversity is an integral feature of the strategic assessment mechanism.

Threats to biodiversity from other sources have not been explicitly evaluated in the Melbourne strategic assessment; however there is implicit acknowledgement that land clearing associated with urban development is not the only threat to biodiversity. The potential impacts of climate change are also acknowledged in general terms, and climate change and land clearing are identified as two EPBC Act 1999 listed threatening processes that are relevant to the program. Risk and uncertainty associated with climate change are discussed in Part 14 of the Strategic Impact Assessment Report, where it is argued that securing and establishing important habitats, such as the new grasslands reserve, a key output of the strategic assessment process, is the most effective way of enhancing ecosystem resilience (DSE 2009). It is also argued that the establishment of the grasslands reserve will contribute to threat abatement plans for two other threatening processes: competition and land degradation by rabbits and predation by European Red Fox (DSE 2009).

One of the primary objectives of strategic assessment is the management of cumulative impacts, although there is no clear methodology provided for undertaking cumulative impact assessment. In the case of Melbourne, the establishment of new reserves is intended to protect MNES from the cumulative impacts of the development described in the plans.

Outcomes generated:

- Does the mechanism encourage application of the mitigation hierarchy (avoid, minimise, offset)?
- Does the mechanism facilitate restoration of degraded ecosystems?
- Does the mechanism deliver a clear context for future activities (for example, by identifying areas to be protected, establishing future development approvals requirements)?
- Does the mechanism deliver outcomes aimed at supporting ecological processes?
- Does the mechanism encourage application of the precautionary principle?

A key objective of the Melbourne strategic assessment was avoiding and minimising impacts on MNES through the optimisation of the growth areas and transport corridors. New reserves are to be developed, which also represent biodiversity offsets, which will be available for future developers to purchase from the Victorian Government (DSE 2009). Additional mitigation efforts mainly linked to the implementation phase will be required by individual developers. Thus it can be argued that the Melbourne strategic assessment has effectively applied the mitigation hierarchy. Restoration is not discussed in detail in the strategic assessment documentation; however restoration is offered to developers as an option for offsetting impacts (DPCD 2009) and the draft Biodiversity Conservation Plan indicates that restoration activities will be part of the overall management strategy for the Western Grasslands Reserves (DSE 2011c).

Strategic assessment is undertaken for the express purpose of providing a clear context for future activities, including identifying areas within which development will or will not be permitted. It is less focused on supporting ecological processes across the study area; as Harvey (2012) notes, there has been a tendency towards translocation and salvage instead of in-situ conservation. However some minor outcomes of the assessment are aimed at this level, for example, landowners may be offered incentives for land management activities (for example, weed management) prior to the purchase of their land for incorporation into the new grasslands reserve.

A precautionary approach has been applied in the process of determining the likelihood of a particular threatened species being found within an area; in other words the approach has been to err on the side of caution in identifying areas to be protected.

5.3. Implementation Governance

Implementation mechanisms:

- Are implementation mechanisms legally binding?
- Are responsibilities for implementing the plan shared by public and private landowners?

Institutionalising implementation arrangements for strategic assessments can be complex and challenging (Fennessy 2012). In the case of Melbourne, both federal and state enforcement mechanisms are being utilised for biodiversity protection. The Australian Government initially issued 'Prescriptions' for each specific ecological community and threatened species outlining criteria to determine what must be preserved and what can be cleared, as well as mitigation and offsetting requirements. The new Biodiversity Conservation Strategy for Melbourne's Growth Areas is designed to remove the need for the prescriptions and identify exactly which land will be protected for conservation (covering both MNES and state listed species). The strategy also details the requirements for offsets, compensatory habitat, salvage and translocation that apply to land that can be cleared. The Government of Victoria is utilising a number of statutory planning mechanisms, including planning scheme amendments, to ensure the implementation of the plan.

A key biodiversity outcome of the Melbourne strategic assessment is the development of the new Western Grasslands Reserves, to be located around Mt Cottrell, south east of Melton, and north of Little River, west of Werribee, which incorporate significant tracts of private land. The Government of Victoria intends to purchase all this land by 2020, preferably through voluntary sale agreements or by compulsory acquisition if necessary (DSE 2011a). In the meantime, landowners may be eligible for assistance to manage land to maintain its biodiversity values prior to purchase, for example, by weed control and other land management measures (DSE 2011a). Although landowners will be appropriately compensated for their land, some may be subject to compulsory purchase. It has consequently been argued that biodiversity outcomes in this case are dependent on the willingness of government to impose costs on private landowners (Fennessy 2012).

Monitoring and reporting mechanisms:

- Is regular monitoring of compliance with the plan required?
- Is monitoring of the effectiveness of the plan in achieving its objectives required?
- Are the results of monitoring programs publicly reported?
- Are there provisions for adaptive management?

A Reporting and Monitoring Framework is currently in preparation by the Victorian Government for Australian Government approval. Although the Strategic Impact Assessment Report espouses adaptive management, there is a risk that the emphasis on biodiversity conservation through the creation of formal and legally protected reserves will be insufficiently flexible to enable adaptive management at this scale. However, a number of the implementation mechanisms do specify that an adaptive management approach will be adopted, for example, the management of protected or created wetland habitats and management strategies for particular species, including the Golden Sun Moth and Matted Flax-lily (DSE 2011c). The details of these adaptive management strategies are yet to be published.

Review mechanisms:

- Is regular monitoring of compliance with the plan required?
- Is the plan regularly reviewed?
- Are there opportunities for community and stakeholder involvement in the review process?
- Are there provisions for the plan to be amended if necessary?

There are currently no requirements for the strategic assessment to be reviewed, although the government has agreed to developing a monitoring and review process as part of the Hawke Review reforms. There is an argument, however, that any significant changes to the outcomes of the strategic assessment would be counter to the objective of providing certainty to future developers and the community and to the concept of the '30 year approval' (Seamer 2012).

5.4. Summary of Strengths and Weaknesses**Strengths:**

- Provides certainty for community and developers;
- Better biodiversity outcomes likely than for project by project assessment, due to ability to develop large reserves;
- The mitigation hierarchy (avoid, minimise, offset) is explicitly invoked; and
- The strongly top-down approach of biodiversity conservation through establishing formal reserves is probably appropriate given the high level of certainty that development will occur.

Weaknesses:

- No requirement that the area under assessment represents a bioregion;
- Reactive to development planning;
- Limited to consideration of development objectives and MNES, rather than a broad suite of sustainability objectives reflecting all stakeholders within the geographic region;
- May not offer sufficient flexibility for adaptive management once a plan or program is endorsed;
- Opportunities for engagement may be limited to statutory comment periods, which are probably too short given the quantity of information typically released;
- The process is focused on protecting land with biodiversity values from development impacts, and does not seek to support underpinning ecological processes, for example, through engaging private landowners in land management activities; and
- Monitoring and review mechanisms are pending implementation of the recommendations of the Hawke Review.

6. Bioregional Plans: South-west Marine Region

In the absence of case studies of terrestrial bioregional planning under the EPBC Act 1999 this section is based on the discussion in Section 3 structured according to the comparative framework, and also drawing on lessons learnt from marine bioregional planning where applicable, using the Marine Bioregional Plan for the South-west Marine Region as an illustrative case study (Commonwealth of Australia 2012b). This is one of four completed marine bioregional plans, the others being for the north-west, north and temperate east marine regions:

(<http://www.environment.gov.au/coasts/marineplans/index.html>).

6.1. Process Governance

Initiation process:

- Are there incentives to encourage the uptake of the mechanism?

The preparation of a bioregional plan is voluntary and is initiated at the discretion of the Australian Government. Under s37 of the EPBC Act 1999, future actions taken in accordance with the bioregional plan may be exempt from further approvals under the Act, which may offer an incentive to potential collaborating partners (see below). Interestingly, this incentive does not seem to apply to marine bioregional plans; the South-west Marine Region Bioregional Plan states on p10 that '(t)he plan is not a legislative instrument and therefore does not alter the EPBC Act 1999 referrals process'.

Institutional arrangements:

- Is the process of developing the plan a collaboration between appropriate institutions?

Under s176 of the EPBC Act 1999 the Australian Government can develop a bioregional plan for Commonwealth of Australia land unilaterally, or can enter into partnership with a state or territory government to develop a bioregional plan for a region not entirely under Australian Government control. The latter option is likely to be more common for terrestrial bioregional plans (see Commonwealth of Australia 2011a). In the case of the South-west Marine Region Bioregional Plan, the plan applies only to marine territory under Australian Government control and therefore was undertaken unilaterally by the Australian Government though in consultation with relevant state agencies.

Policy integration and alignment:

- Is the process aligned with other relevant policies and policy instruments?

The EPBC Act 1999 does not explicitly require the alignment of bioregional plans with other policy instruments, and the requirement that bioregional plans be taken into account in future decision-making refers only to the Australian Government Environment Minister. However, the Hawke Review

suggests that terrestrial bioregional plans could become the overarching framework informing a range of tools and activities to achieve a range of biodiversity outcomes. One example offered is that bioregional plans could become the basis for assessing and prioritising funding applications, such as through Caring for our Country, environmental stewardship payments and other relevant programs (Hawke 2009b).

In the case of the South-west Marine Region Bioregional Plan, while the legal requirement to take account of the plan is limited to the Australian Government, the plan is offered as a guide to future decision-making in all jurisdictions (Commonwealth of Australia 2012b).

Engagement:

- Is the process transparent and clearly communicated?
- Do community members and other stakeholders have sufficient opportunities for involvement?

There is no clear process for terrestrial bioregional planning. There are no specific requirements for community or stakeholder engagement in the development of a bioregional plan. Recommendation 45 of the Hawke Review proposes that the processes and timeframes for engagement be clarified through an amendment to the EPBC Act 1999 (Hawke 2009b), with which the Australian Government agreed (Commonwealth of Australia 2011a).

The South-west Marine Region Bioregional Plan was prepared by the Australian Government with input from government agencies, industry, recreational and conservation organisations, and members of the public (Commonwealth of Australia 2012b).

