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INDEPENDENT REVIEW

DEPARTMENT OF THE ENVIRONMENT

Institutional and legal mechanisms that provide coordinated planning, protection and management of the Great Barrier Reef World Heritage Area

September 2014

CONTENTS

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EXECUTIVE SUMMARY

Jacobs was engaged by the Department of the Environment to complete an independent review of the institutional and legal mechanisms that provide coordinated planning, protection and management of the Great Barrier Reef World Heritage Area. The review was commissioned in response to Recommendation 11 of the World Heritage Committee's report on a reactive monitoring mission to the Great Barrier Reef. Findings and recommendations from the review will inform the development of a 2050 Long Term Sustainability Plan for the Great Barrier Reef, which is currently being prepared by the Australian and Queensland governments.

The review was conducted by a team with significant experience in the management of marine protected areas, public policy and governance, natural resource management, program evaluation, marine science and impact assessment. It was completed over a period of six weeks in consultation with the Department of the Environment. Pivotal to the review method was the development of assessment criteria based on leading Australian and international practice, which were applied to the assessment of legal protection measures, institutional arrangements and management planning activities.

The primary sources of information for the review were reports on the management of the Great Barrier Reef, including previous effectiveness reviews, Strategic Assessments of the Great Barrier Reef Coastal Zone and Region, policy statements, management plans and other relevant management documents prepared by Australian and Queensland Government agencies. The review team considered the adequacy of existing management arrangements, including legislative instruments and governance practices.

Consultation with a small number of selected stakeholders, primarily from Australian and Queensland government agencies, was conducted to test the initial findings and supplement information obtained from the document review. Public submissions to a Senate Inquiry into management of the Great Barrier Reef were also considered, for the purpose of understanding various stakeholder perspectives related to governance arrangements.

The Great Barrier Reef is an iconic coral reef ecosystem, and one of the largest World Heritage Areas on earth, which presents challenges for its management across various jurisdictions. The World Heritage property comprises multiple bioregions, coastal and catchment ecosystems, and is impacted by a diverse range of activities occurring within the marine environment and on the adjacent land.

Australia's Constitution provides a fundamental basis for jurisdictional arrangements relating to the Great Barrier Reef, and the separation of responsibilities between the Commonwealth and the State of Queensland. Regulation of natural resource management and environment protection on land and within the coastal waters of Queensland is primarily the responsibility of the Queensland Government. Management of Commonwealth waters is the responsibility of the Australian Government, although some activities in such areas (e.g. fisheries) are managed by the Queensland Government. There are 26 legislative instruments applied at a State and Commonwealth level for the management of the Great Barrier Reef.

The review identified that legislation for the protection and management of the Great Barrier Reef is generally comprehensive. While gaps exist in the areas of climate change and agriculture, additional regulatory instruments for these complex issues would need to be carefully considered to ensure their practicality and effectiveness. Although there is sound evidence that the condition of the Great Barrier Reef is declining, this does not appear to be solely a consequence of gaps in the legislation or institutional management arrangements, which were generally found to be robust. Rather, the declining condition is a consequence of systemic and long term pressures that are a legacy of past and current activities. These pressures arise from the cumulative impacts of more intensive resource use, and include sediment and nutrient runoff from the Great Barrier Reef catchment and the increasing scale of coastal development. Additional pressures come from the impacts of crown-of-thorns starfish outbreaks, coupled with regular and extreme weather events and emerging risks from climate change.

Several recent assessments of the current condition and trends for key attributes have significantly advanced our understanding of the state of the Reef. This places the managing agencies in a strong position to make informed decisions on improved management, provided that resources and actions are appropriately targeted towards the material issues affecting the Reef ecosystem.

The review team identified some good examples of the Australian and Queensland government agencies working together effectively across various reef management programs. These include the Ministerial Forum at the most senior level, Senior Officers' Strategy and Operations Groups (executive level public officials) and the prioritisation of joint management activities by operational staff (which are planned and agreed 12 months in advance). Some reef management positions are funded by the Queensland Government, yet report directly to Commonwealth officers, illustrating high levels of trust and collaboration between agencies in the application of cooperative management arrangements.

The Inter-governmental Agreement is an effective means of achieving a high level of collaboration and cooperation and is respected by Queensland and Australian government officials involved in reef management. The Department of Premier and Cabinet plays a key role in coordinating the Queensland Government's management activities across several departments and is instrumental in achieving effective cooperative management.

While there is strong collaboration between agencies of the Australian and Queensland governments, some areas of duplication appear to delay decision making, particularly on major projects. Efforts to streamline decision making processes through a draft Approval Bilateral Agreement appear to be well-founded, as they will reduce duplication of effort, and have mechanisms to avoid any diminution of current environmental standards. From a governance perspective, the draft Approval Bilateral Agreement will reduce some of the existing complexity associated with staged decision making on major projects and provide a framework for greater coordination among management agencies.

There are multiple consultative committees for the Great Barrier Reef where managing agencies engage with stakeholders across a variety of geographic scales and management issues. The objectives and benefits of such committees are variable and there appears to be merit in reviewing the effectiveness of the committees, and rationalising their number where appropriate. Consultation with stakeholders identified that there are times when the same people meet to discuss the same reef management issues at different committee meetings, providing duplication of effort and at times, frustration for participants.

There has been a rapid development of management tools to more effectively inform decision making on the Great Barrier Reef. While management of the Reef has generally been responsive, there are some aspects of management that would benefit from regular review and adaptation, as understanding of the issues affecting the Reef changes. One example is the assessment criteria for Marine Park permit applications under Commonwealth and State legislation, which are generic and do not appear to reflect contemporary knowledge of the threats to the Great Barrier Reef. Decision making criteria, or policies which guide their application, would be more effective if they were adapted to target the key threats to the Reef and the material issues in environmental decision making. Such reviews could occur at five yearly intervals, consistent with the timing of the Outlook Reports.

Outstanding Universal Value (OUV) is the collection of key attributes which make the Great Barrier Reef worthy of World Heritage protection, but is rarely defined or regulated in legislation. Instead, management of the OUV of the Great Barrier Reef occurs indirectly, by protecting specific, relevant values. This has led to some confusion about how management of OUV is achieved, and whether legislative and institutional arrangements are sufficiently targeted to effectively protect the World Heritage values of the property. A continuation of recent efforts to more explicitly reference OUV in legislation, management plans and policy documents would provide greater certainty and clarification of the effectiveness of current reef management activities in protecting World Heritage values.

Stakeholders of the Great Barrier Reef often think and act at a local scale, but management of the Reef is generally targeted at a regional, reef-wide or international scale. Engaging stakeholders locally, empowering local government to play a more effective role in management of the coastal interface, and strengthening the management of issues at a local scale within the coastal zone would be beneficial in improving resilience, ecosystem function and connectivity.

Across the World Heritage Area, there is significant diversity in the presence and relevance of management issues such as tourism, port development, water quality, agriculture, urban development and aquaculture. The Gladstone Healthy Harbour Partnership is one emerging example of an enhanced management model which is locally-focussed and engages stakeholders to address relatively complex environmental challenges within the World Heritage Area.

While there is significant complexity in the management system which is applied to the Great Barrier Reef, much of this is driven by the constitutional arrangements of Australia and the sheer size of the World Heritage property. For key management issues, such as water quality runoff from agriculture, there are hundreds of people involved in developing and implementing effective management on the ground. The potential to simplify management, while desirable, is therefore limited in scope, with key areas of potential reform such as the streamlining of approval processes already underway.

Managing the coastal interface appears to be a significant and complex long term challenge for the protection and management of the Great Barrier Reef World Heritage Area. This is because of the number of stakeholders and a growing population, the range of resource use activities and the pivotal biological functions provided by the inshore environment in retaining the resilience and health of the reef ecosystems. It is too early to assess the effects of recent changes in Queensland land use planning, vegetation and coastal legislation on outcomes for the Great Barrier Reef World Heritage Area. The implementation of the joint 2050 Long Term Sustainability Plan, working alongside regional plans under the Queensland State Planning Policy, provides new opportunities to achieve the long term protection of the OUV of the Reef, by enhancing the monitoring and adaptive management activities within the coastal zone.

IMPORTANT NOTE ABOUT THIS REPORT

The sole purpose of this report and the associated services performed by Jacobs is to review the institutional and legal mechanisms that provide coordinated planning, protection and management of the Great Barrier Reef World Heritage Area in accordance with the scope of services set out in the contract between Jacobs and the Client. That scope of services, as described in this report, was developed with the Client.

In preparing this report, Jacobs has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, Jacobs has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

Jacobs derived the data in this report from information sourced from the Client (if any) and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report. Jacobs has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by Jacobs for use of any part of this report in any other context.

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1. INTRODUCTION

1.1 Background

The Great Barrier Reef was the first coral reef ecosystem to be declared a World Heritage Area, in recognition of its biological diversity, exceptional natural beauty and integrity (GBRMPA 1981). While the Outstanding Universal Value (OUV) of the Great Barrier Reef remains largely intact, there is increasing public concern about its declining condition in the face of a variety of pressures operating at regional to global scales.

In March 2012, the World Heritage Committee and the International Union for Conservation of Nature (IUCN) completed a reactive monitoring mission to the Great Barrier Reef World Heritage Area (GBRWHA). At its subsequent 36th meeting in June 2012, the World Heritage Committee made recommendations for the Australian Government to address in its future protection and management of the property.

Recommendation 11 of the World Heritage Committee was that the Australian Government:

"Commission an independent review, undertaken by internationally recognised and widely respected scientific experts, of the overall institutional and legal mechanisms that provide coordinated planning, protection and management of the Great Barrier Reef World Heritage Area as a whole. The results of the review should be reported to the Great Barrier Reef Ministerial Forum and provide input to the Strategic Assessment to which the State Party has committed. The review should address enhancement of the implementation of the Great Barrier Reef Inter-governmental Agreement, assessment of the effectiveness of legal protection, institutional and management planning arrangements for the property, and include specific attention to the areas of the property which are not managed by the Great Barrier Reef Marine Park Authority, as well as all adjacent marine, coastal and land areas. The review should be provided for consideration at the 37th session of the World Heritage Committee and subsequently lead to the implementation of concrete measures to address identified weaknesses, under the scrutiny of the Great Barrier Reef Ministerial Forum."

Outcomes of the independent review will inform the development of a Long Term Plan for Sustainable Development of the Great Barrier Reef, as well as future plans and agreements on management of the Reef and decision making tools under national environmental law.

The Commonwealth Department of the Environment is leading the development and communication of the Australian Government's response to considerations of the World Heritage Committee regarding the management and protection of the GBRWHA. Jacobs was engaged by the Department of the Environment to complete the independent review of management arrangements in accordance with the recommendations of the World Heritage Committee.

This report describes the background, method, findings and recommendations arising from the review.

1.2 Context for review

Adaptive management is accepted internationally as a cornerstone of effective management. Its essence is that decisions and action can seldom be delayed until there is 'enough' information to fully understand the situation and all implications. There is usually the need to act on the basis of the best available information at the time, but to then monitor and evaluate the results to adapt and make changes that will improve the response to challenges and opportunities. Not only does this lead to better understanding of ways to deal with resource management issues, it provides the flexibility necessary for adjusting to changing social, economic or ecological relationships and needs. These and other dynamic elements of the complex system that make up the Great Barrier Reef mean that reviewing the effectiveness of management arrangements is an important input to future decisions, investments and actions.

Adaptive management is based on a circular, rather than a linear management process, which allows information concerning the past to feed back into and improve the way management is conducted in the future (Figure 1). This is particularly important for management of the Great Barrier Reef, as although comprehensive information on many aspects of the World Heritage Area is gradually being assembled, many gaps still remain.

Adaptive management involves the five elements of Learn (adjust), Plan (assess, design), Do (implement), Monitor and Evaluate. Evaluation or review should be seen as a normal part of the management process. Effective evaluations are summative and formative; that is they look back and assess what has been achieved (summative), but also look forward (formative) as to how this information should shape the direction, scope and priorities of the management program into the future. This review has both summative and formative functions, as its recommendations will be considered as inputs to the 2050 Long Term Sustainability Plan for the Great Barrier Reef.

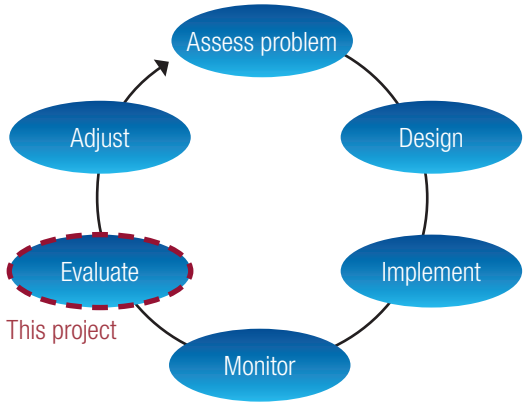

Figure 1 – Adaptive management framework

1.3 Review objectives

The scope of work prepared by the Department of the Environment required Jacobs to draw primarily upon previous reviews and assessments of management of the GBRWHA (including the Marine Park), and the regulation of activities occurring within these areas. Some limited and targeted consultation with selected government agencies and interest groups was also required. An important task of the review was to synthesise the results of previous projects of a similar nature and present a consolidated assessment of the current management arrangements and opportunities for improvement.

The objective of the review was to describe the legal and institutional mechanisms that provide coordinated planning, protection and management of the GBRWHA, including:

a. The basis for legal protection, institutional and management planning arrangements for the property, with specific attention to the areas of the property which are not managed by the Great Barrier Reef Marine Park Authority.

   Building on the findings of previous reviews, this includes:

   - Consideration of the OUV of the Great Barrier Reef at the date of inscription;
   - Simplifying and aligning regulatory and institutional arrangements, within and between jurisdictions;
   - Integrating protection and management of the property with management of adjacent coastal, marine and land areas, having regard for key threats to the Great Barrier Reef, and
   - Highlighting issues that have been addressed and those which remain outstanding.

b. A substantive assessment of the implementation of the Great Barrier Reef Inter-governmental Agreement 2009, having regard for:

   - Opportunities to improve coordinated planning, protection and management of the GBRWHA as a whole, and
   - Operations of the GBRWHA's Ministerial Forum and associated senior officer meetings.

The scope of the review required an emphasis on the adequacy of the arrangements for conserving the OUV of the GBRWHA. Findings and recommendations are intended to:

- Inform the development of a 2050 Long Term Sustainability Plan for the Great Barrier Reef, and
- Lead to the implementation of concrete measures to address identified weaknesses in the existing management regime for the Great Barrier Reef.

Assessment of the adequacy of existing funding arrangements for management of the Great Barrier Reef was outside of the scope of the review.

1.4 Review method and information sources

Jacobs established a review team of internal staff and one subconsultant with significant experience in the management of marine protected areas, public policy and governance, natural resource management effectiveness, program evaluation, marine science and impact assessment. The review was completed over a period of six weeks, and a five stage review method was developed and implemented to meet the objectives of the project, as summarised in Figure 2.