6.2. Content**Spatial scale:**

- Does the mechanism promote a geographic scope that is ecologically, socially and politically coherent?

Although the EPBC Act 1999 does not provide a definition for either bioregional planning or a bioregion, the Explanatory Memorandum to the Act provide a definition based on consideration of ecosystems, landforms, vegetative cover, human culture and history (see Section 3.1 for definition).

However, the Act does not specify that a bioregional plan should cover a bioregion; in fact, if the bioregional planning process is limited to tracts of Commonwealth of Australia land, then boundaries will by definition be determined by land tenure. The option of a bioregional plan developed in collaboration with a state or territory government is therefore the more promising approach, since this would allow the boundaries of the bioregion to be established more meaningfully. The Commonwealth

of Australia land requirement is also seen by some as an impediment to collaborative planning and decision-making (Hawke 2009b).

The South-west Marine Region Bioregional Plan does not discuss how the geographic scope of the plan was determined (Commonwealth of Australia 2012b).

Scope and objectives:

- Do the biodiversity objectives reflect strategic priorities?
- Does the process consider biodiversity objectives within the socio-economic and cultural context of the region?
- Does the process seek to deliver a broad range of sustainability objectives?

The scope of bioregional plans is defined by S176(4) of the EPBC Act 1999, which includes not just MNES but also the components of biodiversity, the heritage value of places, and important social and economic values. While this seems to indicate that bioregional plans will be developed by considering biodiversity objectives within the socio-economic and cultural context of the region, the extent to which they might explicitly reflect broader sustainability objectives is unclear. In practice, the South-west Marine Region Bioregional Plan is strictly focused on biodiversity objectives (Commonwealth of Australia 2012b).

Potential impacts on biodiversity considered:

- Does the mechanism require consideration of the impacts of potential future development?
- Does the mechanism require consideration of changes to ecological processes from other sources?
- Does the mechanism involve the explicit consideration of cumulative impacts?

It is not clear whether terrestrial bioregional plans will explicitly consider the impacts of potential future development. Given that they can (and possibly should) be prepared in advance of any foreseeable development, they may not. The South-west Marine Region Bioregional Plan does not consider pressures from future development (for example, oil and gas extraction activities or coastal developments). It does, however, consider the impacts on particular species of human presence at sensitive sites, as well as other change processes including sea-level rise, temperature changes and oceanographic changes due to climate change. While the potential for cumulative impacts is noted in the plan, there is no rigorous analysis of these effects (Commonwealth of Australia, 2012b).

Outcomes generated:

- Does the mechanism encourage application of the mitigation hierarchy avoid, minimise, offset)?
- Does the mechanism facilitate restoration of degraded ecosystems?
- Does the mechanism deliver a clear context for future activities (for example, by identifying areas to be protected, establishing future development approvals requirements)?
- Does the mechanism deliver outcomes aimed at supporting ecological processes?
- Does the mechanism encourage application of the precautionary principle?

The Hawke Review Report identifies a number of mechanisms through which bioregional planning can promote biodiversity outcomes, including (Hawke 2009b, p80):

- *identification of areas where important MNES exist in a landscape;*
- *a mechanism to guide future development to areas of low environmental impact, including setting the context in which development will occur, and to manage cumulative impacts;*
- *offsets and biodiversity banking;*
- *prioritisation of recovery plans and actions;*
- *management of threats through identification and implementation of threat abatement plans;*
- *development of contingency plans to deal with uncertainties in environmental outcomes;*
- *management planning, including for Ramsar sites, Commonwealth land and heritage areas;*
- *development of the National Reserve System (NRS) through providing guidance on new areas to be listed and providing protection for ‘buffer zones’;*
- *listing of ecosystems of national significance; and*
- *(prioritising) funding, such as through Caring for our Country, environmental stewardship payments and other relevant programs.*

Bioregional plans thus do provide a context for future development, although at present only the Australian Government Environment Minister is required to take account of a bioregional plan in future decision-making. Subsequent actions undertaken in accordance with the bioregional plan may be exempt from future EIA under s37 of the EPBC Act 1999.

The precautionary principle is not explicitly invoked in the analysis underpinning the South-west Marine Region Bioregional Plan (Commonwealth of Australia 2012b).

6.3. Implementation Governance

Implementation mechanisms:

- Are implementation mechanisms legally binding?
- Are responsibilities for implementing the plan shared by public and private landowners?

Depending on the biodiversity outcomes to be achieved, it is likely that bioregional plans will require additional implementation and enforcement mechanisms under both Australian Government and partner jurisdiction legislation, similar to strategic assessment. At present the legal basis regulating future actions in areas covered by a bioregional plan is weak, with the requirement to have regard to the marine bioregional plans making decisions applies only to the Australian Government Environment Minister, a situation that the Hawke Review found problematic in relation to marine bioregional plans (Hawke 2009b, p82). This suggests that landowners could not be legally required to implement actions arising from the bioregional plan without some additional legal mechanisms being applied.

Monitoring and reporting mechanisms:

- Is the plan regularly reviewed?
- Are there opportunities for community and stakeholder involvement in the review process?
- Are there provisions for the plan to be amended if necessary?

There are no requirements for monitoring and reporting of bioregional plans identified in the EPBC Act 1999. While it seems likely that adaptive management should be a cornerstone of future terrestrial bioregional planning, it is not mentioned in the South-west Marine Region Bioregional Plan (Commonwealth of Australia 2012b).

Review mechanisms:

- Is regular monitoring of compliance with the plan required?
- Is monitoring of the effectiveness of the plan in achieving its objectives required?
- Are the results of monitoring programs publicly reported?
- Are there provisions for adaptive management

There are no requirements for review of bioregional plans identified in the EPBC Act 1999. No review period is identified in the South-west Marine Region Bioregional Plan (Commonwealth of Australia 2012b). Hawke Review Recommendation 6 proposes the creation of a 'broad performance

audit power to assess the performance of accredited systems' which could be strategic assessments or bioregional plans (Hawke 2009b, p29).

6.4. Summary of Strengths and Weaknesses

It is difficult to assess the strengths and weaknesses of terrestrial bioregional plans in the absence of case studies or any guidance for their development. The following points are thus based on the theoretical application of this mechanism with some insights from the case of the South-west Marine Region Bioregional Plan where relevant.

Strengths:

- A proactive approach to identifying and protecting biodiversity values, not dependent on a development proposal;
- Bioregions can be appropriately defined to have ecological, social and political coherence;
- Potential to consider environmental, social and economic values in a holistic fashion; and
- Intended to be collaborative between federal and state or territory governments.

Weaknesses:

- Lack of clarity in the EPBC Act 1999 in many respects, and absence of guidance documents to encourage utilisation;
- It is not clear how the impacts of future foreseen developments might be incorporated into bioregional planning;
- Weak stakeholder and community engagement requirements;
- At present, only the Australian Government Environment Minister is required to take account of a bioregional plan when making decisions; and
- No mandated monitoring or review requirements.

7. Regional Forest Agreements

Regional Forest Agreements were developed as a key implementation mechanism for the 1992 National Forest Policy Statement (NFPS), which sought a 'reasonable balance between conserving Australia's forest estate and its enduring use for economic production and recreation' (<http://www.daff.gov.au/rfa/about/why>). The Regional Forest Agreement Act 2002 (Cwlth) (RFA Act) is now the main legislation for regulating forestry across Australia. According to Bates (2010, p479), 'RFAs are the first comprehensive attempt by governments to reconcile conservation imperatives with demands by industry for a secure resource base on which to justify capital expenditure in forest industries'.

The basis steps of the RFA process are (Hawke 2009a, p105):

1. The Australian Government and individual state governments agreed to enter into an RFA and created scoping documents which contain government obligations, regional objectives and interests, and broad forest uses, as well as the nature and scope of the forest assessment;

2. Analysis of the values of forest areas using agreed JANIS⁵ criteria to establish what would amount to a comprehensive, adequate and representative reserve system (known as a CAR reserve system);
3. Comprehensive regional assessment (known as a CRA) of the environmental, heritage, social and economic uses and values of RFA forests;
4. Negotiations between the Australian Government and individual State governments to finalise each of the agreements.

Although there are significant differences between the 10 RFAs signed between 1997 and 2001, the process of developing the RFAs was reasonably consistent as outlined above.

Regional forest agreements were considered in the Senate Review into the Operation of the EPBC Act 1999, and also in the Hawke Review to the extent of the interface between the RFA Act and the EPBC Act 1999. The main point of interaction is that environmental approvals under Part 9 of the EPBC Act 1999 are not required for forestry actions conducted in accordance with a gazetted RFA (the so-called 'RFA exemption').

7.1. Process Governance

Initiation process:

- Are there incentives to encourage the uptake of the mechanism?

Regional forest agreements are initiated by an agreement between the Australian Government and a state with respect to a forestry region. The incentive to enter an agreement is that assessment and approval provisions of the EPBC Act 1999 do not apply to forestry operations that are taken in accordance with a gazetted RFA. These so-called 'RFA exemptions' have been controversial, as the Australian Government has not regularly monitored whether forestry activities are indeed conducted in accordance with the relevant RFA. Recommendation 38 of the Hawke Review proposes that forestry actions be subject to the 'full protections of the EPBC Act' (that is, not exempt) unless performance, reporting and review requirements are met (Hawke 2009b).

Institutional arrangements:

- Is the process of developing the plan a collaboration between appropriate institutions?

Regional forest agreements take the form of a formal agreement between a state government and the Australian Government, and as such are collaborative. The process of preparing an RFA, including the

⁵ The JANIS criteria are a set of nationally agreed criteria which outline targets for the conservation of ecosystems to make up the CAR reserves (JANIS 1997).

analysis, assessment and stakeholder engagement is undertaken by the relevant state government and then finalised through a process of negotiation with the Australian Government.

Policy integration and alignment:

- Is the process aligned with other relevant policies and policy instruments

The RFAs were developed to reconcile forestry objectives and conservation objectives; however it is difficult to assess to what extent they were aligned with other policies and policy instruments within the respective jurisdictions.