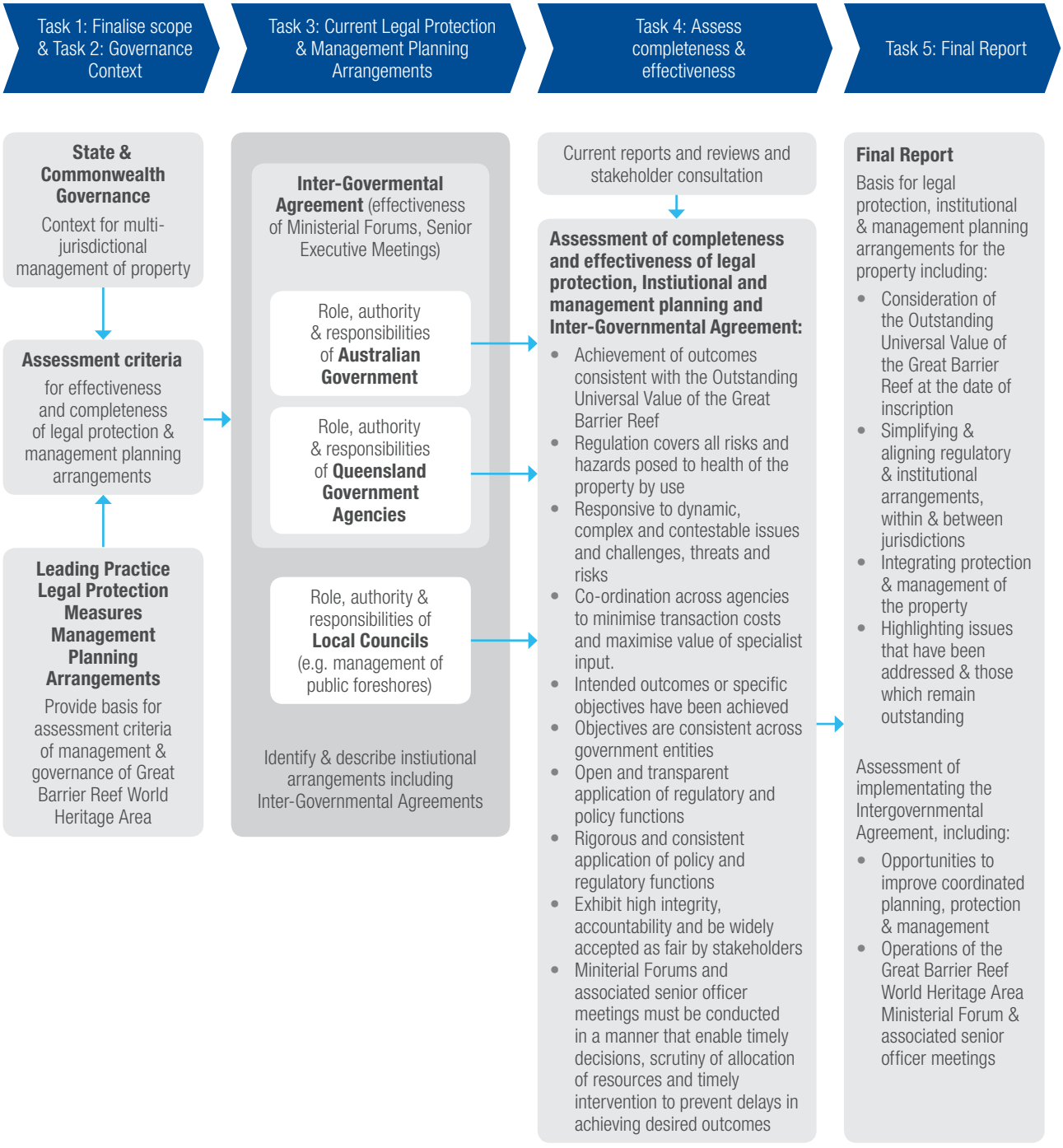

Figure 2 – Summary of review method implemented by Jacobs

Prior to commencement of the project, the review team developed criteria to assess the effectiveness of legal protection measures, institutional arrangements and management planning activities. The assessment criteria were based on leading national and international practice, including:

- Council of Australian Governments Best Practice Regulation Principles (COAG 2007);
- Australian National Audit Office 2014 Public Sector Governance Best Practice Guide (ANAO 2014a);
- Australian Government response to the report of the independent review of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act; Commonwealth of Australia 2011);
- IUCN guidelines for the governance of protected areas (IUCN 2013);
- Recommendation of the Council on Regulatory Policy and Governance (OECD 2012);
- World Bank's Land Governance Assessment Framework (World Bank 2011), and
- Canadian Regional Strategic Environmental Assessment Framework (CCME 2009).

It was recognised that there is no ideal governance setting for all protected areas (IUCN 2013), so assessment criteria were tailored to the issues most relevant to the Great Barrier Reef.

The assessment criteria and associated questions (Appendix A) were agreed with the Department of the Environment prior to commencement of the review, and applied to a wide range of past reports (Appendix B). The Reports reviewed included the Great Barrier Reef Region Strategic Assessment (GBRMPA 2014a, b), Great Barrier Reef Coastal Zone Strategic Assessment (Queensland Government 2014a, b) and the Great Barrier Reef Inter-governmental Agreement (Commonwealth of Australia and State of Queensland 2009).

Consultation with a small number of stakeholders was conducted to test the initial findings of the review, and supplement information obtained from the review of documents. Meetings were held in person in Townsville with the Great Barrier Reef Marine Park Authority (GBRMPA) and Australian Institute of Marine Science (AIMS), and in Brisbane with the Departments of Premier and Cabinet, Environment and Heritage Protection, State Development Infrastructure and Planning, Transport and Main Roads, Agriculture Fisheries and Forestry and the Department of National Parks, Recreation, Sport and Racing (incorporating the QPWS). A list of agencies that were included in the consultation is provided in Appendix C.

In order to provide some consideration of non-government stakeholder views on legal protection, management and institutional arrangements, relevant submissions to a Senate Inquiry into management of the Great Barrier Reef were considered (Parliament of Australia 2014a), along with a final report (Parliament of Australia 2014b). A report from GHD (2014) on the content of public submissions in response the draft strategic assessments (Great Barrier Reef Region and Coastal Zone) was also considered to provide insight into public viewpoints on the management of the Great Barrier Reef. Consideration was also given to supplementary reports published by GBRMPA (2014d) and the Queensland Government (2014e), which described how public submissions on the draft strategic assessments were addressed in development of the final strategic assessments. Finally, the submissions of those parties who agreed to publish their comments on the draft strategic assessment on the Department of the Environment website were also considered, where the comments were relevant to the scope of the review (Appendix C). Collectively, these sources of information provided the review team with a comprehensive insight into a diverse range of stakeholder views on the management of the Great Barrier Reef.

1.5 Structure of this report

The main body of this report presents the findings of the independent review in the following sections:

- Overview of current legislation, management and institutional arrangements (Section 2);
- Effectiveness of current legislation, management and institutional arrangements (Section 3);
- Protection of OUV (Section 4);
- Opportunities for improvement (Section 5), and
- Synthesis of findings and recommendations (Section 6).

A summary of the results of applying the assessment criteria is provided in Appendix A.

2. OVERVIEW OF LEGISLATION, MANAGEMENT AND INSTITUTIONAL ARRANGEMENTS

2.1 Great Barrier Reef

The Great Barrier Reef is iconic as the world's largest coral reef ecosystem whose size, beauty, composition and biodiversity remain exceptional (UNESCO 2012). The geographic scale over which management of the Reef occurs as a multiple use Marine Park, makes it unusual as a World Heritage property. Multiple bioregions, coastal and catchment ecosystems, and diverse range of activities occurring within the marine environment and the adjacent land create additional complexity. The varying jurisdictional responsibilities of the Australian, Queensland and local governments, layered with the sheer scale and diversity of landscapes comprising the World Heritage Area, can make the system of legal protection, management planning and institutional arrangements appear complex.

The following sections provide an overview of current legal protection, management and institutional arrangements.

Management of the Great Barrier Reef is underpinned by Australia's federated system, prescribed in the Constitution. Jurisdictional responsibilities are generally shared between the Commonwealth and Queensland governments, with councils playing a role at a local scale.

There are 26 different Acts and Regulations relevant to the Great Barrier Reef World Heritage Area, administered by 12 Australian and Queensland government departments. Legislative instruments are generally consistent in their objectives. Responsibility for management of the OUV of the GBRWHA is split across managing agencies according to their function and jurisdiction. While the system of management is inherently complex, there are few opportunities for simplification, due to Australia's Constitution.

2.2 Australia's federated system of government

The *Commonwealth of Australia Constitution Act* came into effect in 1901, establishing a federal Parliament and uniting the states of New South Wales, Victoria, Queensland, South Australia, Tasmania, and Western Australia. The power to create and implement federal law follows the separation of powers principle, with power distributed between the Parliament (Legislature), Executive (Cabinet) and Judiciary (Courts).

Jurisdictional responsibility for the management, use, access and protection of the GBRWHA is shared between the Australian and Queensland governments. Without a radical overhaul of the Australian Constitution it would be impossible for a single entity to have full and complete jurisdictional authority over all threats to, impacts on, use of and research into the GBRWHA. While changing the Australian Constitution is possible, there have been 19 referenda proposing 44 changes to the Australian Constitution, of which only eight have succeeded (PEO 2014).

2.2.1 Three spheres of Australian Governments

Australia is served by three spheres of government and each sphere has specific legal responsibilities afforded by the Australian and State constitutions (Figure 3).

Figure 3 – Three spheres of Australian government

Each State has its own Constitution (e.g. Constitution of Queensland). Local government is not recognised in the Australian Constitution and is given statutory recognition through various State government Acts. The Commonwealth and each State's Constitution set out the matters over which the Commonwealth and States have the power to make laws.

Australian Government

The Australian Parliament has the power to pass legislation and comprises the Crown (represented by the Governor-General), the House of Representatives and the Senate. Executive power is held by the Prime Minister and Cabinet, and they are responsible for putting federal law into action. The power to interpret and make judgements on law lies ultimately with the High Court and other federal courts.

Section 51 of the Constitution gives the Australian Government heads of power over a number of areas, including:

- Trade and commerce (limited to making laws with respect to trade and commerce over navigation and shipping and railways of the property of the State);
- Taxation;
- Naval and military defence;
- Quarantine;
- Fisheries in Australian waters beyond territorial limits;
- Foreign corporations;
- Immigration, and
- Acquisition of property on just terms.

State Government

State governments manage laws related to any matter not listed in section 51 of the Australian Constitution. In situations where overlap may exist between Australian and State heads of power, federal law overrides State law. States have the responsibility for regulating trade and commerce within their own borders and therefore create and enforce laws relating to urban, residential, and industrial and transport (e.g. roads, ports), infrastructure, granting of tenure to private individuals and corporations for use of land for agricultural, mining and other extractive purposes.

Local Government

State governments establish local governments to manage local community needs, such as building regulations, recreation facilities, rubbish collection, local road maintenance, development approvals, land subdivisions and bushland reserves. Local government planning schemes under the *Sustainable Planning Act 2009* describe a council's plan for the future direction of its local government area, providing a balance between economic, social and environmental aspirations.

In order to carry out certain types of development in Queensland, an application may need to be made for a development permit. Development applications are assessed under the *Sustainable Planning Act 2009*, using the Integrated Development Assessment System (IDAS). Local government is generally the assessment manager for projects within a single local government area involving assessable development under a local government planning scheme, building work, subdivisions and associated operational works.

2.2.2 Jurisdictional responsibility for the environmental protection of the Great Barrier Reef

Under Australia's constitution, regulation of natural resource management and environment protection on land are primarily the responsibility of State Governments (in this case, Queensland). Environment is not one of the heads of power granted to the Australian Government under section 51 of the Constitution. Consequently, environmental regulation and protection was largely overseen and managed by the states until the 1970s.

As the Australian Government started to increase its role in environmental legislation, there was a need to provide a Constitutional basis for this involvement. This was established in the 1980s, with High Court judgements enabling the scope of the '(xxix) external affairs' power in section 51 to allow for federal legislation needed to implement Australia's international obligations. Further federal power with respect to the environment is also provided through section 51 heads of power '(i) international and interstate trade and commerce', '(x) fisheries in Australian waters beyond territorial limits', '(xx) foreign corporations, and trading or financial corporations formed within the limits of the Commonwealth', as well as financial powers that can be used to promote protection of the environment.

In 1973, the *Seas and Submerged Lands Act 1973* (Cth) was passed, giving the Commonwealth sovereignty of Australian territorial seas and resources to the extent of the continental shelf. There was opposition from State governments to this extension of Commonwealth sovereignty and the law was changed to transfer to each State constitutional power over the territorial seas and also title to seabed minerals and other resources. The Commonwealth still exercises responsibility over coastal waters in matters related to its constitutional powers, including defence and foreign affairs.

2.2.3 Involvement of Aboriginal and Torres Strait Island people in managing coastal landscapes

Aboriginal and Torres Strait Islander people have a long tradition of managing coastal landscapes of the Great Barrier Reef, which spans tens of thousands of years. Since the amendment of the Australian Constitution (S.51, S.127) in 1967, the Commonwealth has responsibility to legislate for Aboriginal and Torres Strait Islander people. This power means the Australian Government is also involved in matters relating to Indigenous ownership and use of coastal waters, the seabed and resources. This responsibility is most directly exercised under the *Native Title Act 1993*, passed to give legislative effect to the High Court's recognition of Indigenous Australians' prior occupation of the continent and islands in the Mabo Case in 1992.

2.3 Legal protection (Acts and Regulations) of the GBRWHA

2.3.1 Legislation

The primary Acts and regulations relevant to the management, use and protection of the GBRWHA are summarised in Figure 4 and described in Appendix D and Appendix E. There are 26 different Australian and Queensland government Acts and regulations directly relevant to the management (use and protection) of the GBRWHA. The Acts and regulations are administered by 12 different Australian and Queensland government Departments and agencies and eight different Australian and Queensland government Ministers (noting that Queensland Minister for State Development, Infrastructure and Planning also currently holds the role of Minister for Economic Development). All Queensland Government Ministers are currently Cabinet Members, and Cabinet decision making processes are used to assess, debate and coordinate major Queensland Government policy and legislative changes, and how they may impact the GBRWHA.

The 26 different Acts have sufficient geographical coverage of the GBRWHA and the adjacent land (coastal and catchment areas), have similar objectives (Table 1) and cover all the significant current and emerging threats to the World Heritage Area, with the exception of climate change (Appendix D). Each Act affords a level of environmental protection to the GBRWHA (e.g. prohibiting certain activities, use of Environmental Impact Statements as part the statutory assessment and approval process).

These Acts and regulations give effect to Australia's international obligations, including:

- World Heritage List (1981);
- International Maritime Organisation's Particularly Sensitive Sea Area;
- Convention on Wetlands of International Importance Especially as Waterfowl Habitats 1971;
- Convention for the Protection of the World Cultural and Natural Heritage 1972;
- Convention on International Trade in Endangered Species of Wild Fauna and Flora 1973;
- International Convention for the Prevention of Pollution from Ships 1973;
- Convention on the Conservation of Migratory Species of Wild Animals 1979;
- United Nations Convention on the Law of the Sea 1982;
- United Nations Framework Convention on Climate Change 1992;
- Convention on Biological Diversity 1992, and
- 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters 1972, also known as the London Protocol.

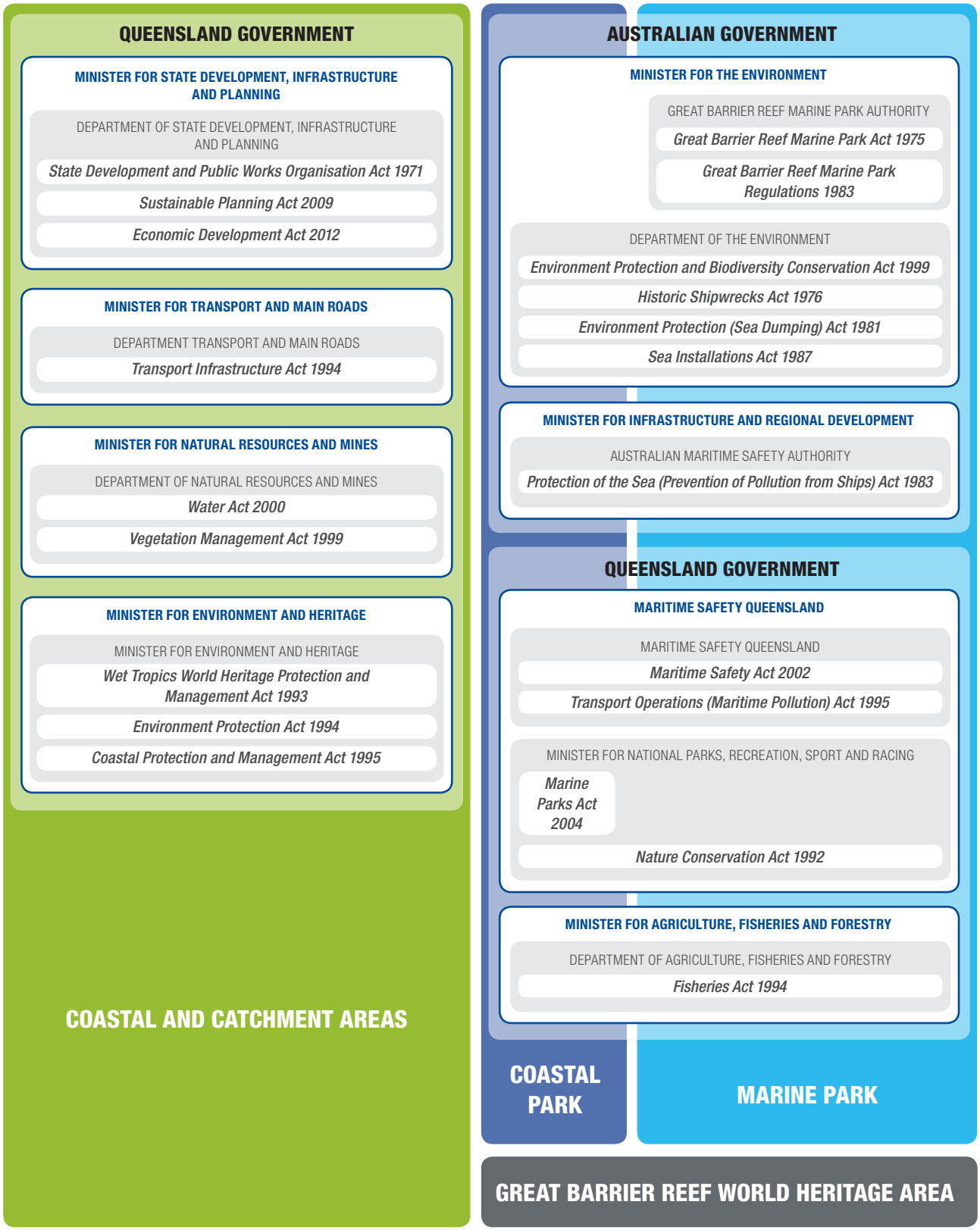

Figure 4 – Examples of primary Australian and Queensland Government Acts used to protect and management the GBRWHA