Engagement:

- Is the process transparent and clearly communicated?
- Do community members and other stakeholders have sufficient opportunities for involvement in the preparation of the plan?

The RFA process was clearly outlined and communicated. Extensive consultation was undertaken through the process of developing RFAs.

7.2. Content

Spatial scale:

- Does the mechanism promote a geographic scope that is ecologically, socially and politically coherent?

The spatial scale of RFAs can vary considerably; for example, the whole of the South West of Western Australia is covered by a single RFA. Given that RFAs apply to areas where there is natural forest, a logging industry and associated communities, it can be argued that the geographic scopes of the RFAs are ecologically, socially and politically coherent.

Scope and objectives:

- Do the biodiversity objectives reflect strategic priorities?
- Does the process consider biodiversity objectives within the socio-economic and cultural context of the region?
- Does the process seek to deliver a broad range of sustainability objectives?

Regional forest agreements were developed to reflect three clear principles with respect to establishing a reserve system: including the full range of vegetation communities (comprehensive); ensuring the level of reservation is large enough to maintain species diversity, as well as community interaction and evolution (adequate), and conserving the diversity within each vegetation community,

including genetic diversity (representative). It does appear, however, that the RFAs have not been sufficiently flexible to enable them to evolve to reflect changing priorities; for example, there is no requirement to include recently listed species in an RFA (Senate Standing Committee on Environment Communications and the Arts 2009b).

By definition RFAs take an integrated perspective in seeking to balance biodiversity protection (and other social and cultural values of forests) with the objectives of the forestry industry. The RFA Act s4 stipulates that RFAs must have regard to:

- (i) environmental values, including old growth, wilderness, endangered species, national estate values and world heritage values;
- (ii) Indigenous heritage values;
- (iii) economic values of forested areas and forest industries;
- (iv) social values (including community needs); and
- (v) principles of ecologically sustainable management.

The process of developing RFAs was underpinned by comprehensive regional assessments covering economic, social, environmental and heritage values, and appropriate biodiversity outcomes were identified in this context.

Potential impacts on biodiversity considered:

- Does the mechanism require consideration of the impacts of potential future development?
- Does the mechanism require consideration of changes to ecological processes from other sources?
- Does the mechanism involve the explicit consideration of cumulative impacts?

The purpose of the RFAs is to provide an appropriate balance between environmental values and the socio-economic values of the forestry industry, and thus the process is primarily concerned with the threat to biodiversity of forestry activities. Changes to ecological processes from other sources are considered to some extent, for example, fire management through prescribed burns are covered in accredited ecologically sustainable forest management systems associated with the RFAs, as are impacts due to recreational activities within forests. Regional forest agreements did not, however, anticipate climate change (Senate Standing Committee on Environment Communications and the Arts 2009b). Although by establishing a 'Comprehensive, Adequate and Representative Reserve System' (CAR) RFAs are intended to protect biodiversity values from cumulative effects, it is not clear that cumulative impacts were explicitly considered in the preparation of RFAs.

Outcomes generated:

- Does the mechanism encourage application of the mitigation hierarchy (avoid, minimise, offset)?
- Does the mechanism encourage application of the precautionary principle?
- Does the mechanism deliver a clear context for future activities (for example, by identifying areas to be protected, establishing future development approvals requirements)?
- Does the mechanism deliver outcomes aimed at supporting ecological processes?
- Does the mechanism facilitate restoration of degraded ecosystems?

All RFAs list the priority threatened species and ecological communities within the RFA region and specify ways to protect them, including:

- protection within the reserve system;
- protection of key habitats, such as rainforest, heaths and swamps; and
- development of conservation advice, recovery plans and threat abatement plans.

Agreements also accredit ecologically sustainable forest management systems, which include conservation management requirements for forestry within forestry areas and CAR reserves of both private and public land. Although RFAs pre-date the policies and mechanisms for biodiversity offsets, it can be argued that generally, RFAs do demonstrate application of the mitigation hierarchy, as well as promoting species recovery (which may involve restoring degraded ecosystems). They also provide a clear context for future forestry (development) activities. It is less clear that the precautionary principle was systematically applied in developing RFAs.

7.3. Implementation Governance

Implementation mechanisms:

- Are implementation mechanisms legally binding?
- Are responsibilities for implementing the plan shared by public and private landowners?

Regional forest agreements have both legally-binding and non-legally binding components, which vary from agreement to agreement (Hawke 2009b). The limitations of this were exposed in the court cases initiated by Senator Bob Brown in 2005 (Senate Standing Committee on Environment Communications and the Arts 2009b).

The management of native forests on private land is provided for through the ecologically sustainable forest management systems. Private native forests can also contribute to the CAR reserve system.

Monitoring and reporting mechanisms:

- Is regular monitoring of compliance with the plan required?
- Is monitoring of the effectiveness of the plan in achieving its objectives required?
- Are the results of monitoring programs publicly reported?
- Are there provisions for adaptive management?

Monitoring and reporting requirements depend on the RFA and are often linked with review requirements (for example, WA required an annual review and associated reporting for the first five years). In practice, the Senate Review found that most RFAs have not been monitored as required (Senate Standing Committee on Environment Communications and the Arts 2009b). In response, the Hawke review recommends serious sanctions under the EPBC Act 1999 for failure to comply with monitoring and reporting requirements (Hawke 2009b).

It has been noted that there are no mechanisms for monitoring biodiversity outcomes or MNES – the main focus is whether milestones and actions have been achieved. This suggests that implicit within the RFA concept is the assumption that the reserve system is sufficient to maintain biodiversity values and protect threatened species, an assumption that came into focus in a series of court cases initiated by Senator Bob Brown in 2005 (Senate Standing Committee on Environment Communications and the Arts 2009b).⁶ Concern that this is not necessarily the case was raised in a number of submissions to both the Hawke Review and the Senate Inquiry. The central question raised is whether observed species decline is due to habitat depletion due to forestry or other factors (Senate Standing Committee on Environment Communications and the Arts 2009b; Hawke 2009a). For example, the Senate Inquiry Report highlights that an audit of the forest management plan by the Western Australian Conservation Commission found that an observed decline of the woylie was likely to be unrelated to forestry activities, and the causes of decline of the brush-tailed phascogale were unknown (Senate Standing Committee on Environment Communications and the Arts 2009b). Therefore, compliance with the actions and milestones in RFAs appears to be insufficient to protect threatened species and thus deliver the desired biodiversity outcomes.

⁶ In *Brown v Forestry Tasmania* (No. 4) (2006) 152 LGERA 146, the Federal Court ruled that the CAR system and relevant management prescriptions were inadequate to fully protect Priority Species, and therefore that logging activities should not be exempt from approvals under s38 of the EPBC Act 1999 (Cwlth). S68 of the RFA Act was subsequently amended to explicitly state that parties agreed that the management strategies were adequate. A subsequent appeal of this decision by Senator Brown failed (BATES G 2010).

Review mechanisms:

- Is the plan regularly reviewed?
- Are there opportunities for community and stakeholder involvement in the review process?
- Are there provisions for the plan to be amended if necessary?

The final report of the Hawke Review notes that, 'Each RFA requires a review of its operation every five years. Completion of these reviews is a joint responsibility of the Australian Government and the relevant state. Tasmania is the only state to have completed RFA reviews on time. Reviews have not been completed for the other RFA regions, and while some review processes have begun, all mainland state government reviews are now well behind schedule. This is clearly unacceptable' (Hawke 2009b, p198). The Hawke Review recommends that the review mechanism should be expanded to assess the extent to which RFAs are achieving objectives, including biodiversity objectives. Submissions to the Hawke Review highlighted lack of consultation in ongoing implementation of RFAs and a lack of effective complaint mechanisms (Hawke 2009b).

The Hawke Review also found a lack of ability to intervene if biodiversity values are not being protected (Hawke 2009b). Furthermore, there are no requirements for RFAs to be revised in response to new strategic priorities, for example, to include newly listed species (Senate Standing Committee on Environment Communications and the Arts 2009b).

7.4. Summary of Strengths and Weaknesses

Strengths:

- Collaborative agreement between the federal and state governments;
- Submissions to the Hawke Review identified the following strengths of RFAs (Hawke 2009a, p107):
 - 'Protection for threatened species equal to or greater than that under the EPBC Act';
 - 'A landscape approach to forestry management, rather than a coupe-by-coupe approach';
 - 'Providing certainty for forest industries'; and
 - 'Providing a flexible management framework, taking into account regionally specific environmental conditions.'

Weaknesses:

- The CAR system may be inadequate to protect biodiversity, and there are no clear mechanisms within the RFA framework to address this;
- Monitoring and reporting based on actions rather than biodiversity outcomes;
- In practice, there has been a lack of compliance with monitoring, reporting and review requirements and lack of audit and enforcement functions; and
- Lack of ongoing communication and public involvement.

8. NRM Planning: Central West Catchment Action Plan (NSW)

The Department of Sustainability, Environment, Water, Population and Communities and Department of Agriculture, Fisheries and Forestry share responsibility for delivery of the Australian Government's environment and sustainable agriculture programs, which are broadly referred to as natural resource management (NRM). Australia has been divided into 56 NRM regions to facilitate integrated catchment management. The NRM organisations are characterised by a variety of origins, legal structures, capacities, and operating contexts. The NRM program was funded under the Natural Heritage Trust 2 (NHT2) and the National Action Plan for Salinity and Water Quality (NAP) programs from 2002/03 to 2007/08, and NRM plans and investment strategies were accredited by the Australian Government. These programs have now been replaced by Caring for our Country (CfoC) (<http://www.nrm.gov.au/about/nrm/index.html>), which focuses on six national priority areas and, it has been argued, moves away from the integrated and participatory approaches to NRM (Robins and Kanowski 2011). NRM plans are no longer required under Australian Government legislation and only in NSW and Victoria under the respective state legislation.

Natural resource management was the subject of a Senate Inquiry that also identified concerns with Caring for our Country (Senate Rural and Regional Affairs and Transport References Committee 2010). Recommendation 3 of the Senate Committee's report states, 'The committee recommends that the role of regional NRM organisations under Caring for our Country be more clearly defined and that a review be undertaken to assess the adequacy of support provided to regional NRM organisations in this regard. This review must consider the appropriate level of institutional support and base line funding necessary for regional NRM organisations to successfully undertake this role'. A discussion paper for the review of Caring for our Country was released in February 2011 but there appears to have been no further progress since then.

For the purpose of this analysis, the NRM plan of the Central West Catchment Management Authority, one of 13 NRM regions in NSW, was selected as an illustrative case study due to the innovative methodology applied. In NSW, NRM plans are termed Catchment Action Plans (CAPs) and are required under the *Catchment Management Authorities Act 2003* (NSW). Catchment action plans are reviewed by the NSW Natural Resources Commission (NRC) and approved by NSW Ministers for Regional Infrastructure and Services and Primary Industries. The preparation of CAPs is underpinned by Goal 23 of the NSW 2021 Plan: 'Increase opportunities for people to look after their own neighbourhoods and environments'. The development and evaluation of CAPs in NSW is guided by the *Standard for Quality Resource Management*, (NSW Natural Resources Commission 2005) and the *Evaluation Framework for CMA Natural Resource Management* (NSW Department of Environment and Climate Change 2009).

The Central West CAP has been selected because of the innovative approach adopted in its preparation. 'The plan takes a systems approach, is based on resilience thinking, and recognises adaptive management and evidence-based practice. This is a whole of community plan for the management of our natural resources. It sets a clear direction and facilitates the important contribution of all the

Central West community including landholders, local government and state agencies to the important outcome of well managed natural resources' (CWCMA 2012, p7).

8.1. Process Governance

Initiation process:

- Are there incentives to encourage the uptake of the mechanism?

Although NRM Plans (or CAPs) are voluntary in some jurisdictions, they are a requirement in NSW under the *Catchment Management Authorities Act 2003* (NSW).

Institutional arrangements:

- Is the process of developing the plan a collaboration between appropriate institutions?

Natural resource management plans or CAPs are by nature and intent collaborative, and this is one of the criteria by which the NSW Natural Resources Commission evaluates CAPs (NSW Natural Resources Commission 2012). The Central West CAP is a collaboration between 'local communities, farmers, environmental groups, Aboriginal communities, local government, industry and other NSW and Australian Government agencies all of whom have indicated their willingness to work with the CMA to ensure the outcomes of this CAP are achieved' (CWCMA 2011, p26).

Policy integration and alignment:

- Is the process aligned with other relevant policies and policy instruments?

Integration and alignment of an NRM plan or CAP with other initiatives and policy instruments is particularly important given the lack of legal basis for strategies and actions arising from such plans, although Bates (2010) observes a general lack of clarity in the regard. In particular, he notes that the links between NRM plans or CAPs and other environmental planning instruments are unclear or possibly non-existent.

The Central West CAP, however, is strongly linked to NSW State Government targets for communities, biodiversity, water and land. Extensive engagement with state agencies was undertaken to promote alignment. There are clear links to key policies, for example, NSW Draft Biodiversity Strategy and Natural Reserve System goals (CWCMA 2011).

Engagement:

- Is the process transparent and clearly communicated?
- Do community members and other stakeholders have sufficient opportunities for involvement?

Processes for developing NRM plans or CAPs are not specified and thus vary between NRM regions. The clear communication of the process to be followed is therefore a key component of the engagement process. A high level of engagement in the preparation of an NRM plan or CAP is consistent with the collaborative approach. The Central West CAP was developed through a highly collaborative process. Twelve public workshops were convened to facilitate community input into understanding the natural, social and economic systems within the catchment. Engagement with state government agencies was also undertaken.

8.2. Content

Spatial scale:

- Does the mechanism promote a geographic scope that is ecologically, socially and politically coherent?

The spatial scale is defined by NRM Region/catchment boundary and thus, probably aligns more closely with the concept of a bioregional boundary than most other mechanisms. The Hawke Review identified catchment boundaries as appropriate delineators of bioregions, although Brunckhorst (2009) raises a concern that catchment boundaries may not adequately consider social concerns, such as community and place attachment (see discussion in Section 2).

Scope and objectives:

- Do the biodiversity objectives reflect strategic priorities?
- Does the process consider biodiversity objectives within the socio-economic and cultural context of the region?
- Does the process seek to deliver a broad range of sustainability objectives?

As already discussed, the Central West CAP includes clear links to strategic priorities for biodiversity in NSW, by reflecting the goals in the NSW Draft Biodiversity Strategy and Natural Reserve System. Natural, social and economic systems are considered holistically, but objectives are focused on aspects of natural resource management including water, biodiversity and land, and broader socio-economic objectives are not explicitly included (CWCMA 2011).

Potential impacts on biodiversity considered:

- Does the mechanism require consideration of the impacts of potential future development?
- Does the mechanism require consideration of changes to ecological processes from other sources?
- Does the mechanism involve the explicit consideration of cumulative impacts?

Future development is not explicitly considered in the Central West CAP. The systems approach taken in the case of the Central West CAP considers the potential impacts of shocks such as policy change, climate change, governance, market forces, land use planning, invasive species and diseases on ecological processes. Cumulative impacts are systematically considered in the program logics that underpin the planning processes, whereby drivers impacting on each identified value are assessed (CWCMA 2011).

Outcomes generated:

- Does the mechanism encourage application of the mitigation hierarchy avoid, minimise, offset)?
- Does the mechanism facilitate restoration of degraded ecosystems?
- Does the mechanism deliver a clear context for future activities (for example, by identifying areas to be protected, establishing future development approvals requirements)?
- Does the mechanism deliver outcomes aimed at supporting ecological processes?
- Does the mechanism encourage application of the precautionary principle?

In the case of the Central West CAP, the resilience approach adopted inherently reflects application of the mitigation hierarchy. The identification of system thresholds, and of actions aimed at preventing harmful thresholds being reached, is a mechanism to avoid detrimental impacts. Other actions relate to minimising and managing impacts, and rehabilitating degraded landscapes. The focus is far more towards supporting ecological processes than to providing a context for future development. Although the resilience-based approach is inherently precautionary, the precautionary principle itself is not explicitly invoked in the analysis.

8.3. Implementation Governance

Implementation mechanisms:

- Are implementation mechanisms legally binding?
- Are responsibilities for implementing the plan shared by public and private landowners?

In the case of the Central West CAP, each of the priority actions is delivered through a collaborative effort between a number of stakeholders. There are no legally-binding enforcement mechanisms, and implementation is largely dependent on the good will and sense of joint ownership of the stakeholders. '(W)here regional bodies lack statutory authority and regulatory means of enforcement, their authority relies on a particular view of the relationship between input and output legitimacy. It is assumed that the inclusion of relevant stakeholders and others will foster ownership of natural resource problems as well as responsibility for the implementation of solutions' (Wallington et al. 2008, p21).

In accordance with the requirements of the NSW Natural Resource Commission (NSW Natural Resources Commission 2005), the Central West CAP explicitly aims to engage private landowners in contributing to catchment management practice and goals. 'Regional bodies are highly dependent on the cooperation of private landholders and the local community for plan implementation. Indeed, it has been claimed that most of the work to achieve sustainable NRM will need to be carried out by private landholders' (Wallington et al. 2008, p22). Bates (2010) notes that some NRM legislation, such as the *Natural Resource Management Act 2004* (SA), does include mechanisms through which actions on private landowners can be enforced.

Some priority actions are dependent on funding through Caring for our Country in a competitive bid process. This may have significant implications, since 'priority has been given to discrete projects capable of demonstrating short-term, measurable outputs and has failed to realise the aspirations of regional organisations for core funding, substantially increased transaction costs and diminished success rates under competitive funding arrangements, and prejudiced the goodwill of many in the natural resource management community' (Robins & Kanowski 2011, p88). Similar issues were also identified by the Senate Inquiry (Senate Rural and Regional Affairs and Transport References Committee 2010).

Monitoring and reporting mechanisms:

- Is regular monitoring of compliance with the plan required?
- Is monitoring of the effectiveness of the plan in achieving its objectives required?
- Are the results of monitoring programs publicly reported?
- Are there provisions for adaptive management?

The Central West CMA has a comprehensive Monitoring, Evaluation, Reporting and Improvement (MERI) program that is based on the Caring for our Country MERI Strategy. This is directed at delivery of the National Priority Areas under the Caring for our Country Framework and involves (Government of Australia undated):

- Monitoring - the regular collection and analysis of information to assist timely decision making, ensure accountability and provide the basis for evaluation and learning;
- Evaluation - in the natural resource management (NRM) context, periodic assessment of the impact, appropriateness, effectiveness, efficiency and legacy of a program or project;
- Reporting - communication of the findings associated with the evaluation process; and
- Improvement - the use of the evaluation findings to inform decision-making about whether and where adjustments might be made to ensure achievement of intended results or the longer-term objectives of the program.

The collaborative nature of NRM plans/CAPs makes them very compatible with principles of adaptive management. In the case of the Central West CAP, the plan is intended to be a living document, with adaptive management efforts directed at ongoing review of the key components of the methodology:

thresholds of potential concern, state and transition models, and program logics - actions, management targets and catchment goals (CWCMA 2011).

Review mechanisms:

- Is the plan regularly reviewed?
- Are there opportunities for community and stakeholder involvement in the review process?
- Are there provisions for the plan to be amended if necessary?

Reviews are undertaken in accordance with the requirements of the NSW Natural Resources Commission, which include broad engagement in the review process (NSW Natural Resources Commission 2005). The current Central West CAP was developed following a review of the previous 2005 plan.

8.4. Summary of Strengths and Weaknesses

Strengths:

- Very effective in promoting the understanding and engagement of the whole community in natural resource management;
- Takes an integrated socio-ecological approach;
- Engages private land owners in delivering outcomes as well as government agencies;
- Central West CAP incorporates a number of innovations including the use of resilience thinking; and
- Bottom up, highly collaborative approach that generates a sense of ownership of the region. This is appropriate for ongoing land management in situations where no specific development plans are mooted.