Table 1 – Examples of objectives of Australian and Queensland Acts relating to environmental and heritage protection and natural resource management

Objectives of Commonwealth Acts	Objectives of Queensland Government Acts
• Long term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region • Protects and manages the Great Barrier Reef region, historic wrecks and associated relics, and the maritime environment from pollution and damage from shipping and sea dumping • Regulates activities associated with sea dumping, sea installations, pollution and damage from ships and historic wrecks and associated relics • Declares zones and parks for Great Barrier Reef region • Provides for use of the Great Barrier Reef region. • Establishes a system to ensure compliance with regards to historic wrecks and associated relics, pollution and damage due to shipping, sea installations and sea dumping • Provisions for permissions for the Great Barrier Reef Marine Park, historic wrecks and associated relics and sea installations	• Protect and manage environment, heritage and natural resources • Provide for conservation of environment, heritage and natural resources • Provide for development of fisheries, the environment, coastal areas and vegetation on freehold land • Declare zones and parks for marine environments • Provide for community engagement for marine environments, protected natural areas and fisheries • Provide for use of marine environments, protected natural areas, fisheries and coastal areas

2.3.2 Implementation

The Australian Government is responsible for regulating activities that have or are likely to have a significant impact on Matters of National Environmental Significance under the EPBC Act. The Great Barrier Reef is included in the National Heritage List. Under the EPBC Act, the GBRWHA, the Great Barrier Reef Marine Park and the Great Barrier Reef National Heritage Place are "Matters of National Environmental Significance", as are several threatened and migratory species that use these waters.

The *Great Barrier Reef Marine Park Act 1975* was one of the first pieces of federal legislation to be created relating to the environment, and assigns responsibility for the management of the Great Barrier Reef Marine Park to the Australian Government, through the GBRMPA. The Queensland *Marine Parks Act 2004* establishes Queensland as responsible for the management of the Great Barrier Reef Coast Marine Park, which covers the portion of the Great Barrier Reef that is within the boundaries of the State of Queensland. Australian and Queensland Government Acts relating to marine environmental protection are generally consistent in their objectives.

The GBRWHA generally extends over Queensland coastal waters to the low water mark, and, under the 1979 Offshore Constitutional Settlement, title and powers over these coastal waters (to three nautical miles offshore) is vested in Queensland, subject to the operation of the *Great Barrier Reef Marine Park Act 1975* (Cth). Queensland is responsible for the management of the Great Barrier Reef Coast Marine Park, covering approximately 63 000 square kilometres, which is established under the *Marine Parks Act 2004* (QLD). This is contiguous with the Great Barrier Reef Marine Park and covers the area between low and high water marks and many waters within the limits of the State of Queensland.

While the overall size and extent of the GBRWHA is similar to the area proclaimed as the Great Barrier Reef Marine Park, there are important differences of particular relevance to its management. The World Heritage Area extends to the low water mark on the mainland and often includes various ports and inshore areas which are excluded from the Commonwealth or State marine parks (e.g. Gladstone Harbour). The majority of the islands fall within the jurisdiction of Queensland and almost half of these are national parks managed under the *Nature Conservation Act 1992*. The Great Barrier Reef Marine Park includes 70 Commonwealth Islands, while all 1050 islands in the Great Barrier Reef are included in the World Heritage Area.

Direct use of the GBRWHA is primarily regulated by three specific Acts – The *Great Barrier Reef Marine Park Act 1975 (Cth), Marine Parks Act 2004* (QLD) and *Nature Conservation Act 1992* (QLD). These Acts provide a complementary level of legal protection for the GBRWHA with respect several activities including dredging and spoil disposal, extraction, death of discarded species, fishing in spawning aggregations, predators, illegal fishing, marine debris, noise pollution, tourism and

outbreaks of disease. The *Fisheries Act 1994* (QLD) has also been used to declare a number of fish habitat areas within the GBRWHA. GBRMPA (under Section 7(4) of the *Great Barrier Reef Marine Park Act 1975)* publishes guidance policies for decision makers and the public. While they are not statutory instruments, they describe how GBRMPA intends to apply and perform its regulatory functions and duties.

Both the Australian Government *(Great Barrier Reef Marine Park Act 1975)* and Queensland Government *(Fisheries Act 1994)* have responsibilities relating to fisheries in the Great Barrier Reef. The Queensland Government is responsible for natural resource management (e.g. *Coastal Protection and Management Act 1995)* and development and land use planning *(Sustainable Planning Act 2009, State Development and Public Works Organisation Act 1971*).

Some Queensland Government Acts seek to realise economic objectives. The *State Development and Public Works Organisation Act 1971*, for example, seeks to develop projects of strategic significance to a locality, region or State on the basis of economic or social benefits, capital investment or employment opportunities. In the event where Acts have potentially competing objectives, it is important to make the criteria used to inform decision making visible to stakeholders. This is increasingly critical when decision makers need to balance complex economic, environmental and social issues and often it can be unclear as to what weighting (equal or not) is used.

The Commonwealth Productivity Commission in its review of Major Project Development Processes (Productivity Commission 2013) specifically recommended that government departments and agencies publish criteria and guidance outlining how they intend to address potential economic, environmental and social trade-offs. Clause 7.2(a)(ii) of the draft Approval Bilateral Agreement between the Australian and Queensland governments requires information, rules, guidelines or practices used or followed by decision makers in carrying their assessment and approval functions to be published in the internet.

The Australian Reef Society noted in its submission to the Senate Inquiry (Australian Parliament 2014) that "*there is certainly an open consultation but the transparency between consultation and decisions is obscure, particularly at a State level*". Australian and Queensland government decision making agencies should strive to provide clear and easy-to-follow guidelines for the assessment of proposals relating to GBRWHA. At a minimum, it is recommended that guidelines set out critical considerations that should be taken into account and the process followed in assigning weightings to the considerations (the application of weightings can often be area specific).

2.4 Managing agencies

There are 13 different Australian and Queensland government departments and agencies directly involved in the preparing, implementing and evaluating various management plans, strategies, programs and initiatives. There are several Queensland councils who perform various functions that directly protect or potentially impact on the GBRWHA. These include local government areas located on the coast, and others inland within the catchment.

The primary government agencies involved in management of the GBRWHA are summarised in Table 2 and the institutional arrangements (e.g. agreements, partnerships, committees) that govern and coordinate the interactions between and within Commonwealth, State and local government jurisdictions are illustrated in Figure 5.

Table 2 – Government agencies involved in the management of the GBRWHA

Agency	Function
Australian Government	
Department of the Environment	World Heritage reporting and coordination, Implementation of the EPBC Act (approvals, listed species, compliance) and the *Environment Protection (Sea Dumping) Act 1981*.
Great Barrier Reef Marine Park Authority	Management of the Great Barrier Reef Region, including the Great Barrier Reef Marine Park.
Department of Agriculture	Develop and deliver policies to improve agriculture in the Great Barrier Reef catchment.
Department of Infrastructure and Regional Development (incorporating the Australian Maritime Safety Authority)	Management of shipping activities and marine incidents and implementation of international convention obligations for shipping.
Queensland Government	
Department of the Premier and Cabinet	Coordination of all Great Barrier Reef matters on behalf of the Queensland Government.
Department of Environment and Heritage Protection	Coastal planning, licencing, water quality, turtle research, wetlands, land-based pollution responses.
Department of National Parks, Recreation, Sport and Racing (QPWS)	Management of the Great Barrier Reef Coast Marine Park, implementation of the field management program.
Department of Natural Resources and Mines	Management of state land and waterways.
Department of State Development, Infrastructure and Planning	Strategic Planning for the Great Barrier Reef. Assessment and approval of projects of local, regional and state significance. Setting of State Wide Statutory Planning Policies.
Department of Agriculture, Fisheries and Forestry	Management of fisheries, agriculture and biosecurity.
Department of Transport and Main Roads (Maritime Safety Queensland)	Management of shipping activities, marine incidents and pollution from vessels. Facilitating, assessing and regulating new and expanded Ports.
Department of Science, Information Technology, Innovation and the Arts	Scientific research on the Great Barrier Reef.
Queensland Local Government	
Local Councils	Development assessment, management of coastal foreshores and reserves and planning.

Figure 5 illustrates the extent of current coordination and collaboration needed to effectively manage the GBRWHA. Given that biological and geological processes often function well beyond the scale of jurisdictional boundaries, managers need to be aware of their place within the broader system of governance and maintain high levels of communication to be effective.

A practical example of the required levels of coordination and collaboration between government and non-government entities is the management of sea turtles within the World Heritage Area, where several organisations within and outside government make a significant contribution to the conservation of World Heritage values (Table 3; Figure 6).

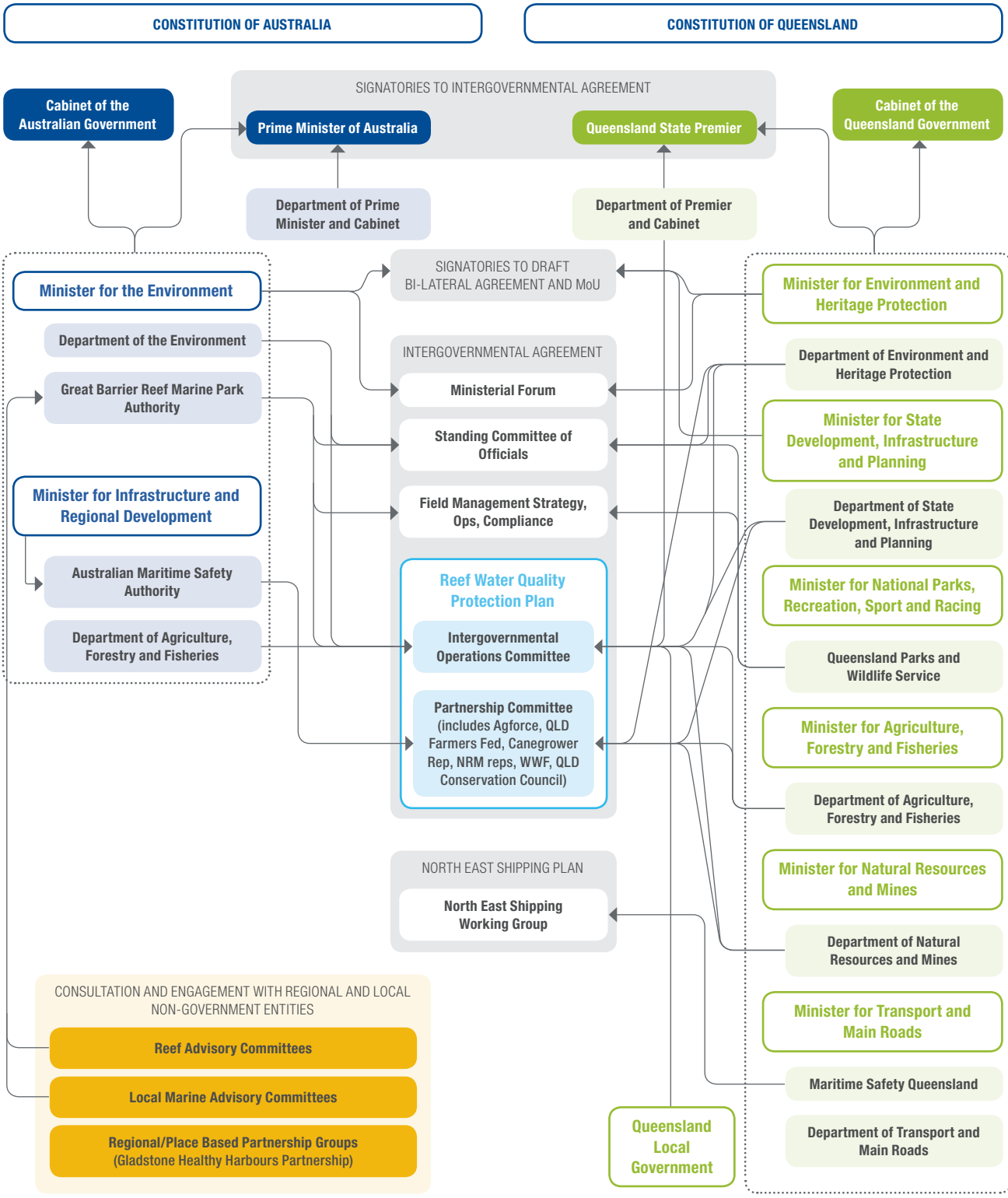

Figure 5 – Australian, Queensland and Local Government involved in management of GBRWHA and institutional arrangements

Table 3 – Turtle Management Case Study

Six of the seven species of marine turtle can be found within the GBRWHA, and all are listed as either endangered, or vulnerable under relevant Queensland or Commonwealth legislation. Marine turtles are long-lived species which have several life cycle stages involving different parts of the World Heritage Area and areas further afield (Lanyon *et al.* 1989). Eggs are laid on beaches of the mainland and islands, with hatchlings moving out to sea to live in the open ocean as surface feeders (also known as the lost years). Sub adult turtles return to the Great Barrier Reef or alternative foraging areas (e.g. Moreton Bay, Hervey Bay) where they feed on seagrass, algae, invertebrates or mangrove fruits, depending upon the species. Once they reach breeding age, turtles may undertake a significant breeding migration, laying eggs several hundreds of kilometres from their feeding habitats.

Management of turtles must therefore take place over large geographic scales and be effective in all parts of the life cycle. A biological response to successful management interventions (e.g. control of feral predators at a nesting beach) may not become evident for a period of 30 years or more, when increases in the number of breeding female turtles are observed in response to the improved management practices. There are a small number of high value nesting beaches on the Great Barrier Reef (e.g. Raine Island), making turtles particularly vulnerable to impacts from changes in sea level, feral animal predation or human disturbance at these sites.

Management of turtles on the Great Barrier Reef is collectively achieved by the actions of several government and non-government agencies. A recovery plan for marine turtles has been developed by the Department of the Environment (Environment Australia 2003), which outlines the key threats to species and the actions that should be implemented to facilitate recovery of the species. In this context, the Department of the Environment could arguably be considered the lead agency for turtle conservation. The Department of the Environment, under the EPBC Act, also requires the development of long term turtle management plans as a condition of approval for major projects where risks from increased shipping or development activities are present.

GBRMPA has a threatened species unit which oversees several programs related to turtle management. This involves providing advice on permit applications which have the potential to impact turtles, public education, analysis of stranding data and direct management of the Great Barrier Reef Marine Park. A vulnerability assessment of marine reptiles to climate change was also completed by GBRMPA in 2007 (GBRMPA 2007).

The Queensland Government actively manages many turtle nesting beaches as national parks, and staff monitor turtle nesting activity and provide interpretative services for tourists at key locations such as Mon Repos near Bundaberg. A long term scientific research program for marine turtles has been in place for decades, led by Associate Professor Colin Limpus from the Department of Environment and Heritage Protection. This program includes annual monitoring of selected nesting sites involving tagging and mark-recapture studies, assessment of turtle heath and condition, and

tagging and mark recapture studies in key foraging areas used by turtles breeding in the Great Barrier Reef (such as Moreton Bay). Similar research is also conducted by a variety of universities, and major industry groups through the implementation of long term turtle management plans. Coordination of results from these programs is sometimes completed through independent panels of experts or committees established as part of project approval conditions.