Weaknesses:

- Not legally required outside NSW and Victoria;
- Lacks enforcement ‘teeth’ – relies on collaboration and involvement of all parties;
- Implementation is highly dependent on funding through Caring for our Country, which has specific objectives that do not necessarily align with those of the NRM regions; and
- Does not necessarily offer protection of biodiversity in the event of development (that may be unforeseen at time of plan development).

9. Strategic Regional Land Use Plans: Upper Hunter Regional Strategic Land Use Plan

Strategic Regional Land Use Plans (SRLUPs) are one element of the NSW Strategic Regional Land Use Policy Package, the objectives of which are to ‘better balance growth in the mining and coal seam gas (CSG) industries with the need to protect important agricultural land and water resources’ (DPI NSW 2012a, p3). Although biodiversity conservation is not a primary aim of the policy, biodiversity values are identified in the development of the SRLUPs. Two SRLUPs have been completed to date: for the Upper Hunter Region and the New England North West Region (<http://www.planning.nsw.gov.au/slurp>). The former of these has been selected as a representative case study because the intention to undertake strategic assessment of the SRLUP provides an opportunity to explore the relationship between these two mechanisms.

The Draft Strategic Regional Land Use Plan for the Upper Hunter discusses a proposed strategic assessment of the Upper Hunter Region under the EPBC Act 1999 to which the final plan would provide key input (DPI NSW 2012b). This example demonstrates how different planning and assessment tools can be used in conjunction with one another to achieve particular objectives. A strategic assessment would offer more robust mechanisms for biodiversity conservation than the plan alone, which has no legal enforcement mechanisms. The strategic assessment agreement has not yet been signed but negotiations are well progressed between the Australian Government and various NSW government agencies, in collaboration with mining companies operating in the Upper Hunter Valley (Ravallion 2012).

9.1. Process Governance

Initiation process:

- Are there incentives to encourage the uptake of the mechanism?

The SRLUPs are developed by the NSW Government in accordance with NSW Strategic Regional Land Use Policy Package, although it is noted that the draft Upper Hunter SRLUP pre-dates the release of the policy by six months and was developed in response to an identified need to reconcile competing land use interests.

Institutional arrangements:

- Is the process of developing the plan a collaboration between appropriate institutions?

The Draft Upper Hunter RSLUP has been prepared through a whole of (NSW) government approach, led by the Department of Planning and Infrastructure (DPI), in accordance with the NSW Strategic Regional Land Use Policy.

Policy integration and alignment:

- Is the process aligned with other relevant policies and policy instruments?

Although alignment with other NSW policies is not explicit, the Upper Hunter SRLUP considers a range of issues and industries operating within the region, including coal, agriculture, tourism, infrastructure, community health and amenity, housing and settlements, biodiversity, climate change etc. Given that the plan was developed through a whole of government approach it can be assumed that it is aligned with other relevant NSW policies and strategies.

Engagement:

- Is the process transparent and clearly communicated?
- Do community members and other stakeholders have sufficient opportunities for involvement?

The NSW DPI convened local government forums and also engaged with the Strategic Regional Land Use Policy Stakeholder Reference Group. Submissions received on the earlier exhibition of the NSW Coal and Gas Strategy scoping paper were also considered (DPI NSW 2012b).

9.2. Content**Spatial scale:**

- Does the mechanism promote a geographic scope that is ecologically, socially and politically coherent?

The plan covers the Upper Hunter Region, comprising parts of five local government areas and encompassing eight Interim Biogeographic Regionalisation for Australia (IBRA) subregions. Although not clearly described in the plan, it is likely that the determination of geographic scope was informed by the boundaries of the coal deposits as well as natural landscape features.

Scope and objectives:

- Do the biodiversity objectives reflect strategic priorities?
- Does the process consider biodiversity objectives within the socio-economic and cultural context of the region?
- Does the process seek to deliver a broad range of sustainability objectives?

Biodiversity objectives are focused on MNES and threatened species under NSW legislation. The purpose of the plan is to resolve land use conflicts, particularly related to coal mining and coal seam gas production. It takes a holistic approach to considering environmental, social and economic issues within this context. The key challenges and action areas identified are: balancing agriculture and resource development; infrastructure; economic development and employment; housing and settlement; community health and amenity; natural environment; and cultural heritage.

Potential impacts on biodiversity considered:

- Does the mechanism require consideration of the impacts of potential future development?
- Does the mechanism require consideration of changes to ecological processes from other sources?
- Does the mechanism involve the explicit consideration of cumulative impacts?

Future development, particularly of the coal industry, is a core concern of the Upper Hunter SRLUP. The draft plan implies that a more detailed consideration of threats from these industries will be the focus of a subsequent strategic assessment. Climate change is discussed, but no analysis of the impacts of climate change on biodiversity values is provided. Cumulative impacts are not explicitly discussed.

Outcomes generated:

- Does the mechanism encourage application of the mitigation hierarchy (avoid, minimise, offset)?
- Does the mechanism facilitate restoration of degraded ecosystems?
- Does the mechanism deliver a clear context for future activities (for example, by identifying areas to be protected, establishing future development approvals requirements)?
- Does the mechanism deliver outcomes aimed at supporting ecological processes?
- Does the mechanism encourage application of the precautionary principle?

The draft Upper Hunter SRLUP advocates the mitigation hierarchy in protecting biodiversity values (DPI NSW 2012b). It maps Tier 1 and Tier 2 biodiversity areas at a regional scale, and advises proponents that they should endeavour to avoid impacts on Tier 1 biodiversity values. Offsets are also discussed, and the draft plan identifies ‘priority offset and investment landscapes’, which are preferred areas for future offsets. The plan also includes an action to develop a database of currently held land for conservation purposes to ensure it is not encroached on, thus providing a clear context for future development that will be strengthened through the strategic assessment process. The plan does not, however, identify mechanisms to strengthen underpinning ecological processes, and there is no indication that the precautionary principle has been applied.

9.3. Implementation and Outcomes**Implementation mechanisms:**

- Are implementation mechanisms legally binding?
- Are responsibilities for implementing the plan shared by public and private landowners?

There are no clear enforcement mechanisms associated with a SRLUP; indeed the Upper Hunter SRLUP appears to be intended as a high-level document that will require supplementation by other more detailed processes (for example strategic assessment or bioregional assessment). The proposed strategic assessment process would utilise the NSW Biodiversity Certification Assessment Methodology (BCAM) (Ravallion 2012). This methodology underpins the process of biodiversity certification of land under the *Threatened Species Conservation Amendment (Biodiversity Certification) Act 2010* (NSW), through which planning authorities must demonstrate that the certification of land will improve or maintain biodiversity values. The BCAM ‘assesses the loss of biodiversity values on land proposed for biodiversity certification and the impact, or likely impact, of proposed conservation measures on land proposed for biodiversity conservation’ (Government of NSW 2011, p1)

Consideration is given to the issue of some of the identified ‘priority offset landscapes’ being on private land, noting that the use of this land for biodiversity offsets will require negotiations with landowners. No consideration is given to the role of private landowners in land management and biodiversity conservation.

Monitoring and reporting mechanisms:

- Is regular monitoring of compliance with the plan required?
- Is monitoring of the effectiveness of the plan in achieving its objectives required?
- Are the results of monitoring programs publicly reported?
- Are there provisions for adaptive management?

No clear monitoring and reporting framework is identified in the draft Upper Hunter SRLUP, which simply states that, ‘Progress on actions established in this plan will be monitored annually through cross-agency implementation groups and on-going consultation with key stakeholders’ (DPI NSW 2012b, p88). The focus is thus on monitoring actions rather than monitoring biodiversity. Adaptive management provisions are not discussed.

Review mechanisms:

- Is the plan regularly reviewed?
- Are there opportunities for community and stakeholder involvement in the review process?
- Are there provisions for the plan to be amended if necessary?

The draft plan commits to a five-yearly review process (DPI NSW 2012b) though there is no legislative requirement for review. It is assumed that a review would lead to an amendment of the plan and that stakeholders would be offered opportunity for involvement in the review process but this is not clear.

9.4. Summary of Strengths and Weaknesses

Strengths:

- Developed through a whole of government approach;
- Takes a holistic and (somewhat) proactive view of a whole region, considering the interaction between social, economic and environmental factors and how they might be impacted by future development drivers;
- Biodiversity is considered in this context, and some indications are provided as to how biodiversity objectives in the region may be met in the future, for example, through identifying and protecting high value (Tier 1) areas and by identifying suitable areas for biodiversity offsets, suggesting application of the mitigation hierarchy (avoid, minimise, offset); and
- Opportunity to strengthen biodiversity outcomes through a strategic assessment process.

Weaknesses:

- It is not clear that biodiversity objectives are afforded a sufficiently high priority in the face of a broad range of development objectives;
- Does not generate legally binding outcomes for the protection of biodiversity (or other objectives);
- Does not take a holistic approach to managing biodiversity by supporting ecological processes or facilitating rehabilitation of degraded ecosystems;
- The data used and approach applied are suitable only as high level indications of biodiversity values. Further, more detailed work would be required to assess biodiversity values in more detail and identify suitable protection mechanisms; and
- There are no monitoring or reporting requirements for biodiversity conservation associated with the plan.

10. Victorian Environmental Assessment Council: Remnant Native Vegetation Report

The Victorian Environmental Assessment Council (VEAC) ‘provides independent and strategic advice to the Government of Victoria on matters relating to the protection and ecologically sustainable management of the environment and natural resources of the State of Victoria’ (www.veac.vic.gov.au). The VEAC operates under the *Victorian Environmental Council Act 2001*, and replaces the Environmental Conservation Council (1997-2001), which in turn replaced the Land Conservation Council (1971-1997).

The VEAC conducts investigations on behalf of the Government of Victoria on matters relating to public land. For the purpose of this analysis, the recently completed Remnant Native Vegetation Report (March 2011) was selected as a case study, mainly because it extends the usual scope of the VEAC investigations to also consider private land, in response to stakeholder requests (http://www.veac.vic.gov.au/documents/RNV_FinalReport%20PDF%20low%20res.pdf).

The purposes of the investigation were to (VEAC 2011, p3)

- a) Identify and evaluate the condition, values, resources and uses of these areas of remnant native vegetation and associated fauna outside largely intact-landscapes;
- b) Assess these areas for their connectivity and contribution to sustainable landscapes in relation to climate change;
- c) Report on the contribution of these areas of remnant native vegetation to biodiversity conservation, recreation activities, community uses, commercial opportunities, services and utilities in the context of improving connectivity with largely-intact landscapes and freehold land; and
- d) Report on opportunities for management to achieve improved ecological connectivity.

10.1. Process Governance

Initiation process:

- Are there incentives to encourage the uptake of the mechanism?

The VEAC investigations are initiated at the request of the Government of Victoria, represented in this case by the Minister for Environment and Climate Change.

Institutional arrangements:

- Is the process of developing a collaboration between appropriate institutions?

The VEAC investigations are undertaken by VEAC on behalf of the Government of Victoria.

Policy integration and alignment:

- Is the process aligned with other relevant policies and policy instruments?

The VEAC Remnant Native Vegetation Investigation is not explicitly linked to other relevant policies and policy instruments relating to biodiversity management, although by reviewing the status of remnant native vegetation it is implicitly evaluating the effectiveness of these.

Engagement:

- Is the process transparent and clearly communicated?
- Do community members and other stakeholders have sufficient opportunities for involvement?

The broad steps of the process (that is, milestones for reporting and opportunities for engagement) were publicised, but no clear process for the conduct of the investigation is documented. The process was consultative, however, through mechanisms including:

- A Community Reference Group and a Scientific Advisory Committee were established to advise council on various aspects of the investigation. These bodies each met six times;
- Two formal submission periods of at least 60 days each attracted more than 190 written submissions. The submissions can be viewed on VEAC's website;
- A total of 14 workshops held at eight locations across Victoria attracted 250 participants; and
- Other meetings and other discussions held with stakeholder groups and individuals at their request.

10.2. Content

Spatial scale:

- Does the mechanism promote a geographic scope that is ecologically, socially and politically coherent?

The Remnant Native Vegetation Investigation covers the whole State of Victoria, representing 28 bioregions. Therefore the geographic scope was primarily based on political boundaries.

Scope and objectives:

- Do the biodiversity objectives reflect strategic priorities?
- Does the process consider biodiversity objectives within the socio-economic and cultural context of the region?
- Does the process seek to deliver a broad range of sustainability objectives?

Although the focus of the investigation is the biodiversity values of the remnant vegetation, its social and economic values are recognised and the investigation is undertaken in the context of this recognition.

Potential impacts on biodiversity considered:

- Does the mechanism require consideration of the impacts of potential future development?
- Does the mechanism require consideration of changes to ecological processes from other sources?
- Does the mechanism involve the explicit consideration of cumulative impacts?

A number of current and future threats to biodiversity are considered, including: clearing and fragmentation of biodiversity; degradation of native vegetation; 'extinction debt' (that is, the future extinction of species due to events in the past); changes in the matrix; inappropriate fire regimes; and climate change. The potential impacts due to climate change are considered in terms of physical changes; changes to biodiversity; impacts on habitat quality and refugia; and impacts on stepping stones, connectivity and dispersal (VEAC 2010). Future development is not specifically considered, but

may cause a number of the identified threats to biodiversity, which the investigation recommendations are seeking to protect against. Cumulative impacts are not explicitly considered.

Outcomes generated:

- Does the mechanism encourage application of the mitigation hierarchy avoid, minimise, offset)?
- Does the mechanism facilitate restoration of degraded ecosystems?
- Does the mechanism deliver a clear context for future activities (for example, by identifying areas to be protected, establishing future development approvals requirements)?
- Does the mechanism deliver outcomes aimed at supporting ecological processes?
- Does the mechanism encourage application of the precautionary principle?

In addition to strategic recommendations relating to appropriate approaches to the management of remnant vegetation, recommendations are made to promote biodiversity protection in specific areas of remnant vegetation, including road and rail reserves (an inventory), private land (incentives for land owners), riparian public land (control of stock grazing and rehabilitation), small public land reserves (promotion of cooperative actions between public land managers and the community) and the protected area system (investigations into the need to provide a comprehensive, adequate and representative reserve system in three bioregions). These outcomes are aimed at protecting biodiversity values from future development as well as supporting ecological processes (VEAC 2011) and can be considered reflective of the mitigation hierarchy. The precautionary principle is not explicitly invoked but is implicit in the purpose and recommendations of the investigation.

10.3. Implementation Governance

Implementation mechanisms:

- Are implementation mechanisms legally binding?
- Are responsibilities for implementing the plan shared by public and private landowners?

Due to the strategic nature of the investigation and recommendations, no enforcement mechanisms are identified. Unlike other investigations undertaken by VEAC, the Remnant Native Vegetation Investigation specifically considers biodiversity on private land and recommends incentives for private landowners to protect and manage these areas of remnant vegetation (VEAC 2011).

Monitoring and reporting mechanisms:

- Is regular monitoring of compliance with the plan required?
- Is monitoring of the effectiveness of the plan in achieving its objectives required?
- Are the results of monitoring programs publicly reported?

- Are there provisions for adaptive management?

The VEAC report makes strategic, rather than specific recommendations to the Government of Victoria, and therefore is one step removed from monitoring and reporting on biodiversity outcomes. For example, Recommendation 13 relates to knowledge, information and awareness and proposes that ‘ongoing statewide monitoring and reporting on trends in extent, site condition and landscape context’ (VEAC 2011, p57) be initiated. The Government of Victoria accepted this recommendation in principle but declined to establish a comprehensive state-led monitoring and reporting program, instead suggesting that the investigation findings should be incorporated into catchment management processes (DSE 2011b). It is therefore not clear how the recommendations of the investigation are to be implemented, monitored or reported on.

Due to the strategic nature of the investigation and recommendations, no specific requirements for adaptive management are identified. However, adaptive management is discussed in principle as an appropriate approach for dealing with uncertainty (VEAC 2010).

Review mechanisms:

- Is the plan regularly reviewed?
- Are there opportunities for community and stakeholder involvement in the review process?
- Are there provisions for the plan to be amended if necessary?

No review requirements are identified.

10.4. Summary of Strengths and Weaknesses

Strengths:

- Utilises sophisticated biodiversity modelling techniques based on comprehensive databases;
- Analysis is conducted in the context of each of the 28 bioregions represented in Victoria;
- Threats to biodiversity, including different impacts of climate change, are identified and discussed;
- Provides a high-level strategic overview of remnant vegetation management across Victoria; and
- Recognises the importance of biodiversity management on private and public lands and takes a land management approach.

Weaknesses:

- The VEAC investigations are ad hoc, only conducted on the request of the Government of Victoria;
- The alignment between the investigation and strategic priorities and policies is not clear;
- There is nothing to require that the study area has ecological, social or political coherence;
- The investigation does not consider future development;

- As the investigation makes strategic recommendations to the Government of Victoria, which then determines whether, and how they should be implemented, the investigation is one step removed from a concrete action plan to promote biodiversity conservation. Although the Government of Victoria accepted most of the recommendations at least in principle (DSE 2011b), it is not clear how these are being implemented or how an adaptive management approach might be implemented;
- Related to the previous comment, there is no clear monitoring and reporting process; and
- There is no discussion of a future review process or nomination of a review period.

11. Summary of Findings

We have summarised our findings in a quick-lookup reference table (Table 3). The table reflects the preceding discussion, summarising the key characteristics of each mechanism against the comparative framework developed in Section 2, focusing on the mechanisms rather than on the specific case studies, which are used for the purposes of illustration. It demonstrates the considerable variety with respect to performance against the comparative framework. In turn, this reflects variation in both what the mechanisms are designed to achieve and the approaches they embody. Some mechanisms deliver land use planning outcomes, others promote land management outcomes engaging both private and public landowners, and others focus at the higher level of government policy.

The analysis also suggests some inherent tensions between some of the elements; for example, the concept of adaptive management does not necessarily align well with the idea of the rigorous enforcement mechanisms that may be required in the face of development or other threats to biodiversity; a legal requirement to undertake a planning or assessment process may conflict with ideals of collaboration; the need for timeliness may affect the quality of ecological data collection and interpretation processes; integration with development planning may compromise biodiversity objectives. Therefore, what is considered a strength or a weakness in each case depends upon the context and the other attributes of a particular plan or process and there is no ‘single best’ mechanism. We discuss these nuances of the various mechanisms and their application in the following section.

The colour coding system for Table 3 is as follows:






	Category	Description
	Dark Green	Directly addresses
	Light Green	Indirectly addresses
	Orange	Partly addresses
	Red	Does not address
	Purple	Not clear

Table 3: Comparison of landscape-scale biodiversity planning and assessment mechanisms

	PLANNING AND ASSESSMENT MECHANISMS					
	Strategic Assessment	Bioregional Planning	Regional Forest Agreements	NRM Plans/CAPs	Strategic Regional Land Use Plans (SRLUP)	Victorian Environmental Assessment Council Investigation
ELEMENT IN THE APPROACH	A. PROCESS GOVERNANCE					
	1. Initiation process: <i>Are there incentives to encourage the uptake of the mechanism?</i>	Directly addresses	Indirectly addresses	Directly addresses	Indirectly addresses	Indirectly addresses
	2. Institutional arrangements: <i>Is the process a collaboration between appropriate institutions?</i>	Indirectly addresses	Partly addresses	Directly addresses	Directly addresses	Indirectly addresses
	3. Policy integration and alignment: <i>Is the mechanism aligned to other relevant policies and policy instruments?</i>	Directly addresses	Partly addresses	Not clear	Partly addresses	Indirectly addresses
	4. Engagement: <i>Is the process transparent and clearly communicated?</i>	Partly addresses	Does not address	Directly addresses	Indirectly addresses	Partly addresses
	<i>Do community members and other stakeholders have sufficient opportunities for involvement in the preparation of the plan?</i>	Indirectly addresses	Does not address	Directly addresses	Directly addresses	Partly addresses