A Marine Animal Stranding Hotline is also established by the Department of Environment and Heritage Protection and GBRMPA, with officers of the QPWS generally responding to calls from the public about turtle strandings. Details of turtle carcasses, including the presence of any tags, are recorded in a central database, and live turtles with prospects of rehabilitation and release may be transported to rehabilitation facilities where this is logistically feasible.

The Department of Agriculture, Fisheries and Forestry (DAFF) has implemented compulsory turtle exclusion devices in the trawl fishery within Queensland, as trawling was identified as a significant cause of turtle mortality in the 1990s. DAFF conducts compliance activities in relation to licenced and illegal netting activities which may inadvertently capture turtles as bycatch. A shark control program is in place across

Queensland, with netting and baited drum lines in place at some locations within the GBRWHA, to reduce the risk of shark attack to swimmers. DAFF is responsible for managing the program through a network of contractors, and keeps records of incidental bycatch, including turtles.

The QPWS and GBRMPA conduct patrols of the Great Barrier Reef Marine Park under the joint field management program. The Queensland Government has also established the Great Barrier Reef Coast Marine Park. Compliance activities relevant to marine turtles include the enforcement of no public access at some key nesting beaches, no fishing or crabbing activities at Marine National Park Zones and public education about the presence of marine turtles in some areas and their vulnerability to boat strike or entanglement in crab pots.

Traditional Use Marine Resource Agreements (TUMRAs) have been developed by Traditional Owners in partnership with GBRMPA and the QPWS, and aim to limit traditional hunting of marine turtles while achieving a continuation of long-standing cultural practices. Local governments and industry play an important role in reducing the impact of development on marine turtles, by implementing turtle friendly fencing and lighting along nesting beaches, to avoid disrupting the natural nesting behaviour of nesting adults and hatchlings. The control of feral animals which predate on turtles contributes to turtle conservation activities, and is completed by a variety of landholders, including QPWS, the Department of Natural Resources and Mines, councils, industry and community groups.

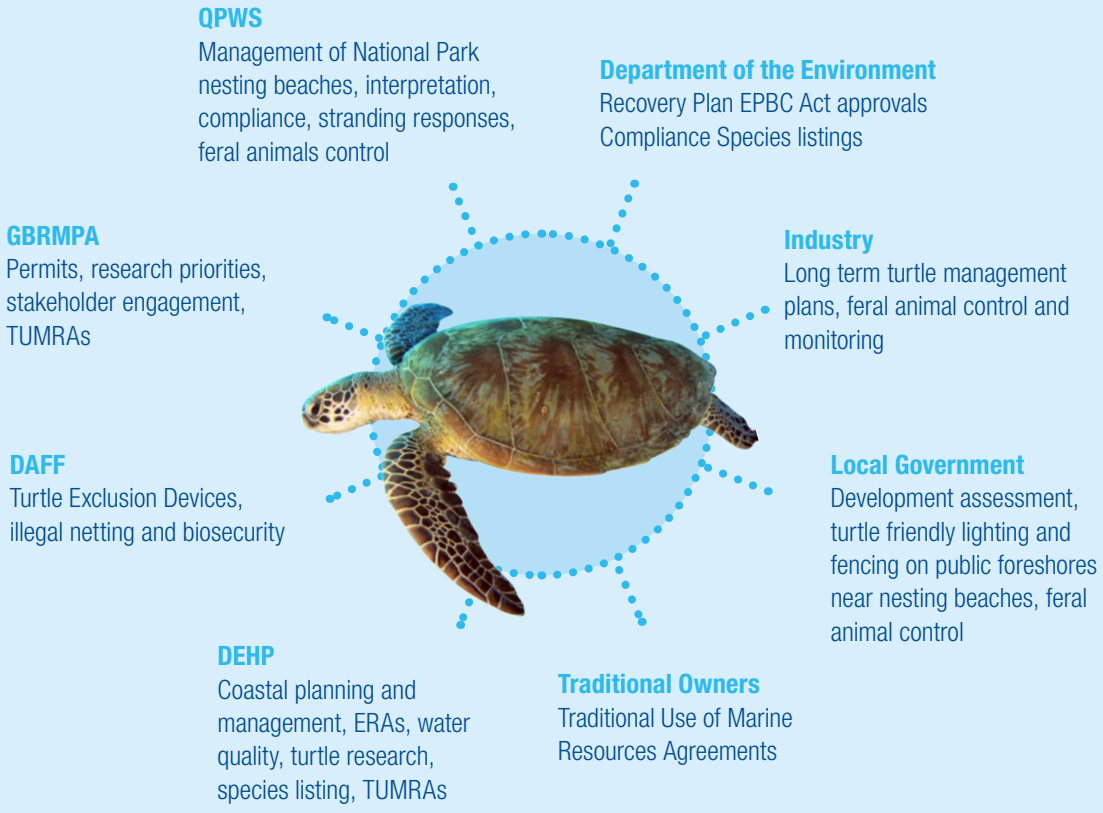

Figure 6 – Summary of the key role of various agencies in managing turtles within the GBRWHA.

2.5 Overview of current institutional arrangements

The existence of multiple legislative instruments and the associated departments responsible for their implementation across multiple levels of government implies a clear need for a high level of coordination to achieve effective management of the Great Barrier Reef. A range of mechanisms are used to manage and coordinate the legislative responsibilities and management activities between different Australian and Queensland government agencies.

2.5.1 Inter-governmental Agreement

The Great Barrier Reef Inter-governmental Agreement (Commonwealth of Australia and State of Queensland 2009), provides a framework for the Australian and Queensland governments to work together to protect the Great Barrier Reef. The Inter-government Agreement recognises that cooperative management is required to address the key threats to the Great Barrier Reef, which occur across jurisdictional boundaries. The Inter-government Agreement was updated in 2009, following its initial establishment in 1979 as the 'Emerald Agreement'.

2.5.2 Great Barrier Reef Ministerial Forum

The Great Barrier Reef Ministerial Forum drives implementation of the Inter-governmental Agreement. The Ministerial Forum is comprised of two ministers from each of the Australian and Queensland governments, whose responsibilities relate to the environment, marine parks, science, tourism and/or natural resource management. Ministers responsible for mining are not permitted to be members. The Inter-governmental Agreement describes the role of the Ministerial forum, and protocols for its operation are set out in a schedule to the Agreement.

2.5.3 Draft Approval Bilateral Agreement between Commonwealth and Queensland Government

The Commonwealth and Queensland governments have entered into a Memorandum of Understanding (MoU) to deliver a One-Stop Shop for environmental approvals under the EPBC Act. The Parties to the One-Stop Shop MoU agreed to refresh the Assessment Bilateral Agreement between the Commonwealth and Queensland, and to pursue an Approval Bilateral Agreement for the streamlined assessment and approval of projects. The revised Assessment Bilateral Agreement was finalised in December 2013. The objectives of the draft Approval Bilateral Agreement (Commonwealth of Australia and State of Queensland 2014) are to:

- Ensure Australia complies fully with all its international environmental obligations;
- Ensure Matters of National Environmental Significance are protected as required under the EPBC Act;
- Promote the conservation and ecologically sustainable use of natural resources;
- Ensure an efficient, timely and effective process for environmental assessment and approval of actions, and
- Minimise duplication in the environmental assessment and approval process through Commonwealth accreditation of the processes of Queensland.

2.5.4 Reef Trust

Reef Trust will be a key mechanism to deliver the 2050 Long Term Sustainability Plan for the Great Barrier Reef, and is an initiative of the Australian and Queensland governments (Commonwealth of Australia 2014b). Implementation of the Reef Trust will be guided by scientific experts, and target the known critical threats to the Great Barrier Reef (water quality, crown-of-thorns starfish outbreaks and protecting threatened and migratory species). Reef Trust is designed to consolidate investments in the Great Barrier Reef and disburse funds strategically to maximise outcomes that improve the health and resilience of the Great Barrier Reef.

2.5.5 Water quality guidelines

Under the *Sustainable Planning Act 2009* and via the State Planning Policy State Interest – Water Quality, urban developers are required to incorporate drainage, erosion and sediment controls during the construction phase and urban water sensitive design features into final residential developments. Specific Water Quality Guidelines for the Marine Park were established in 2010 by GBRMPA. The Guidelines set out clear trigger levels for specific pollutants and GBRMPA relies on regulators responsible for land-based development assessments and approvals to implement the guidelines. The *Environmental Protection Act 1994* also establishes environmental values and water quality objectives through the *Environmental Protection (Water) Policy 2009*.

2.5.6 Ports

New ports legislation is proposed by the Queensland Government which will prohibit dredging in the GBRWHA (for new or expanded Ports) outside of established port areas of Townsville, Abbot Point, Hay Point/Mackay and Gladstone for at least 10 years (Queensland Government 2014c). Dredging at these Ports will be managed in accordance with the proposed Port Master Plan Environmental Management Framework. Statutory master plans will be developed for all Priority Port Development Areas, and it is proposed that the Environmental Management Framework could be accredited to meet Commonwealth and State Environmental Standards.

2.5.7 Runoff from agriculture

The Reef Water Quality Protection Plan (Reef Plan) is a collaborative program of coordinated projects and partnerships designed to improve the quality of water in the Great Barrier Reef though improved land management in reef catchments (Australian and Queensland Governments 2013). Reef Plan sets targets for improved water quality and land management practices and identifies actions to improve the quality of water entering the Great Barrier Reef. The plan was initially established in 2003, and updated in 2009 and 2013. It details specific actions and deliverables to be completed by 2018 when Reef Plan will be reviewed.

The Best Management Practice program, which further supports the Reef Plan initiative, supports farmers to improve their land management practices by reducing discharges of nutrients, sediments and pesticides into the GBRWHA. The Queensland Government made an allocation of $55 million in the 2014 Queensland Government Budget to further develop the Programs to reduce run-off and improve water quality in catchments that feature sugar cane, grazing and banana industries.

2.5.8 Protection of the Great Barrier Reef from development through Environmental Impact Assessment

There are several Environmental Impact Assessment (EIA) processes within Commonwealth and Queensland legislation which could apply to projects on or adjacent to the Great Barrier Reef. The location, scale and nature of the proposed activity will in part determine the most appropriate Act to be applied. While proponents have some flexibility to pursue a particular approvals path under Queensland legislation (e.g. seek to have their project declared a significant project under the *State Development and Public Works Organisation Act 1971*), the path is generally required to be approved by government agencies as an appropriate assessment mechanism for the project.

Relevant legislation with EIA processes include:

- *Marine Parks Act 2004* (Section 16) and *Marine Parks Regulation 2006* (Section 14);
- *Sustainable Planning Act 2009* (Part 2);
- *Environmental Protection Act 1994* (Part 1);
- *State Development and Public Works Organisation Act 1971* (Division 3);
- *Nature Conservation Act 1992* (Subdivision 4);
- EPBC Act (Parts 7, 8 and 9),
- *Great Barrier Reef Marine Park Regulations 1983* (Section 128).

The EIA process in the *Environmental Protection Act 1994* is recognised in the *Marine Parks Regulation 2006* and *Nature Conservation Act 1992*. Very large projects may be coordinated by Queensland's Coordinator-General under the *State Development and Public Works Organisation Act 1971*, as a 'coordinated project'.

The EIA process for the *Sustainable Planning Act 2009*, *State Development and Public Works Organisation Act 1971* and the *Environmental Protection Act 1994* have been accredited for environmental assessments through an Assessment Bilateral Agreement under the EPBC Act (the assessment part of the EIA process only). The Australian Government currently retains its approval powers under the EPBC Act. However, there is a proposal to accredit Queensland environmental assessments and approvals issued under the *Environmental Protection Act 1994* (QLD) and the *State Development and Public Works Organisation Act 1971* (QLD), through an Approval Bilateral Agreement under the EPBC Act (Commonwealth of Australian and State of Queensland 2014).

An EIA under the *Great Barrier Reef Marine Park Regulations 1983* (see Section 128) can be prepared as outlined in the EPBC Act, as per an approved Assessment Bilateral Agreement or to the satisfaction of GBRMPA (where satisfied there has been an investigation as extensive as would have been undertaken under the EPBC Act). Under the accredited EIA process, impacts on Matters of National Environmental Significance, such as the GBRWHA, are specifically considered and conditions are recommended that address both direct and indirect impacts.

Greater accreditation of State and Territory Environmental Assessment processes where they meet Commonwealth standards was originally proposed in a review of the EPBC Act (Hawke 2009) and since that time several other reviews and inquiries have been conducted. These reviews have generally reached the same conclusions. Most notable of these was the Australian Government Productivity Commission's report "Major Project Development Assessment Processes" (Productivity Commission 2013) which concluded "Recommendation 6.1 – *The Australian and State and Territory Governments should continue to strengthen and expand the scope of existing bilateral assessment agreements under the Environment Protection and Biodiversity Conservation Act 1999 (Cwlth). Areas for improvement include agreements on standards and procedures for assessment, and extending the number of regulatory processes accredited (in full or part) under current bilateral agreements*".

3. EFFECTIVENESS OF CURRENT MANAGEMENT ACTIVITIES

3.1 Great Barrier Reef World Heritage Area

The institutional and legal mechanisms that provide for the management of the Great Barrier Reef World Heritage Area are generally comprehensive. While gaps exist in the areas of climate change and agriculture, additional regulatory instruments for these complex issues would need to be carefully considered to ensure their practicality and effectiveness. The existing system of community engagement appears to have duplication and could be simplified.

There is strong evidence of a high degree of collaboration between the Commonwealth and Queensland governments in their management of the World Heritage Area. The Inter-governmental Agreement, joint business plans, operational programs, and management forums provide for a high degree of collaboration and some areas where jurisdictional boundaries appear seamless. This is particularly apparent for the field management program, where management activities on-the-reef occur.

Legislation, policies and plans in place for the protection and management of the GBRWHA are comprehensive, with few gaps identified. While the condition of the Great Barrier Reef is declining (GBRMPA 2014b, Queensland Government 2014b), this does not appear to be a consequence of gaps in the legislation or governance arrangements, which are generally robust. Rather, the declining condition is a consequence of several cumulative, long term threats, including runoff from the catchment arising from large scale and historic land use changes (primarily agriculture), climate change and an increasing scale of development within the coastal zone. Climate change and agriculture are two areas impacting the reef where legislation appears to be lacking. However, additional regulatory instruments for these complex issues would need to be carefully considered to ensure their practicality and effectiveness.

The current state of the Great Barrier Reef and the effectiveness of its existing management practices are well understood and comprehensively described in the recent Strategic Assessments (Queensland Government 2014a, b; GBRMPA 2014a, b) and Outlook Report (GBRMPA 2014; Hockings *et al*., 2014). This thorough collection of information surpasses any previous assessment of the Great Barrier Reef's condition and demonstrates significant progress in improving management arrangements since a review of the *Great Barrier Reef Marine Park Act 1975* (Commonwealth of Australia 2006). This provides a strong foundation for future management, provided that resources and management actions are appropriately targeted.

One of the key recommendations from the review of the *Great Barrier Reef Marine Park Act 1975* (Commonwealth of Australia 2006) was that information on improved monitoring, assessment and analysis of the marine park's management be published every five years as the Great Barrier Reef Marine Park Outlook Report. The first Outlook Report (GBRMPA 2009), described the Great Barrier Reef as being at the 'crossroads', meaning that a variety of threats were increasingly challenging its condition and management. At this time there was growing awareness of the pressures of climate change, and impacts on the Reef ecosystem from catchment runoff and extreme weather events.

By 2013, the Queensland Government and GBRMPA Strategic Assessments identified further decline in key values of the Great Barrier Reef, with greater clarity of the key impacting processes coming out of a series of research papers and scientific consensus statements (e.g. Brodie *et al.* 2013; De'ath *et al*. 2012). Most recently, Hockings *et al*. (2014) noted significant recent improvements in the effectiveness of management

of some issues threatening the Great Barrier Reef in their independent assessment of management effectiveness to support the 2014 Outlook Report.

The Great Barrier Reef Region Strategic Assessment (GBRMPA 2014b) found that GBRMPA (through implementation of the *Great Barrier Reef Marine Park Act 1975*) has been effective in regulating and managing activities for which it has direct jurisdictional control (e.g. tourism and fishing). The Great Barrier Reef Coastal Zone Strategic Assessment (Queensland Government 2014a, b) also identified the field management program implemented by the QPWS within the Marine Park and adjacent islands as highly successful.