		PLANNING AND ASSESSMENT MECHANISMS					
		Strategic Assessment	Bioregional Planning	Regional Forest Agreements	NRM Plans/CAPs	Strategic Regional Land Use Plans (SRLUP)	Victorian Environmental Assessment Council Investigation
ELEMENT IN THE APPROACH	B. CONTENT						
	1. Spatial scale: Does the mechanism promote a geographic scope that is ecologically, socially and politically coherent?	Does not address	Directly addresses	Directly addresses	Directly addresses	Partly addresses	Does not address
	2. Scope and objectives: Do the biodiversity objectives reflect strategic priorities?	Directly addresses	Directly addresses	Directly addresses	Indirectly addresses	Indirectly addresses	Partly addresses
	Does the process consider biodiversity objectives within the socio-economic and cultural context of the region?	Partly addresses	Indirectly addresses	Directly addresses	Directly includes	Directly addresses	Directly addresses
	Does the process seek to deliver a broad range of sustainability objectives?	Partly addresses	Not clear	Partly addresses	Does not address	Directly addresses	Does not address
	3. Potential impacts on biodiversity considered: Does the process explicitly consider the impacts of potential future development or activities?	Directly addresses	Does not address	Directly addresses	Does not address	Directly addresses	Does not address
	Does the process involve consideration of changes to ecological processes from other sources?	Partly addresses	Directly addresses	Partly addresses	Directly addresses	Does not address	Directly addresses
	Does the mechanism involve the explicit consideration of cumulative impacts?	Partly addresses	Not clear	Partly addresses	Indirectly addresses	Does not address	Does not address

	PLANNING AND ASSESSMENT MECHANISMS						
		Strategic Assessment	Bioregional Planning	Regional Forest Agreements	NRM Plans/CAPs	Strategic Regional Land Use Plans (SRLUP)	Victorian Environmental Assessment Council Investigation
ELEMENT IN THE APPROACH	4. Outcomes generated: Does the mechanism encourage application of the mitigation hierarchy (avoid, minimise, offset)?	Directly addresses	Indirectly addresses	Directly addresses	Partly addresses	Directly addresses	Partly addresses
	Does the mechanism facilitate restoration of degraded ecosystems?	Indirectly addresses	Indirectly addresses	Partly addresses	Indirectly addresses	Does not address	Indirectly addresses
	Does the mechanism deliver a clear context for future activities (for example, by identifying areas to be protected, establishing future development approvals requirements)?	Directly addresses	Indirectly addresses	Directly addresses	Partly addresses	Directly addresses	Partly addresses
	Does the mechanism deliver outcomes aimed at supporting ecological processes?	Does not address	Indirectly addresses	Partly addresses	Directly addresses	Does not address	Directly addresses
	Does the process encourage application of the precautionary principle?	Partly addresses	Indirectly addresses	Not clear	Partly addresses	Does not address	Not clear

	PLANNING AND ASSESSMENT MECHANISMS					
	Strategic Assessment	Bioregional Planning	Regional Forest Agreements	NRM Plans/CAPs	Strategic Regional Land Use Plans (SRLUP)	Victorian Environmental Assessment Council Investigation
ELEMENT IN THE APPROACH	C. IMPLEMENTATION GOVERNANCE					
	1. Implementation mechanisms:					
	Are implementation mechanisms legally binding?	Directly addresses	Does not address	Partly addresses	Does not address	Does not address
	Are responsibilities for implementing the plan shared by public and private landowners?	Does not address	Not clear	Directly addresses	Directly addresses	Does not address
	2. Monitoring and reporting mechanisms:					
	Is regular monitoring of compliance with the plan required?	Partly addresses	Does not address	Directly addresses	Directly addresses	Partly addresses
	Is monitoring of the effectiveness of the plan in achieving its objectives required?	Indirectly addresses	Does not address	Does not address	Directly addresses	Not clear
	Are the results of monitoring programs publicly reported?	Indirectly addresses	Indirectly addresses	Directly addresses	Directly addresses	Not clear
	Are there provisions for adaptive management?	Partly addresses	Indirectly addresses	Not clear	Indirectly addresses	Does not address
	3. Review mechanisms:					
	Is regular review of the plan required?	Indirectly addresses	Does not address	Partly addresses	Directly addresses	Directly addresses
	Are there opportunities for community and stakeholder involvement in the review process?	Indirectly addresses	Not clear	Does not address	Directly addresses	Not clear
	Are there provisions for the plan to be amended if necessary?	Not clear	Not clear	Partly addresses	Directly addresses	Not clear

12. Discussion

In order to extract potentially useful lessons from the comparative analysis in Section 4, it may be useful to return to the Hawke Review's distinction between bioregional planning and strategic assessment under the EPBC Act 1999 discussed in Section 3, and to review the performance of the other mechanisms in this context: To reiterate (Hawke 2009b, p79):

- *Strategic assessment allows for assessment and potential approval of actions taken in accordance with a plan, policy or program. Conceptually, strategic assessments occur where a plan, policy or program has been conceived and is being developed.'*
- *'Bioregional plans, on the other hand, have the potential to be developed from scratch where there is no pre-existing landscape planning or where existing landscape plans are due for review.*

Thus the purpose of a strategic assessment is to ensure the protection of biodiversity values in the face of planned action of some kind, as outlined in the policy, plan or program that is the subject of the assessment. It is therefore somewhat reactive, notwithstanding that ideally the strategic assessment process would be fully integrated with the planning process. In contrast, the purpose of a bioregional plan is to proactively establish a framework for biodiversity management into the future, whether or not development of the type that might threaten biodiversity is conceived.

The two mechanisms therefore have fundamentally different purposes, and therefore offer different strengths and weaknesses from a biodiversity conservation perspective. One significant difference is that bioregions can be more effectively defined to ensure ecological, social and cultural coherence for bioregional planning than for strategic assessment, where the boundaries are defined by the policy, plan or program under assessment. An equally important similarity between the two, however, is the need for collaboration: since the EPBC Act 1999 is primarily concerned with MNES, the delivery of other environmental as well as social and economic goals for a region requires the involvement of partners, usually state or territory governments and the mechanisms available under their respective legislation. Another is the incentive offered by both mechanisms of streamlining future approvals processes.

Of the other mechanisms discussed, it could be argued that Regional Forest Agreements and Strategic Regional Land Use Planning have much in common with strategic assessment in that their purpose is to reconcile environmental objectives with socio-economic objectives and to find a balance. On the other hand, CAPs (or NRM Plans) and investigations conducted by the Victorian Environmental Assessment Council are arguably more aligned with bioregional planning whereby biodiversity objectives have primacy, although they are considered within the broader socio-economic and cultural context of a region. The differences between these latter mechanisms are also significant, however, as CAPs/NRM Plans articulate location-specific recommendations and actions, while the recommendations of the VEAC Remnant Native Vegetation Investigation are largely focused at a strategic policy level, suggesting initiatives that would permit subsequent location-specific actions.

The difference between the two broad approaches is also evident in the type of biodiversity outcomes delivered. Ravillion's (2012) distinction between planning outcomes and land management outcomes is useful. The 'strategic assessment-like' mechanisms generally lead to planning outcomes, whereby appropriate land uses are designated for different areas (including conservation areas) and enforced through the use of planning mechanisms. Although stakeholders and the community have some input into the process they are not asked to participate in ongoing management processes. Private landowners within the new reserve areas in Melbourne are not invited to collaborate in land management practices to preserve the grasslands, rather they are to be bought out so that the land can be legally protected and managed in perpetuity by government.

In contrast, the 'bioregional planning-like' mechanisms generate land management outcomes which may or may not be legally binding but which provide a direction for the future management of an area which involves a broader range of stakeholders. In the case of the Central West CAP, and NRM generally, land management is a collaborative process between different levels of government, local groups, individual land owners and businesses aligned under the vision outlined in the plan. Implementation in this case depends on the good will of all parties. Similarly, the VEAC Remnant Native Vegetation investigation makes recommendations for the engagement and incentivisation of private landowners to encourage good land management practices, as well as promoting education and learning. It also recommends the extension of protected areas, highlighting that the two approaches are not mutually exclusive but complementary. It is also likely that bioregional plans under the EPBC Act 1999 would identify areas for protection, as well as facilitating other types of management processes such as those discussed in Section 6.3.

A range of biodiversity outcomes can be achieved through both types of mechanism. The strategic assessment guidelines (Commonwealth of Australia 2012a) emphasise that the mitigation hierarchy should be applied through the strategic assessment process, that is, the impacts should firstly be avoided, then mitigated, then offset and finally managed through adaptive management. The strategic assessment process is particularly well-suited to facilitating avoidance, by identifying specific areas within the region that should not be subject development, as demonstrated by the Melbourne Growth Boundary strategic assessment. This case study also incorporates examples of mitigation through techniques such as translocation and restoration, and provides for a strategic, landscape-scale approach to biodiversity offsets. Opportunities for real adaptive management are less clear, however, since the implementation of the program requires legally binding enforcement mechanisms, for example, to define the tracts of land that will form part of the new reserves. The lack of adaptive management in relation to species decline within RFA areas has been discussed in Section 7. In contrast, the Central West CAP, with its much less rigid implementation measures, is ideally suited to adaptive management.

Where adaptive management is an ideal rather than a practical tool, as in the case of the Melbourne Growth Boundary strategic assessment, other responses to complexity and uncertainty are required. For example, the Melbourne Strategic Impact Assessment Report highlights that the inherent uncertainty associated with ensuring the conservation of biodiversity values within the new reserves has been addressed by taking a precautionary approach to the identification of appropriate boundaries for these reserves. It is also argued that the scale of the reserves promotes ecological resilience in itself (DSE 2009).

The significant distinguishing features of bioregional planning and strategic assessment based on the previous analysis are summarised in Table 4.