As part of the process of finalising the Strategic Assessments, the Australian and Queensland governments are developing

a 2050 Long Term Sustainability Plan for the Great Barrier Reef. This plan will outline joint commitments to address the challenges identified through the Strategic Assessment process, and provide a framework for further alignment of management activities to address the key threats affecting the World Heritage Area. The establishment of Reef Trust is an important step in achieving strategic investment in reef management outcomes. These aspects of the current system of management are a positive step in planning for the challenges of the future.

In 2009, the Inter-governmental Agreement for the Great Barrier Reef was updated, following a recommendation in the review of the *Great Barrier Reef Marine Park Act 1975* (Commonwealth of Australia 2006). The Inter-governmental Agreement provides a clear and effective framework for facilitating the cooperative management of the complex landscapes of the Great Barrier Reef under agreed objectives. The Inter-governmental Agreement is an effective means of achieving cooperative management and is respected by State and Commonwealth officials who are charged with its implementation.

Collectively, the *Marine Parks Act 2004* and *Great Barrier Reef Marine Park Act 1975* enable regulation of use and management of the environment at a geographic scale relevant to the entire property. During the consultation phase, a high level of cooperation between the Australian and Queensland governments was observed when implementing their responsibilities under marine park management legislation. This was particularly evident at the operational level, where implementation of cooperative, day to day management activities occurs between the QPWS and the GBRMPA. For example, applications for Marine Park permits are assessed jointly under relevant Queensland and Commonwealth legislation, with a single permit comprising agreed conditions signed by delegates of QPWS and GBRMPA. Within the Field Management Program, some positions are funded by the Queensland Government, yet report directly to Commonwealth officials, further demonstrating a high degree of trust and alignment in the implementation of management.

At a more strategic level, a joint business plan is developed well in advance of each financial year and approved by QPWS and GBRMPA officials for implementation. A Strategy Group and Operations Group comprising senior management staff meet regularly to consider key management issues and agree on adaptations to the field management program. A risk-based compliance program is also developed to target activities most likely to impact on the values of the marine park as a whole, and maximise the efficiency of investment in compliance tasks. While cooperative management arrangements are underpinned by the Inter-governmental Agreement, the review team found a visible commitment by staff to the successful implementation of management activities, which is critical to the success of the program.

3.2 Responsiveness to needs of the GBRWHA

The Great Barrier Reef Coastal Zone Strategic Assessment (Queensland Government 2014a, b) cited examples of the Queensland Government's responsiveness to the changing needs of the GBRWHA. These included:

- the development of a Ports Strategy in response to the need to expand ports, to better enable a more strategic and risk-based approach to the environmental management of Matters of National Environmental Significance and OUV;
- the Best Management Practice Programme targeting Queensland Cane and Grazing Industries in response to the growing threat of pollutant run-water from agricultural activities, the. The Queensland Government made an allocation of $55 million in the 2014 State Budget to further develop the Programs to reduce run-off and improve water quality in catchments that feature sugar cane, grazing and banana industries;
- changes to line and net fisheries to reduce the impacts of commercial fishing in the Great Barrier Reef. Currently, a $9 million buyout of the net fishery is being implemented.

Similarly, the Great Barrier Reef Region Strategic Assessment (GBRMPA 2014b, p. 1-8) found "*since the proclamation of the Great Barrier Marine Park Act 1975, the Authority has continually adapted its management arrangements to address the highest risks*". Examples include prohibiting oil and gas drilling in 1970s, sustainable tourism strategies and responding to crown of thorns starfish outbreaks in 1980s, addressing impact of fishing in 1990s and more recently implementing plans and strategies targeting water quality, cumulative impacts of coastal development and improving understanding of climate change effects on the GBRWHA (GBRMPA 2014b).

Some stakeholders have asserted that managing agencies have not been responsive to changing needs. For example, the Cairns and Far North Environment Centre submission to the Senate Inquiry on the adequacy of management of the Great Barrier Reef stated that complex cross-jurisdictional management between GBRMPA and the Queensland Government is being regularly used as the reason for inaction in key areas (such as illegal fishing and poaching). The Cairns Local Marine Advisory

Committee stated "*the Cairns LMAC has grown weary of declarations that cross-jurisdictional issues will be addressed to accommodate regional issues etc* ". Such comments highlight the difficulty in managing a multiple use marine park and achieving a high level of stakeholder involvement and satisfaction across a variety of management issues.

There is a lag between identifying and announcing actions to be taken in strategic and business plans such as the Outlook Report 2009, the implementation of those actions, and those actions then having a positive impact and being responsible for improvements in important GBRWHA health indicators. Such lags can create the perception that entities with management responsibilities may not be acting with sufficient haste or effectiveness to manage emerging threats. Given the lag time in measuring management effectiveness, there is a case for improved public monitoring and reporting of intermediate lead indicators such as improvement in management practices and the implementation status of committed actions/interventions. This will assist in avoiding lags being used as an excuse for continuing the implementation of ineffective actions.

As acknowledged in the Great Barrier Reef Region Strategic Assessment Report (GBRMPA 2014b), more needs to be done to advance to an integrated monitoring and reporting framework (e.g. setting of outcomes and targets). It is important that monitoring and reporting strikes the right balance between inputs, outputs and outcomes in order to inform stakeholders that agreed actions are being implemented (and reasons why the action is not being implemented within proposed timeframes).

The Queensland Government is currently taking steps to address such issues through the development of a regional reporting framework that aligns with strategic level reporting indicators and priorities (lead by DEHP). Reporting at a regional scale (incorporating 5-6 local government areas) will provide independently verified assessments of water quality and examine leading indicators of management effectiveness for various land uses in the regions.

3.3 Coordination across managing agencies

3.3.1 Inter-governmental Agreement

One objective of the Great Barrier Reef Inter-governmental Agreement is to provide "*an integrated and collaborative approach by the Commonwealth and Queensland to the management of marine and land environments within and adjacent to the Great Barrier Reef World Heritage Area*".

Substantial evidence exists that the Queensland and Australian governments have put in place and utilise a range of coordination and collaboration mechanisms at a strategic and operational level. Memoranda of understanding for several Queensland and Australian government agencies have been reviewed and are generally comprehensive. These provide guidance on the agreed methods for cooperative management and collaboration, based on shared objectives. While they cannot be prescriptive enough to cover every management scenario, they provide a basis for the resolution of issues through good inter-agency working relationships.

Strategic planning and policy coordination between the Australian and Queensland governments occurs via the Ministerial Forum and Senior Committee of Officials. The Ministerial Forum comprising relevant Australian Government and Queensland Government Ministers is used to plan, agree and review (within the Inter-governmental Agreement Framework) how to most effectively protect and manage the GBRWHA.

The Inter-governmental Agreement requires the Ministerial Forum to periodically review the Agreement and the extent to which the objectives have been achieved. The Standing Committee of Officials supports the Ministerial Forum and is used to develop policies and plans for endorsement by the Ministerial Forum. Several Commonwealth and Queensland government departments are represented on the Standing Committee of Officials.

The Inter-governmental Agreement has a clear decision making process for the Australian and Queensland governments to operate within. The Agreement sets out:

- What each party should take into consideration when making decisions (e.g. Section 1.1a);
- A clear commitment to sound decision making principles (e.g. Section 1.1c - certainty, clarity, consistency);
- Decision making timeframes;

- Decision making scope (Section 16.4 outlines the determinations by the Commonwealth Minister and Section 16.5 outlines the determinations by the Queensland Minister).

3.3.2 Strategic Coordination

Australian Government engagement is coordinated through the Department of the Environment working with the Department of Infrastructure and Regional Development and the Department of Agriculture. The field management program has day-to-day responsibility for managing the Great Barrier Reef Marine Park and is jointly funded by the Australian and Queensland Governments. GBRMPA is responsible for production of 5 yearly Reef Outlook Reports.

Strategic planning and policy coordination within the Queensland Government is provided by the Department of Premier and Cabinet (DPC). Membership of the GBRMPA's Board by DPC's Director General is a critical governance feature, as it provides continuity and consistency of views between the Senior Officials Committee and GBRMPA.

Given the complexity of legislative, governance and management arrangements for the World Heritage Area, Queensland's DPC is able to assist Australian, Queensland and local government entities, key industry groups and peak non-government organisations to engage with other relevant entities without those entities needing to assimilate the complex network of governance, management and legislative arrangements.

The DPC also provides a single point of contact for GBRMPA to the Queensland Government, minimising the need to co-ordinate engagement activities across multiple agencies. For example, DPC is coordinating the Queensland Government's input to the development of the 2050 Long Term Sustainability Plan, and in the past has coordinated Queensland Government input into the preparation of the Outlook Report.

Departments and agencies involved in these strategic planning and coordination forums are generally well served by an array of monitoring and reporting information. Examples include the State of the Environment Report produced every 4 years by DEHP, Great Barrier Reef Outlook Report produced every 5 years by GBRMPA, Reef Plan Report Cards produced annually, Annual Summary Report on Joint Field Management Program, GBRMPA Annual Report and progress reports on Inter-governmental initiatives and actions.

3.3.3 Operational planning and coordination

At an operational level (e.g. administering access and use of the World Heritage Area) there is strong evidence to indicate that well-defined and responsive coordination and planning mechanisms exist. Zoning arrangements for the Great Barrier Reef Marine Park (Commonwealth) and Great Barrier Reef Coast Marine Park (State) are complimentary and with consistent management provisions. Implementation of the zoning plan is based on a high level of operational coordination between the joint GBRMPA and QPWS Field Management Program.

Planning and coordination mechanisms exist to identify and respond to key management and protection priorities impacting both the Great Barrier Reef Marine Park (under Commonwealth control) and the Great Barrier Reef Coast Marine Park (under Queensland Government control). These arrangements enable GBRMPA and QPWS to be responsive to immediate and direct threats confronting the GBRWHA (e.g. from disaster planning and recovery through to monitoring species and habitats).

A description of some key coordination approaches is provided below:

- **Joint GBRMPA and Queensland Government Strategy Group** is responsible for producing a Five Year Business Strategy and Annual Business Plan for the Joint Commonwealth and Queensland Field Management Program. These documents are signed off by the GBRMPA Chair and Director General of the Queensland Department of the Premier and Cabinet in accordance with the Inter-governmental Agreement. The Five Year Business Strategy and Annual Business Plan set out the funding and resourcing commitment to be provided by the Australian and Queensland governments, and how those resources will be utilised to address priorities. An Annual Summary Report on the Program is provided to the Great Barrier Reef Ministerial Forum each year and, every five years, the Ministerial Forum receives a Periodic Review of the effectiveness of the Program and its resourcing.
- **Joint GBRMPA and QPWS Field Management Program Coordination Unit** oversees the implementation of the Annual Business Plan (i.e., how resources are being allocated and how priorities are being addressed). A noticeable feature of the Joint Coordination Unit is the secondment of a QPWS employee into a unit physically located within GBRMPA. The QPWS employee reports directly to a GBRMPA Manager.
- **Joint Compliance Management Unit.** Regardless of whether an alleged or actual offence occurs within the areas collectively comprising the Commonwealth or Queensland Marine Park, a single unit assesses the alleged offence,

gathers the necessary evidence, issues infringements and pursues any further prosecutions through relevant authorities. QPWS and GBRMPA are presently considering the full time secondment of a QPWS employee into the Compliance Management Unit located within GBRMPA. The unit is also used on occasion by other managing agencies, for example DAFF, should its officers observe a legislative breach of relevant marine park legislation when conducting their duties.

- **Joint Permitting Arrangements.** A permit for use and access, under the *Great Barrier Reef Marine Park Authority Act 1975* (Cth) and the *Marine Parks Act 2004* (QLD), covering both Queensland and Commonwealth waters can be issued by GBRMPA and QPWS. For example, a user can obtain a single permit that enables them to travel through Queensland waters into Commonwealth waters and access a National Park under State management with the Marine Park.

Other examples of documented procedures and arrangements between GBRMPA and other Queensland Government entities designed to enable coordinated and efficient management were identified. These included a MoU between GBRMPA and Maritime Safety Queensland regarding responses to ship-sourced pollution in the marine park, arrangements that enable a specific agency to take a lead role in incident response with other agencies providing the necessary support (e.g. response to ship groundings and the roles of Maritime Safety Queensland, the Australian Maritime Safety Authority, GBRMPA and QPWS). Documented arrangements are also in place with the Department of Defence regarding training activities and ship movements within the Great Barrier Reef Marine Park.

3.4 Addressing future risks through integrated management

Many of the current and long term threats to the GBRWHA fall outside the direct regulatory control of the *Great Barrier Reef Marine Park Act 1975 (Cth).* Of the four high category risks identified by the Great Barrier Reef Region Strategic Assessment (GBRMPA 2014a, b) three of the risks fall outside GBRMPA regulatory jurisdiction – climate change, catchment run off and degradation of coastal ecosystems. Management of these threats is not achieved in the case of climate change, and achieved through partnership programs (for catchment runoff) and legislation operating outside of the marine park boundaries (for coastal development).

Management of the land, coast and marine interface for a property the size of the GBRWHA is hugely challenging and complex. At present there is no single or easily articulated legislative, management and governance arrangement for combating catchment run-off, climate change or degradation of coastal ecosystems. Rather a "system" of inter-related legislation, management plans, monitoring programs and multi-jurisdictional committees is in place.

From the perspective of protecting the GBRWHA, the critical and salient components of the existing governance system are:

1. **Clear arrangements for "referral consideration" of major projects and developments by entities directly responsible for the protection of the GBRWHA.** The system of development assessment is designed for application across Queensland (State legislation, e.g. *State Development and Public Works Organisation Act 1971*, *Sustainable Planning Act 1999*) or Australia (Commonwealth legislation, EPBC Act), rather than being specific to the Great Barrier Reef (although the EPBC Act has Matters of National Environmental Significance relating to the Great Barrier Reef).Once a project is likely to have an impact on the Great Barrier Reef, additional assessment measures may also be applied by GBRMPA (*Great Barrier Reef Marine Park Act 1975* and QPWS (*Marine Parks Act 2004*).

2. **Explicit recognition of Matters of National Environmental Significance in the Queensland State Planning Policy.** In addition to the Commonwealth's EPBC Act, the Queensland State Planning Policy also requires the explicit consideration of Matters of National Environmental Significance (including threatened species and OUV of World Heritage properties). This is an important aspect of the existing management framework which is particularly important for management of the Great Barrier Reef Coastal Zone and catchment.

3. **Strong, clear and usable Water Quality Protection Guidelines.** Point source and diffuse run-off from urban and industrial development presents a significant threat to the GBRWHA. The granting of approval for urban and industrial developments is commonly made under one or more Acts at the State level – *Sustainable Planning Act 2009* (decision maker is mostly the relevant council), *Environmental Protection Act 1994* (decision maker is DEHP) and *State Development and Public Works Organisation Act 1971* (authorised decision maker is the Coordinator General). Urban and industrial development land use and planning decisions can also be made under the *Economic Development Act 2012* and potentially in the future under the proposed Queensland ports legislation. Decisions under the *Sustainable Planning Act 2009* and *Environmental Protection Act 1994* must comply with Queensland Water Quality Guidelines 2009, which

refer to compliance with the Water Quality Guidelines for the Great Barrier Marine Park. The same arrangements exist for development projects that may require an EIA under the *Sustainable Planning Act 2009*.

4. **Emergency legislative protection powers –** The *Great Barrier Reef Marine Park Act 1975 Part 9* Clause 66.2 provides GBRMPA with legislative powers to regulate land and foreshore discharges that present a significant risk to the Reef. GBRMPA has only applied this provision once to regulate aquaculture activities (which are now regulated under the *Environmental Protection Act 1994* (QLD) after GBRMPA was satisfied that the same environmental standard would be achieved). The clause provides GBRMPA with some capacity to prevent discharges if other Queensland legislation or partnership-based approaches are unable to prohibit a harmful activity from occurring.

5. **A long term, well-resourced, science based Reef Water Quality Protection Program.** The Reef Water Quality Protection Program is administered by the DPC, and has an essential role in the management of the complex interaction between land, coastal and marine environments. The Great Barrier Reef Region Strategic Assessment (GBRMPA 2014b) found "*the strategic assessment highlights the success of co-operative actions to halt and reverse the decline of water quality entering the Region coordinated through the Reef Water Quality Protection Plan*". The Reef Water Quality Protection Program is an overarching mechanism that can inform Australian and Queensland government decision makers regarding trends in water quality, the likely causes of changes in trends and the likely benefits the package of interventions is having. It is essential that the Reef Water Quality Protection Program remains a constant feature of a dynamic environment (regulatory, environmentally and socially).

6. **Commitment to regular regulatory reviews to assess the effectiveness and appropriateness of current legislative arrangements to emerging threats and issues.** The Commonwealth and Queensland governments have a commitment to undertake a statutory review for all regulatory mechanisms to assess their relevance and appropriateness to current and emerging issues and challenges (Queensland Government 2013b; Commonwealth of Australia 2009). Extensive reviews of the *Fisheries Act 1994 and Sustainable Planning Act 2009* are presently underway. In accordance with the Queensland Government Regulatory Impact Statement System Guidelines (Queensland Government 2013b) reviews must follow detailed procedures to determine the extent of consultation required to inform a proposed regulatory review. If the proposed regulatory change is likely to have a significant impact, such as a substantial or irreversible environmental damage, generate a high level of community concern and the Queensland Treasurer does not exempt the regulatory change from a Regulatory Impact Statement, the agency must undertake public consultation. Providing non-government stakeholders with the opportunity to examine the impact of past and possible regulatory changes.

7. **Commitment to achieving outcomes through partnerships.** GBRMPA has a strong track record in reaching partnership-based outcomes (e.g. securing a partnership with tourism operators in the 1980s, addressing sewage discharges with Councils in the mid 1990s and more recently producing the Great Barrier Reef Marine Park Zoning Plan). The *Great Barrier Reef Marine Park Act 1975* (Cth) encourages engagement in the protection and management of the Reef, through the facilitation of partnerships with Traditional Owners and a collaborative approach to management with the Queensland Government. The Inter-governmental Agreement between the Australian and Queensland governments commits to joint action on managing and protecting the GBRWHA.

Given the acknowledged scientific uncertainty regarding the interactions between catchment, coastal and marine environments (e.g. the array of different potential pollution sources), it is essential that these features of the legislative, management and institutional framework overseeing the protection and management of land and coastal areas adjacent to the GBRWHA remain constant, strong, visible, continuously reviewed and improved.

Within this framework, there have been significant recent legislative and policy changes affecting the management of activities in the catchment and coastal zone of the Great Barrier Reef. The reforms include:

- *Vegetation Management Act 1999* – providing the capacity to clear native vegetation for high value agricultural activities.
- *Section 814 Water Act 2000* – removing the need to obtain a riverine protection permit if excavation or placing of fill in a watercourse, lake or spring meets a certain criteria (e.g. excavation is less than 500 cubic metres).
- The recent Wild Rivers declarations on the east coast of Cape York have been revoked, creating development opportunities in the northern section of Great Barrier Reef.
- A revised Offset Framework – changes are designed to make offset investments focused on strategic environmental values as distinct from spreading offsets across a wide number of improvement initiatives. Under recent changes proponents

can offset impacts in protected areas by economic means and apply for a range of standardised offset products.

- *Coastal Protection and Management Act 1995* – a reduction in the size of the catchment-based jurisdiction to within a few kilometres of the sea. Statutory Regional Coastal Management Plans were abolished, and integrated into a single Queensland State Planning Policy.
- *Environmental Protection Act 1994* and *Chemical Usage Act 1998* – introduction of regulation of the water quality impacts of cattle grazing on properties of more than 2000 hectares and all commercial sugarcane farming in the Burdekin Dry Tropics, Mackay Whitsundays and West Tropics Catchment.

This legislative and policy reform program has sought to:

- Simplify administrative arrangements through streamlining regulatory requirements.
- More effectively focus assessment and compliance activities on high risk activities. DEHP has recently implemented a risk-based Regulatory Strategy (DEHP 2014). GBRMPA and QPWS use a risk-based approach to compliance management through intelligence gathering, analysis of threats, and focus their surveillance and compliance resources on areas likely to have the greatest adverse impact if regulations are breached. The Queensland Port Strategy is proposing a risk-based and outcome-focused approach to environmental management. This will involve statutory master planning guidelines and an ISO-accredited environmental framework to enable environmental outcomes to be set rather than prescribe how Port operators achieve those outcomes.
- Assess developments on their merit as distinct from excluding/preventing certain activities from occurring in designated areas. Merit-based decision making is closely linked to risk-based regulatory strategies and strong relies on effective application of a risk hierarchy (avoid, mitigate or offset).

Moves to merit and risk-based regulation are a common trend in Australia and more specifically the GBRWHA. According to Bounds (2010), if implemented properly, merit and risk-based regulation should lead to better decisions. This is because more complete assessments of the possible consequences of potential impacts are undertaken, there is more efficient use of public and private resources (e.g. resources are allocated to the greatest risks to the environment, public safety and third party infrastructure), greater public transparency (e.g. it is clearer to the public what risks are identified, how they have been assessed and what controls will be used).

3.5 Developing long term plans

The Strategic Assessment for the Great Barrier Reef was the largest and most comprehensive assessment undertaken in Australia under the EPBC Act, and has provided the basis for the development of targets and objectives in the 2050 Long Term Sustainability Plan (regarding the protection of reef values and addressing key threats such as nutrient run-off and crown of thorns star fish outbreaks).

The challenge for entities involved with the protection and management of the GBRWHA is to translate large scale Strategic Assessment-type planning processes into their own strategic planning processes to more effectively take into account how their management actions can contribute to the protection of the GBRWHA at a local, regional and reef-wide scale in the short, medium and long term. The Great Barrier Reef Region Strategic Assessment 2014 (GBRMPA 2014b) found that "*in particular, spatial approaches to understand the extent and importance of elements of Matters of National Environmental Significance including the outstanding universal value and essential processes on land and sea that maintain these values are not well developed*".

The Queensland Ports Strategy proposes to use a master planning approach to better manage the medium and long term expansion of ports and terminal capacity. A key objective of the Strategy is to further streamline the regulatory approval processes for new and expanded ports without reducing current environmental management and protection standards. The proposed Master Planning Guidelines will set out how an approved Master Plan can be taken into account when conducting an environmental assessment. It proposed that the approved Port Master Plan will satisfy a number of standard environmental conditions and thereby focus environmental assessments on the high risk, complex or unique impacts.

The medium to long term planning of ship movements through the Great Barrier Reef is outlined in the draft North East Shipping Plan (AMSA 2013), which sets out short (within two years), medium (two – five years) and long term (five years plus) initiatives and control measures to effectively manage increased shipping in highly environmentally sensitive areas such as the Great Barrier Reef. For example within two years the "*North East Shipping Management Group (NESMG) [is] to establish an Anchorage Management Working Group under the NESMG to implement findings from the study "Identification of impacts and proposed management strategies associated with offshore ship anchorages in the GBR World Heritage Area*".

There is an array of plans with different purposes at different spatial and temporal scales spanning the critical areas of protection and management. Over 35 different management plans and strategies (Appendix F) have been identified through a desktop review of relevant documents.

Examples of plans and strategies include:

- Business plans and strategies (e.g. Australian and Queensland governments Field Management Business Strategy 2015 – 2019);
- Plans outlining management actions to protect specific values (e.g. Shoalwater Bay (Dugong) Plan of Management, GBRMPA 1997 and the *Great Barrier Reef Marine Park Zoning Plan 2003*);
- Plans outlining management actions to regulate use of specific zones (e.g. *Great Barrier Reef Marine Park Zoning Plan 2003*);
- Plans for management of use of Great Barrier Reef at specific places (e.g. Cairns Area Plan of Management);
- Reef-wide strategies and plans for specific sectors (e.g. Recreation Management Strategy for the Great Barrier Reef; GBRMPA 2012);
- Reef-wide plans to manage specific threats (e.g. Reef Water Quality Protection Plan);
- Plans to manage/facilitate land use change (e.g. Far North Queensland Regional Plan 2009 – 2031; Queensland Government 2012a), and
- Plans to coordinate infrastructure development for key economic sectors (e.g. Abbot Point State Development Area; Queensland Government 2012b).

A large number of management plans produced are legislative requirements (e.g. Great Barrier Reef Marine Park Zoning Plan 2003). Each management plan may have a distinct purpose and focus without an over-arching strategic long term framework for the GBRWHA. It is therefore difficult to assess which plans are making a useful contribution to the protection of world heritage values. The 2050 Long Term Sustainability Plan and proposed Integrated Monitoring Program for the GBRWHA will be vital management planning tools as they will better enable more explicit understanding of the contribution (or not) of different management actions (e.g. legislative, program based) undertaken by different actions towards achieving agreed targets and objectives.

3.6 Decision making requirements

The majority of approval decisions relating to the use of the Great Barrier Reef Marine clearly lay with GBRMPA (e.g. operation of fishing vessels, aircraft, and recreational activity such as interaction with marine life). The Zoning Plan establishes what activities can be undertaken in a zone (e.g. a Habitat Protection Zone provides for the conservation of areas through the protection and management of sensitive habitats, generally free from potentially damaging activities, with several activities requiring permission from GBRMPA. Permit applications are assessed on the basis of the values of the area, potential impact of the proposed activity, mitigation measures and consistency with the purpose of the zone. GBRMPA has delegation for approvals under the *Environment Protection (Sea Dumping) Act 1981*, where such activities are proposed within the Great Barrier Reef Marine Park.

Some stakeholders have reported approvals for major activities within the Marine Park can be confusing. The roles of GBRMPA (under the *Great Barrier Reef Marine Park Act 1975*) and the Commonwealth Department of the Environment (under the *Environment Protection (Sea Dumping) Act 1981 and* EPBC Act) have been reported as being overlapping and sometimes inconsistent. For example, the Queensland Ports Association told the recent Senate Inquiry "*ports are experiencing issues with the basis for some of GBRMPA's advice and the Department often conducts its own assessment and includes additional requirements*".

There appears potential to further streamline approvals under the *Environment Protection (Sea Dumping) Act 1981* and the *Great Barrier Reef Marine Park Act 1975*. It is understood that the *Great Barrier Reef Marine Park Act 1975* probably has sufficient head of power to make a determination on the type of wastes covered under the *Environment Protection (Sea Dumping) Act 1981* (e.g. under *Section 38J Great Barrier Reef Marine Park Act 1975* – waste will not be discharged into the Marine Park).

The primary issue likely to prevent streamlining of regulatory approvals appears to relate to the *Great Barrier Reef Marine Act 1975* not containing adequate recognition of the international obligations referenced in the *Environment Protection (Sea Dumping Act) 1981* (e.g. Australia's international responsibilities under the 1996 Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters 1972, also known as the London Protocol). Delegating decisions under the *Environment Protection (Sea Dumping Act) 1981* to GBRMPA for relevant activities proposed within the Marine Park provides some level of streamlining under the current arrangements.

Another recent example of a GBRMPA decision making process that caused confusion with some stakeholders was the approval for the placement of dredged material within the Marine Park at Abbot Point. Local and regional environmental management groups, tourism operators and residents expressed their concern regarding both how the decision was made and the outcome of the decision making process (e.g. the approval of the dumping) to the recent Senate Inquiry.

A common perception was the sequencing of the decision making process (e.g. the rail network and Port expansion for Abbot Point had already being approved by some agencies prior to the sea dumping approval) and the perception that the internal assessment process was influenced by political interference (e.g. "*GBRMPA had no choice but to approve and overrode its own independent scientific advice*").

It is critical that decision making authorities and the processes used for arriving at a decision are clear to all stakeholders in order to maintain a level of integrity and confidence. There will always be the debate about the merits of specific decisions but challenges on procedural grounds should be minimised by robust, transparent and clearly communicated decision making processes. A review of the GBRMPA website located guidelines on Environmental Impact Assessments, policy statements regarding an array of specific activities and details about permitting arrangements (e.g. mandatory and discretionary considerations). No information could be easily located about who in GBRMPA is the final decision maker (e.g. delegated to grant what approvals). Providing clarity regarding not only the impact assessment process, but also the decision making process should help make the full process more transparent to stakeholders.

Simplification, streamlining and better coordination of regulatory approvals within the GBRWHA should be pursued if there is no reduction in environmental standards or level of assessment. Recommendations 8 and 8A of the Great Barrier Reef Region Strategic Assessment (GBRMPA 2014b) commit to further streamlining and alignment of assessment and approval processes.

In addition to the possible simplification between the *Environment Protection (Sea Dumping) Act 1991* and the *Great Barrier Reef Marine Park Act 1975,* improved coordination between the Queensland Government, Australian Government and GBRMPA major project assessment processes could be achieved. Rather than sequential decision making, concurrent decision making processes should be investigated whereby each entity still performs its own assessment and make its own decision, but there is overall coordination of all approvals so that all decisions are provided at the same time. This would mitigate the perception that a decision has been influenced by previously announced decisions. The approach is based on a Lead Agency Assessment Model whereby one nominated agency is appointed to coordinate the decision making processes of other agencies. Lead Agency Assessment Models are being increasingly used in a number of jurisdictions. For example, in Western Australian and South Australia, the respective State governments have implemented lead agency assessment models to better integrate, coordinate and streamline the assessment and determination of approvals for mining and petroleum projects (DMITRE 2014; WADPC 2014).

3.7 Draft Approval Bilateral Agreement

The Commonwealth and Queensland are pursing the accreditation of Queensland for environmental assessments and approvals of Commonwealth matters under the *Environmental Protection Act 1994* (QLD) and the *State Development and Public Works Organisation Act 1971* (QLD). The proposed arrangements are set out in the draft Approval Bilateral Agreement under the EPBC Act. Under an Approval Bilateral Agreement, Queensland would be responsible for the assessment and approval of both state matters and Matters of National Environmental Significance under an accredited process. Such efforts appear to be well-founded, and will reduce duplication of effort. A Draft MoU is under development between GBRMPA and the Queensland Government to support further collaboration under the Approval Bilateral Agreement.

The draft Approval Bilateral Agreement has attracted a significant amount of attention and commentary. In the current Senate Inquiry, several submissions (e.g. WWF and ANEDO) expressed concern regarding the draft Approval Bilateral Agreement and recent legislative reform in Queensland to enable the Agreement. Concerns generally focused on:

- Queensland Government may have a conflict of interest if it is both the Proponent and the Assessor (e.g. proposed infrastructure development owned by the Queensland Government);
- If the development is to be assessed by the Coordinator General (under the *State Development and Public Works Organisation Act 1971*) the Coordinator General may have a bias as its mandate is economic development not environmental protection;

- The role of GBRMPA in terms of assessing proposed developments under the proposed Approval Bilateral Agreement is diminished simply to "an advisory role";
- The draft Approval Bilateral Agreement and accredited legislation do not confer the same legal standing for community groups to submit decisions for a judicial review as is currently provided for under the EPBC Act;
- The draft Approval Bilateral Agreement and accredited legislation provides inferior public access to information when compared with the EPBC Act;
- The draft Approval Bilateral Agreement does not include a clear duty that decisions are not to be inconsistent with Australia's obligations under the World Heritage Convention;
- The Bilateral Agreement may be put in place prior to the finalisation and agreement of the 2050 Long Term Sustainability Plan and therefore limit the capacity for this Plan to put forward leading practice management and governance arrangements;
- The Queensland Government has insufficient resources within the relevant agencies to undertake the environmental assessment workload associated with the draft Approval Bilateral Agreement.

Stakeholders who do not favour the establishment of an Approval Bilateral Agreement believe there will be a reduction in environmental standards, resulting in projects being approved that will have a profound adverse impact on the GBRWHA.

The case for the Approval Bilateral Agreement (from submissions to the Senate Inquiry) is set out as:

- The Approval Bilateral Agreement does not diminish environmental standards. The same level of environmental assessment that is currently required must be undertaken by the Queensland Government. The Approval Bilateral Agreement provides for the accreditation of the Queensland assessment and approval process under the EPBC Act, not the delegation of EPBC Act powers;
- Providing a higher degree of consistency and certainty for all stakeholders – local residents, Proponents, environmental groups, government agencies. It is intended to make clear who has the decision and what assessment has been performed. The Approval Bilateral Agreement should simplify legal and policy arrangements and provide for clearer decision making accountability;
- More efficient use of public sector resources as different regulators currently perform largely the same assessment function (at a Commonwealth and State level and across Queensland Government agencies);
- Target private sector resources during the assessment process towards identifying innovative and effective designs to avoid and minimise environmental impacts.