Table 4: Comparison of bioregional planning and strategic assessment under the EPBC Act 1999 (Cwlth)

Characteristic	Bioregional Planning	Strategic Assessment
Purpose	To understand and protect biodiversity values within a region	To reconcile biodiversity and socio-economic objectives in the context of development
Initiation	Proactive	Reactive to proposed development
Spatial scale	Can be proactively defined to ensure ecological, social and governance coherence	Dependent on the spatial scale defined in the policy, plan or program
Nature of outcomes	Land management focus	Planning focus (emphasis on protected areas)
Management approach	More compatible with an adaptive management approach, bottom up, collaborative	Less compatible with an adaptive management approach, top down, command and control (strong enforcement)

Although consideration of the ecological input to these planning processes is outside the scope and purpose of this report since it is independent of the mechanism, all of the mechanisms discussed do demand a sophisticated understanding of the ecological systems within the region, supported by the latest knowledge, tools and methodologies. Resilience-based system analysis utilising program logic, as applied by the Central West CMA in preparing its CAP, is an innovative methodological approach that can be utilised within a broad range of mechanisms. Furthermore, a recent study by Eco Logical Australia and Open Lines Environmental Consulting on behalf of the four private proponents utilising the coal export facilities at the Port of Abbot Point in Queensland demonstrates how the cumulative impacts on marine and terrestrial biodiversity values can be effectively assessed (Eco Logical Australia and Open Lines Environmental Consulting 2012).

Another important conclusion is that implementation and enforcement mechanisms vary considerably across the case studies considered, and that this largely depends on the jurisdictions involved and the available mechanisms under the relevant legislation. For example, the outcomes of the Melbourne Growth Boundary strategic assessment have been largely 'locked in' using Victorian planning mechanisms. As identified by the Senate Committee (Senate Standing Committee on Environment Communications and the Arts 2009a), the EPBC Act 1999 itself has provisions for a number of implementation and enforcement mechanisms, including listing of threatened species or

populations, and the preparation of recovery plans for them. In S183 and s188 of the EPBC Act 1999, the identification of key threatening processes and the preparation of threat abatement plans to address these are identified. Conservation agreements between the Minister and private landholders are yet another potential mechanism through which the outcomes of bioregional planning or strategic assessment could be implemented and enforced.

It is also important to note that bioregional planning and strategic assessment and the other mechanisms highlighted in this report are not necessarily mutually exclusive. It has already been noted that the Upper Hunter Regional Strategic Land Use Plan will be supplemented with a strategic assessment of the plan. The plan and the assessment have quite different objectives, the first aiming to reconcile competing land use priorities in the context of coal mining and coal seam gas activities, and the second to protect MNES in this development context. Thus a full range of sustainability issues are considered at an appropriate point in the overall process, to provide certainty to all stakeholders. It is equally conceivable that a strategic assessment could be undertaken of a proposed development in a region that has previously been subject to a bioregional planning process. This would mean that environmental, social and economic values would already be identified and some protection mechanisms may already be in place. The strategic assessment would then focus on the potential impact of the proposed development on these values, and particularly on MNES, thus considerably streamlining the overall process. As already discussed in Section 6.3, bioregional plans could also provide input into the prioritisation of NRM projects through the Caring for our Country process, along with providing input into a number of other different processes.

The new Australian Government mechanism of regional sustainability planning is worthy of further consideration at this point. The new process will incorporate strategic assessment to ensure the protection and appropriate management of MNES, but will also consider a wide range of social and economic factors in the high growth areas that will be the subject of the planning. Mechanisms for delivering objectives that are outside the scope of the EPBC Act 1999 will be the responsibility of the partner jurisdiction. Approaches and methodologies have yet to be developed, but the opportunity to take a holistic approach to sustainability planning offers another dimension to the strategic assessment of urban expansions as typified by the Melbourne Growth Boundary and other similar strategic assessments. A sustainability focus would enable a resilience-based systems approach to be taken, similar to the Central West CAP case study, in which the connections between the key elements of the socio-ecological system could be analysed in a collaborative process. This would enable management strategies to be developed for all identified impact pathways, and not simply the direct effects of urban expansion. For example, this could include the actions of private landowners, climate change effects, tourism effects and many others. The package of outcomes could be implemented through a combination of legal mechanisms, particularly to ensure protection of MNES, but also voluntary and incentive based measures to which adaptive management principles could be effectively applied.

13. Conclusions

The Hawke Review has identified the opportunity to increase the use of landscape-scale planning and assessment mechanisms for biodiversity conservation, and particularly bioregional planning and strategic assessment under the EPBC Act 1999 in order to simultaneously deliver environmental and development objectives (Hawke 2009b). Since the Hawke Review was completed, four strategic assessments have been completed, another eight are underway and at least one other is in planning. To date no terrestrial bioregional plans have been undertaken. In order to review the potential offered by these EPBC Act 1999 mechanisms for biodiversity conservation, this study has reviewed four other landscape-scale planning and assessment mechanisms, drawing on specific case studies where appropriate, for the purposes of comparison. These were:

- Regional Forest Agreements (RFAs) in Section 7;
- Natural Resource Management (NRM)/Catchment Action Plans (CAPs) Central West CAP in Section 8;
- NSW Strategic Regional Land Use Plans (SRLUP): Upper Hunter SRLUP in Section 9; and
- Victorian Environmental Assessment Council (VEAC) investigations: Remnant Native Vegetation Investigation in Section 10.

It is suggested that RFAs and NSW SRLUPs are more aligned with strategic assessment since they seek to reconcile environmental values with socio-economic values in a development context, while NRM plans/CAPs and VEAC investigations take a more proactive biodiversity focus.

Our findings are summarised as follows:

Finding 1: The strengths of bioregional planning are that: the boundaries of the plan can be defined to ensure ecological, social and governance coherence (in contrast with strategic assessment where the boundaries are defined by the policy, plan or program under assessment); a proactive approach can be taken that establishes a framework for future management; there is potential for bioregional planning to be applied in conjunction with other mechanisms and tools including NRM planning and strategic assessment; an integrated land management approach can be promoted through which private as well as public landowners can be encouraged to participate in management strategies delivering both public and private good in areas outside protected areas that may be established as a result of the bioregional planning process; and this lends itself to an adaptive management approach to biodiversity conservation.

Finding 2: The weaknesses of bioregional planning are that: the current lack of experience and clear processes for terrestrial bioregional planning makes the uptake of this mechanism less attractive; it is not clear how the impacts of future foreseen developments might be incorporated into bioregional planning; stakeholder engagement provisions under the EPBC Act 1999 are currently inadequate, although this may be addressed as a result of the Hawke Review; the lack of monitoring, reporting and review requirements undermines the potential of the mechanism to deliver biodiversity outcomes; and at present, only the Australian Government Environment Minister is required to take account of a bioregional planning when making decisions.

Finding 3: The strengths of strategic assessment are that: the potential for streamlined development approvals under the EPBC Act 1999 provides a proven incentive for uptake of this voluntary mechanism; a degree of certainty is provided with respect to both biodiversity and development; biodiversity and development are considered simultaneously and an appropriate balance sought; the mitigation hierarchy is explicitly invoked; and biodiversity outcomes (including protected areas and strategic offsets) can be enforced through legally binding mechanisms.

Finding 3: The weaknesses of strategic assessment are that: there is no requirement that the area subject to a strategic assessment has ecological or social coherence; it is reactive to development planning and limited to consideration of development objectives and Matters of National Significance (MNES); the need for enforceable planning outcomes may conflict with the principles of adaptive management; the process is focused on protecting land with biodiversity values from development impacts, and does not seek to support underpinning ecological processes, for example, through engaging private landowners in land management activities; opportunities for engagement may be limited to statutory comment periods, which are probably too short given the quantity of information typically released; and monitoring and review mechanisms are pending implementation of the recommendations of the Hawke Review.

Finding 5: The collaborative component of both bioregional planning and strategic assessment is essential for the delivery of a range of related objectives. Since the EPBC Act 1999 is focused on Matters of National Environmental Significance (MNES) only, other objectives must be delivered through mechanisms available to the partner jurisdiction (typically state and/or local governments). This includes objectives related to protected or listed species and other environmental management priorities under state government policies and legislation (that is, issues beyond Matters of National Significance), as well as greater consideration of ecosystem integrity at a more holistic level.

Finding 6: While high quality ecological input is essential to all forms of landscape-scale planning and assessment, this input is largely independent of the mechanism itself. Equally important for delivering biodiversity outcomes are the governance arrangements supporting both the development of the plan or assessment, and its implementation. This has been the focus of this study.

Finding 7: Key governance elements associated with the development of a plan, or the conduct of an assessment, include: the provision of incentives to encourage utilisation of the mechanism; strong collaboration between The Australian Government and other parties; agreement on appropriate spatial boundaries reflecting ecological, social and governance coherence; and meaningful community and stakeholder involvement.

Finding 8: Key governance elements associated with implementation include: strong enforcement mechanisms (both the Australian Government and state governments); involvement of public and private landowners in delivering outcomes; adaptive management mechanisms; effective management of future developments in accordance with the plan or assessment; monitoring and reporting mechanisms; and mechanisms for regular review.

Finding 9: Key content elements considered include: spatial scale, scope of issues and objectives including; the types of impacts on biodiversity considered; and the nature of the outcomes generated.

Finding 10: The mechanisms discussed in this report are not mutually exclusive but can potentially be applied in sequence or in conjunction.

Finding 11: The holistic approach proposed for the new Australian Government regional sustainability planning mechanism has considerable potential to deliver not just biodiversity conservation outcomes with respect to Matters of National Significance and development outcomes, but also a comprehensive sustainability-focused management framework for the region.

Finding 12: Regional sustainability planning offers an opportunity to draw on the strengths of both strategic assessment and bioregional planning, for example by: defining spatial scales that are not only dictated by the expected population growth but which also reflect ecological, social and governance boundaries; taking a holistic approach based on understanding the key interactions within the socio-ecological system and considering all identified drivers for system change (the Central West Catchment Action Plan demonstrates how a systems-based resilience approach could be used in such a planning process); ensuring meaningful community and stakeholder participation in both the development of the plan and its implementation; delivering planning outcomes in the form of zoning and protection of sensitive areas, as well as land management outcomes involving public, private and corporate landowners; and ensuring robust monitoring, reporting and review mechanisms to ensure the ongoing appropriateness of the plan.

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