Importantly, the draft Approval Bilateral Agreement provides a number of checks and balances that enable the Australian Government to check that the Queensland Government is operating in accordance with the Agreement. Examples of these steps include:

- Section 3 – The Approval Bilateral Agreement is not a permanent arrangement. The draft Approval Bilateral Agreement expires after 10 years;
- Clause 7.2 – Set outs what information the Queensland Government will make public including application documentation, any draft and final terms of reference for the assessment, draft and final environmental assessment documentation and public comments;
- Clause 8.2 – Sets out principles about open access and sharing of environmental information with the public in accessible formats;
- Section 65(2) of the EPBC Act requires the Commonwealth Minister to conduct a review of the Agreement every five years (minimum of two reviews for the duration of the Agreement). Under Clause 12.1 and 12.2 the scope of the review includes operation and effectiveness of the Agreement, may involve public consultation and by agreement of the Senior Officers' Committee, involve an independent third party;
- Clause 14.1 requires Queensland Government to complete an annual audit of the Agreement in accordance with accepted best practice audit principles. Scope of the audit is to include "*an evaluation of systematic outcomes relating to Agreement*";
- Clause 14.2 allows either the Australian or Queensland governments to initiate an audit if "*in the opinion of that party, there has been or is likely to be an adverse systematic outcome relating to this Agreement*";
- Clause 14.3 and 14.4 recognises that either the Commonwealth Auditor General (specific to Commonwealth Public Sector) or the Queensland Auditor General (specific Queensland Public Sector) may audit the Agreement;

- Clause 16.4 allows for the Commonwealth Minister if concerned that the Queensland decision maker is either considering or proposing to make a decision that will result in serious or irreversible environmental damage to a Matter of National Environmental Significance or the does not meet the agreed decision making criteria, to determine that the action cannot be assessed or approved by the Queensland Government. The agreed decision making criteria includes where a decision would be affected by bias, such that the decision maker could not give genuine consideration to the matters required for decision making in the draft Approval Bilateral Agreement. Clause 16.3 provides a similar opportunity for the Queensland decision maker to commence the escalation process;
- Clause 17.1 outlines that sections 57 to 64 of the EPBC Act provide that the Commonwealth Minister may cancel or suspend all or part of the Agreement.

Under the draft Approval Bilateral Agreement, Queensland will be accredited to assess and approve actions on state land or in state waters, including in the state waters of the Great Barrier Reef Marine Park, that impact on Matters of National Environmental Significance (including the Great Barrier Reef Marine Park as a Matter of National Environmental Significance). The draft Approval Bilateral Agreement does not alter GBRMPA's existing role to assess actions and issue permits under the *Great Barrier Reef Marine Park Act 1975* (Cth). The draft Approval Bilateral Agreement contains a specific provision regarding the involvement of the GBRMPA in the decision making process under the draft Approval Bilateral Agreement. For example:

- Clause 5.4 a) states Queensland will seek and take into account the expert advice of GBRMPA on a proposed action which is within or likely to impact on the Great Barrier Reef Marine Park;
- Clause 6.3 requires that the Queensland decision maker not act inconsistently with Australia's obligations under the World Heritage Convention;
- Clause 6.4 requires that the Queensland decision maker will take into account information contained in relevant strategic assessment reports (e.g. specifically Great Barrier Reef Coastal Zone Strategic Assessment Report, the Great Barrier Reef Region Strategic Assessment Report and any supplementary reports produced for the GBRWHA);
- Clause 11.1 c) requires that Queensland will provide information to meet reporting commitments to the World Heritage Committee on actions that may have a significant impact on a World Heritage property.

A draft MoU has been prepared by GBRMPA and the Queensland Government to provide greater operational clarity on the implementation of the draft Approval Bilateral Agreement in respect of GBRMPA's role. The MoU, while not legally binding, is a statement of mutual intentions (requires both parties to commit to using their best endeavours). The MoU will be an agreement between the GBRMPA, the Queensland DEHP and the Queensland Coordinator General.

The MoU contains four objects, two of which relate specifically to environmental protection:

1. Ensure high standards are maintained for the protection of the biodiversity, heritage values and the environment and in particular Matters of National Environmental Significance;
2. Provide for the long term protection, conservation and ecologically sustainable use of the Great Barrier Reef Region.

The MoU sets out how each party will engage on matters that require each other's approval (e.g. sharing of information, risk based approaches, seeking each other's advice, integrated assessments). Further detailed administrative arrangements are to be developed as required for specific assessment and approval processes.

3.8 Compliance and Enforcement

All legislation regulating the use, management, protection and potential impact on the World Heritage Area contains compliance obligations and enforcement penalties (e.g. the *Environmental Protection Act 1994* (QLD), the *Sustainable Planning Act 2009* (QLD), the *State Development and Public Works Organisation Act 1971* (QLD), the *Vegetation Management Act 1999* (QLD), the *Fisheries Act 1994* (QLD), the *Nature Conservation Act 1992* (QLD), the *Marine Parks Act 2004* (QLD) and the EPBC Act (Cth).

The DEHP recently published its Regulatory Strategy and Annual Compliance Plan. The Plan sets out the use of risk assessment methods to assign resources on the basis of risk of the Proponent being non-compliant and the consequences of the uncontrolled activity impacting the environment (e.g. poor performing Proponents and highest risk activities will attract the greatest allocation of resources and greater penalties). Risk-based regulatory strategies better facilitate Regulators and Proponents having shared understandings of what may prevent desired environmental outcomes from being achieved. By focusing both parties on the critical risk events, resources are most effectively allocated to risks that require additional controls and monitoring as distinct from activities and risks that are generally accepted as being managed satisfactorily through use of standard controls and conditions.

Compliance activities under the EPBC Act are carried out by the Environmental Assessment and Compliance Division of the Department of the Environment. A performance audit of the Department's compliance measures under the EPBC Act was recently completed by the Australian National Audit Office (ANAO 2014b). It found that there was a passive rather than a proactive approach to compliance, with several improvements recommended to effectively target compliance activities to the areas of greatest risk and improve administrative arrangements

3.9 Science-based decision making and management planning

A commitment to science-based decision making and management planning is regarded as central to the effective protection and management of the World Heritage Area.

Evidence of a commitment to science-based decision making identified across the existing legislative, management and institutional arrangements includes:

- Broad recognition that the GBRMPA has a strong commitment to science-based decision making. GBRMPA make a clear commitment to science-based decision making in its Strategic Plan 2012 – 2016 "*management and all activities contributing to the health and resilience of the Reef are underpinned by best available science*" (one of four key strategic priorities contained in the Strategic Plan). The five-yearly Outlook Report is also an example of a commitment to science-based decision making;

- Section 5.4(a–e) sets out the requirements for Queensland to seek expert advice (e.g. the Supervising Scientist or the Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development). The draft Approval Bilateral Agreement also sets out where the Commonwealth Minister for the Environment may seek advice from independent bodies, including in response to a notice of a proposed decision from Queensland that may not meet the requirements of the Approval Bilateral Agreement (section 16.3c). The draft Bilateral Agreement does not explicitly reference science-based decision making.;

- The Reef Water Quality Protection Plan uses an Independent Science Panel to provide assurance of the scientific validity of actions and reported outcomes. A strong feature of the Water Quality Reef Protection Plan is the publication of a Scientific Consensus Statement (Brodie *et al.* 2013). A group of multi-disciplinary scientists overseen by the Independent Science Panel synthesises the recent advancements in water quality scientific knowledge and publishes a single statement outlining what the most likely causes of decline in water quality are, the impact of extreme weather events and where future effort should be targeted. The Scientific Consensus Statement helps facilitates the decision making process to move from debating the merits of the science to what represents effective, value for money and proportional action to be taken by the Australian and Queensland Government and the various industry sectors.

Some stakeholders perceive proponent-funded EIAs to be biased (e.g. it is in the proponent's own interest to limit the cost of the exercise and also present the findings in a favourable manner) and should receive greater independent scrutiny and examination.

Under the draft Approval Bilateral Agreement between the Australian and Queensland governments, capacity exists for either party to seek independent outside specialist advice on assessment matters. Guidelines for preparing Environmental Impact Assessments under different Acts are published by GBRMPA, DEHP and the Coordinator General (e.g. Coordinator General 2013).

3.10 Visibility of the rationale for decisions

The integrity of regulatory, governance and management arrangements in highly contestable environments is greatly aided by the rationale for decisions being made clear and easily accessible to stakeholders.

The following instruments require decision makers to publish the rationale for their decisions:

- Draft Approval Bilateral Agreement requires the Queensland Government to publish reasons for decisions, and the primary material on which those decisions are based, on the Internet; clause 7.2(a)(i)(E);

- GBRMPA publishes a list of permits granted under the *Great Barrier Reef Marine Park Regulations 1983*, current applications, applications open for public consultation and recent decisions on its website;

- The Sustainable *Planning Act 2009,* requires councils to publish information about development applications (Section 736).

3.11 Community engagement

Community engagement is an important aspect of any protected area management strategy, with stakeholders being informed and involved in management (IUCN 2013).The effective management and protection of the GBRWHA requires strong coordination and collaboration between government and non-government stakeholders. There is mixed evidence regarding the effectiveness of Queensland Government and GBRMPA coordination and collaboration with non-government entities.

Stakeholders often think locally, but management of the Reef is generally focussed at a larger scale. Engaging stakeholders locally, empowering local government and refining the management of local issues in the coastal zone would be beneficial for some management issues relevant to the World Heritage Area. The Healthy Harbour Partnership in Gladstone is one good example where such an approach has recently commenced.

A number of forums and processes exist for non-government stakeholders to participate in strategic planning and reviews (Table 4). These include those administered by GBRMPA such as Local Marine Advisory Committees (LMAC), each of which is allocated a GBRMPA Director to provide continuity with the local stakeholder groups.

Table 4 – Examples of existing community consultation committees in place across the Great Barrier Reef

Geographical Focus of Coordination and Collaboration Mechanism	Queensland Government/Other	GBRMPA-specific
Reef-Wide	• Partnership Committee. Oversees and drives implementation of Reef Plan • Independent Science Panel Provides scientific advice to inform adaptive management for Reef Plan • Inter-governmental Operational Committee. Establishes working groups to address specific management tasks	Four Reef Advisory Committees (two of which are active): • Catchment and Coastal (not currently active) • Ecosystem (not currently active) • Indigenous • Tourism and Recreation The purpose of Reef Advisory Committees is to provide independent specialist advice to GBRMPA on actions that can be taken to address risks identified in 2009 Outlook Report to the GBRWHA.
Regional	• Regional Healthy Waterways Partnership Group (presently only established in the Whitsunday and Mackay Region) • Regional Natural Resource Management Bodies along the Great Barrier Reef (whose function is broader than the Great Barrier Reef)	Fitzroy Basin Elders Committee. Reconciliation and sustainable management of the Central Queensland natural and cultural environment.
Local	• Gladstone Healthy Harbour Partnership	12 Local Marine Advisory Committees (Cape York, Douglas, Cairns, Cassowary Coast, Hinchinbrook, Townsville, Bowen-Burdekin, Whitsunday, Mackay, Capricorn Coast, Gladstone, Burnett). The purpose of Local Marine Advisory Committee is to provide opportunity for local stakeholders to express views on matters impacting their locality, to identify possible actions to be taken (jointly with GBRMPA) and for GBRMPA to inform local stakeholders about reef-wide plans, issues and actions potentially impacting their local area.

Table 5 – Gladstone Healthy Harbour Partnership Case Study

The Gladstone Healthy Harbour Partnership (GHHP) was initiated by the Queensland Government in an effort to streamline the management of Gladstone Harbour. The purpose of the partnership is to facilitate the collaboration of industry, local government, research institutions and community stakeholders in the management of the region. The common goal of the GHHP is to ensure the ongoing and continuous improvement in the health of Gladstone Harbour, while allowing sustainable growth of one of Australia's busiest ports. The Fitzroy Basin Association, a community-based organisation, hosts the GHHP.

Presently there are 23 partners that have joined the partnership, each of whom have committed to working together in a positive and proactive manner. The guiding principles of the Partnership are 'open, honest and accountable management, annual reporting of the health of Gladstone Harbour and management actions based on rigorous science and stakeholder engagement'. An Independent Science Panel will provide independent and objective scientific advice to the GHHP regarding the long term management and monitoring of the harbour, along with high level technical knowledge, skills and experience to support the partnership.

The Partnership relies on each member agreeing on the common goal with all partners pledging their cooperation and intent, along with human, financial and material resources to the management of Gladstone Harbour. Presently there are numerous monitoring programs being conducted within Gladstone Harbour and the Port Curtis region.

With the establishment of the GHHP, these monitoring programs can be coordinated and streamlined to avoid duplication with any gaps in the knowledge identified and prioritised.

The proximity of Gladstone Harbour to the Reef and its function as a major industrial port has created complexities for the management of the harbour. Until the formation of the GHHP there have been many competing bodies and management agencies with individual goals, interests and overlapping jurisdictions which have resulted in fragmented management of the harbour. Establishment of the GHHP is a positive step in improving communication between managers, resource users, scientists, government regulators and other stakeholders with meaningful engagement to develop management initiatives that are current and realistic. This integrated approach combining governing agencies also includes a high level of public education and community involvement, and could be a model for application elsewhere. A similar model has been applied in the Mackay Whitsunday area, which has high levels of support from participants.

The success of the GHHP will be tracked through a "Report Card" process, the first of which is expected to be released in 2015. The GHHP is an example of community, industry, government regulators and research organisations working together to support Gladstone's economic development while protecting the health of the local community and surrounding ecosystems within the GBRWHA. The annual report card will communicate the health of Gladstone Harbour to the greater community and highlight management actions and recommendations. It is an excellent example of regulators working with community to manage the Reef at a local scale, resulting in more efficient monitoring, collaboration and decision making. Depending on the outcomes of the partnership, formation of similar groups could be repeated elsewhere on the Reef.

Public consultation processes are also completed for management activities affecting the World Heritage Area. Examples include consultation with any proposed Fish Habitat Area declaration, the invitation for public comments on new strategies (e.g. the Draft Queensland Ports Strategy; Queensland Government 2014c) or statutory public comment processes for Zoning Plans and Plans of Management (implemented by GBRMPA). An important requirement of the Approval Bilateral Agreement between the Australian and Queensland governments is the requirement that the Queensland Government publish information regarding what public comments they have received on an assessment or "*an explanation of how public comments were addressed*".

More generally, some stakeholders have raised concerns regarding lack of community and industry engagement on significant issues or challenges facing the region of the Reef in which they live or work. The most notable example is the Marine Park Tourism Operators Association, who reported in their submission to the Senate Inquiry that "*GBRMPA has poor interaction with the Marine Tourism Industry. Over the last two years there has been a significant drop in consultation and interaction with the industry. The Tourism Recreation Reef Advisory Committee has not met to discuss any issues other than the strategic assessment and many issues are now reaching crisis point*".

A major challenge confronting governments is to demonstrate how the views provided by the public (individuals and organisations) have been taken into account when producing the final management plan or review finding. There is a danger of a disconnect between public consultation and decision making. If it is not clear how the views provided have been considered, individuals and organisations will lose confidence in decision making bodies and their processes. This can quickly result in either decision making paralysis or the decision making body reacting to public concerns by making unforeseen concessions or changes and therefore undermining regulatory certainly relied on by all parties.

While in its early stages, one model of community engagement which has been introduced at Gladstone appears to have been successful in integrating stakeholders across all aspects of the management spectrum, with a focus on water quality. The Gladstone Healthy Harbour Partnership (Table 5) facilitates collaboration across all stakeholders groups, with a particular focus on water quality and improving the health of Gladstone Harbour.

3.12 Reviews of regulatory decision making processes

Continuous improvement is a fundamental part of effective governance and management arrangements and an essential element in an adaptive management framework. The Australian and Queensland governments have made clear commitments to continuously improve the legislative and governance relating to the management, use and protection of the GBRWHA.

The draft Approval Bilateral Agreement contains requirements for independent reviews of the operation and effectiveness of the Agreement. The draft MoU between GBRMPA and the Queensland Government requires each party to identify and make improvements to decision making processes (that maintain environmental standards).

Many recommendations of the 2006 review of the *Great Barrier Reef Marine Park Act 1975* (Commonwealth of Australia 2006) have been implemented. Key examples include the preparation of a 5 yearly Outlook Report, establishing a comprehensive Inter-governmental Agreement and strengthening the role of the Ministerial Forum. Implementation of these initiatives demonstrates an ongoing commitment to continuous improvement which will continue through the development and implementation of the 2050 Long Term Sustainability Plan.

4. OUTSTANDING UNIVERSAL VALUE

OUV is an attribute or collection of attributes that make a property unique and worthy of World Heritage listing. The Great Barrier Reef has been assessed to meet all four natural OUV criteria for world heritage listing, which relate to its:

- superlative natural phenomena, natural beauty or aesthetic importance;
- outstanding examples of the earth's history, including geological processes or features;
- outstanding examples of ecological and biological processes, and
- most important and significant natural habitats for conservation of biological diversity.

In order to be listed as a World Heritage property, the property is also required to meet the criterion of integrity, relating to wholeness or intactness, and have a system of management in place. A statement of OUV for the GBRWHA was submitted to the World Heritage Committee in 2012.

There are challenges in translating the Great Barrier Reef's OUV into specific and discrete management systems and actions whose performance can be monitored and evaluated over time. The Operational Guidelines for the Implementation of the World Heritage Convention (para 49. WHC 13.01 July 2013) specifies:

"*Outstanding Universal Value means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. As such, the permanent protection of this heritage is of the highest importance to the international community as a whole.*"

This value is determined by assessment against specific natural and cultural criteria and against the concept of integrity. Each criterion is further elaborated through use of illustrative attributes. Lucas *et al.* (1997) have described the methodology for assessing the attributes of the Great Barrier Reef against the natural criteria (noting that the wording for the criteria changed between 1981 and 1996).

A complication arises because *"it is the totality of the interrelated natural attributes of an area that give rise to the area's 'Outstanding Universal Value"* (Lucas *et al.* 1997). However, in practice, managers consider world heritage areas to be made up of many discrete biophysical and cultural attributes that are usually managed separately, while recognising their interconnections. For example, in providing guidelines for referral under the EPBC Act, the Department of the Environment provides examples of attributes that align with specific criteria

OUV is a collection of attributes that make the Great Barrier Reef worthy of World Heritage listing. OUV is given little direct attention in legislation applying to the management of the Great Barrier Reef. OUV is fundamentally integrated into planning, development and management systems, rather than explicitly defined. Environmental values which collectively comprise OUV are managed directly as surrogates for OUV.

There is evidence of a growing recognition of the importance of OUV in the management tools applied to the Great Barrier Reef. Recent plans such as the Strategic Assessments, 2014 Outlook Report and Queensland Ports Strategy give consideration to OUV. Some of the most developed parts of the World Heritage Area, such as Gladstone Harbour, have been found to continue to express their OUV, despite significant industrial development.

(see Table 3 in EPBC Act referral guidelines for the OUV of the GBRWHA; Commonwealth of Australia 2014a). These examples illustrate the enormous range in scale and complexity of the natural attributes used, ranging from 'nesting turtles', and 'thousands of species of reef fish' to 'unique and varied seascapes and landscapes' and 'cross-shelf, long shore and vertical connectivity'.

Given the pivotal role that OUV has played in the establishment of the Great Barrier Reef as a World Heritage Area, the review team was surprised to observe that OUV is given relatively little direct attention in the legislative tools used for management of the Reef. OUV is not defined or mentioned in the *Great Barrier Reef Marine Park Act 1975*, *Marine Parks Act 2004* or their associated regulations. Instead OUV is described as being "fundamentally integrated" into planning, development and management systems, rather than explicitly defined and managed (Queensland

Government 2014b). This means that the environmental values which collectively comprise OUV are managed directly as surrogates for OUV. This appears to be in part due to the difficulty in defining specific environmental attributes from the relatively generic OUV criterion descriptions.

The Great Barrier Reef Region Strategic Assessment (GBRMPA 2014b) stated…"*given the broad scope of the criteria under which it was listed, almost all aspects of the Reef's environment contribute to its outstanding universal value. This includes the Region's biodiversity, geomorphological features, aspects of Traditional Owner connections to the area, its environmental processes and its aesthetic value. The notable exception is historic heritage values (for example, shipwrecks and lightstations) which are not encompassed by the natural criteria*".

However, management of OUV is likely to be more effective when these values have been adequately defined. Further work in providing a direct link between OUV and management of the Reef is recommended, as there are difficulties with assessing compliance with the obligation to manage OUV of the World Heritage Area. The Great Barrier Reef Region Strategic Assessment, GBRMPA (2014b) committed to strengthen its foundational (existing) management practices, to "*Explicitly incorporate consideration of all matters of national environmental significance, including attributes of the property's outstanding universal value, into the Authority's programs, plans and policies*". The further implementation of such commitments is encouraged to provide greater clarity of how OUV is managed in this GBRWHA.

Despite these areas requiring further work, there is evidence of a growing recognition and emphasis of OUV in the management of the GBRWHA in recent years. EPBC Act referral guidelines for the OUV of the Great Barrier Reef were released in May 2014 (Commonwealth of Australia 2014a) and are a helpful tool in guiding proponents on the potential for projects to impact OUV. A comprehensive study of the OUV of the geological features of the Great Barrier Reef was also commissioned by the Department of the Environment (Geoscience Australia and JCU 2013) and makes a significant contribution to improved understanding of these world heritage values.

A review of the Port of Gladstone (Commonwealth of Australia 2013b), one of the most heavily developed areas in the GBRWHA, found that OUV was still expressed within the port, despite the development of a range of industrial facilities over many decades and recent large scale dredging projects. The Port of Gladstone, like several ports along the Queensland coast, is located outside of the marine park boundary, but within the World Heritage Area. Management of the port is therefore generally achieved through state environmental legislation and the application of the EPBC Act, with specialist input from technical experts from the GBRMPA.

The attributes that contribute to the Great Barrier Reef's OUV are interconnected and are distributed across the entire extent of the property. The sheer size, diversity of ecological systems and human uses within the GBRWHA creates specific problems. The area is the third largest in the world at 348,000 km^2. The GBRWHA is predominantly a multiple use marine protected area (fisheries, tourism, shipping, conservation) that is also subject to the impacts from land use intensification along the adjoining coastal catchments and settlements.

In these circumstances, it is difficult to:

- specify the scale and level of activity that should be allowed to occur in the World Heritage Area;
- assess how impacts at different scales and intensities affect the totality of natural attributes that make up the OUV of the area.

As a consequence, there appears to be little explicit monitoring and assessment of the OUV of the Great Barrier Reef. This 'value' is more or less impossible to reduce to a set of explicit measures. Rather managers focus on managing the Reef environment in a traditional way, with a focus on impacts and threatening processes on the various elements of the Reef. This is supported with the best available science, and further underpinned by strategic planning, partnerships and engagement with key stakeholders.

The constitutionally based federal system means that no single government agency can readily have sole responsibility for managing and retaining the OUV of the GBRWHA. However, as the State Party to the World Heritage Convention, the Australian Government has responsibility for meeting its international treaty obligations and demonstrating that an effective management system is in place for protection of the World Heritage property, including its OUV.

5. OPPORTUNITIES FOR IMPROVEMENT

While there is complexity in the management system for the Great Barrier Reef, much of this is driven by the constitutional arrangements of Australia and the size of the World Heritage Area. For example there are over 400 people who have contributed to the Reef Plan initiative from a variety of government and stakeholder organisations. There is limited scope to simplify management, particularly in the coastal zone and catchment, due to Australia's constitutional arrangements. Improvement management practices must therefore have a focus on cross-institutional collaboration and coordination.

Recent assessments of management effectiveness in the Great Barrier Reef have concluded that activities occurring directly within the Marine Park (e.g. tourism, fishing, shipping) are well managed, while management of activities occurring outside the park and affecting its condition are less effectively managed (e.g. catchment runoff, climate change and cumulative impacts from development; Queensland Government 2014b, GBRMPA 2014b). Dale *et al.* (2013) applied a method of risk analysis across governance systems to the Great Barrier Reef, and noted the differences between management of the Reef proper (marine areas) and its adjacent catchments, commenting that only in the past 10 years has a bilateral coordination effort emerged on land, while the marine park has had a single management authority for 30 years.

This section describes areas of jurisdictional uncertainty relating to the legal obligations for the management and protection of the Great Barrier Reef.

Threats to the Reef ecosystem from activities within the Great Barrier Reef Marine Park are being managed, with few opportunities for improvement identified. Developing a strategy for reducing the complexity of island tenures and modernising permit assessment criteria were two areas identified.

Adjacent to the marine park, the application of Great Barrier Reef-specific water quality guidelines, and utilisation of regional plans to drive more effective management of the coastal zone were identified as priorities for improvement.

An increased focus on management effectiveness and reporting of outcomes is recommended to maximise the investment in current management activities. Managing the Reef for increased resilience in response to climate change is one important action that can be taken by managing agencies.

5.1 Within the World Heritage Area

Within the World Heritage Area, we identified few opportunities for improved governance arrangements. This result is consistent with previous assessments of management effectiveness, which found that effectiveness reduces with increased complexity or distance from the boundaries of the Marine Park and World Heritage Area (e.g. Hockings *et al.*, 2014).

The following opportunities were identified to improve protection for the GBRWHA from activities occurring **within** the GBRWHA. They are:

1. **The protection of nesting seabirds.** Elements of Queensland and GBRMPA programs established to manage the Great Barrier Reef are not always complementary. One example is the application of seasonal closures to protect nesting seabirds on islands, which are not replicated within waters immediately adjoining the islands (SKM 2014).
2. **Coordination and protection of high conservation value islands.** There are 400 islands protected as national park in the GBRWHA but there are some islands of high conservation value that are not within the protected area estate. There does not appear to be joint recognition of some planning tools applied by GBRMPA and the Queensland Government, as demonstrated by the Cairns Area Plan of Management, which appears to be an important management tool for GBRMPA in addressing tourism threats but is reported not to be approved by the Queensland Government (SKM 2014).
3. **Review and update the assessment criteria for marine park permits.** Sections 88Q and 88R of the *Great Barrier Reef Marine Park Regulations 1983* and Sections 10 and 11 of the *Marine Parks Regulation (2006)* outline the compulsory and discretionary criteria that must be considered by a delegate when assessing an application for a Marine Park permit. While there is some evidence that the criteria have

been updated from time to time (e.g. incorporating reference to the EPBC Act), they are generic and do not reflect the current knowledge of threats to the Great Barrier Reef and its OUV. Given the importance of such criteria in the decision making framework of GBRMPA and QPWS, review and amendment of the criteria to reflect the emerging challenges facing management of the Marine Park would add value.

4. **Integrating monitoring and reporting programs.** To extract greater value and insight from data being collected about the health of the Great Barrier Reef, a more integrated monitoring and reporting program is needed. At present it is estimated there are 65 privately and publicly funded monitoring programs that are relevant to Matters of National Environmental Significance pertaining to the GBRWHA (NERP 2013). Both the Australian and Queensland governments have identified the need for better integration of monitoring programs and have committed to further work in this area through the strategic assessment process (see Recommendation 31 GBRMPA 2014b; Recommendation 19 Queensland Government 2014b).

5.2 Land and coastal areas adjacent to the World Heritage Area

Opportunities to improve the protection and management of GBRWHA through better coordination of **adjacent land and coastal areas** include:

1. **Direct, simpler and easier application of Great Barrier Reef Water Quality Guidelines.** Rather than being nested with the Queensland Water Quality Guidelines 2009, direct reference should be made to the Great Barrier Reef Water Quality Guidelines in the Queensland State Planning Policy, in relevant Regional Plans and council planning schemes. Adoption of this approach would elevate the Great Barrier Reef Water Quality Guidelines to greater prominence.

2. **Review and update Great Barrier Reef Water Quality Guidelines.** The current Great Barrier Reef Water Quality Guidelines were last published in 2010. Over the last five years, the understanding of GBRMPA and other stakeholders of the threats to water quality (and where each threats presents itself) has improved substantially. GBRMPA have a sound scientific knowledge base to review the water quality guidelines to take into account recent scientific advances in understanding, address cumulative impacts and link water quality guidelines with level of threat posed by different activities which impact on water quality. This is consistent with recommended improvements to GBRMPA's management arrangements (Recommendation 18) made in the Great Barrier Reef Region Strategic Assessment (GBRMPA 2014a, b).

3. **Strengthen councils' understanding and capacity to apply Great Barrier Reef Water Quality Guidelines.** Undertake a targeted survey to assess the understanding and capacity of councils to effectively apply the Great Barrier Reef Water Quality Guidelines. Use the findings to design and implement a program that provides the necessary tools, training and support to rigorously and consistently apply the Great Barrier Reef Water Quality Guidelines. This could include provision of regional water quality monitoring data, agreeing and setting regional or local water quality targets (in close collaboration with Natural Resource Management (NRM) organisations and urban developers), and training and support in water sensitive urban design. Such an approach is likely to improve the effectiveness of water quality management at a local scale, across the Great Barrier Reef, and is consistent with recommended improvements to GBRMPA's management arrangements in the Great Barrier Reef Region Strategic Assessment (GBRMPA 2014b).

4. **Pursue coastal urban development through use of master plans.** Economic Development Queensland can play a role in containing run-off and improving water quality. Through master planned urban development, water sensitive urban design techniques can be more efficiently and effectively applied to a greater development "footprint". Such management practices are likely to be most effective for small rain events, rather than large cyclonic events which occur less frequently.

5. **Regional plans should incorporate clear priorities regarding the protection and management of coastal areas, catchments and impacts on the GBRWHA.** Given the international standing of the Great Barrier Reef and the Queensland Government's significant role in its management, it is appropriate that regional plans (as the only statutory planning measure operating at this scale) play a clear role. Regional plans require local government planning schemes to be aligned with their direction, unlike the regional plans of NRM organisations. They are an important tool for achieving a coordinated and more consistent approach to sustainable land use and development. They provide the important translation of State interests and detailed local government planning schemes, and a tangible link between State, regional and local stakeholders and priorities.

6. **Strengthen engagement between regulatory agencies and potential proponents.** Reliance solely on the assessment and approval processes to achieve optimal environmental, economic and social outcomes can be misguided. Early and open engagement during pre-feasibility and feasibility stages of a development between the proponent and key regulators may enable critical design issues to be identified before the proponent and regulator have expended significant resources in producing and assessing a specific design. Regulatory agencies would generally welcome early engagement with potential proponents to facilitate designs and siting options that deliver better outcomes and meet the needs of the regulator and the proponent. This would facilitate less contentious, complex and costly assessment and approval processes. Such an approach could take the form of a Pre-Lodgement Process, which could be formalised in legislation or operational policy.

5.3 Managing cumulative impacts

Effective analysis of the cumulative impacts of agriculture, urban development and port expansion at a regional scale remains a persistent challenge for the World Heritage Area. The need for effective and meaningful cumulative impact assessments has long been recognised and regularly raised by the environmental, urban and industrial development sectors. The Inter-governmental Agreement between the Australian and Queensland governments recognises "*economic growth and long term health of the Great Barrier Reef eco-system are interconnected, and actions or changes in one can impact on the other and must be taken in account*".

Anthony *et al.* (2013) have developed a Cumulative Impact and Structured Decision Making (CISDM) framework to assist in the assessment of cumulative impacts and support science-based decision making, but there is no legislative requirement for such assessments to be conducted. The CDSIM is first step in developing a conceptual framework for cumulative impact assessment, and in its current state is likely to be useful for exploring the implications of alternative views of how the GBRWHA system works. As Anthony *et al.* (2013) acknowledge, however, the CDSIM framework requires extensive further development and is not yet a practical tool that could be used to support policy or project approval decisions.

Anthony *et al.* (2013, p. 80) note that one of the benefits of structured decision making is to avoid inadvertent biases in experts' judgement. However, each step of the CDSIM prior to decision analysis is heavily dependent on expert judgement, which is subject to similar biases. Indeed, Anthony *et al.* (2013) state that the framework requires a paradigm shift in accepting models based on expert knowledge and judgements. The models presented by Anthony *et al.* (2013) were developed mostly if not entirely by experts in the natural sciences, who may not be best placed to make judgements about human drivers and activities. The acceptability to stakeholders in broader civil society of decisions based on complex models that rely on the judgement of a small group of natural scientists in isolation is questionable.

The CDSIM is based on qualitative models that consider only the direction of linkages between elements of the system, and of changes in the system, and not their magnitude. This may be appropriate for the exploration of the implications of different policies and mitigation options, but it is questionable whether management decisions can be guided by a tool where the difference between small and major changes is not considered. In any case, some consideration of magnitude appears to be almost implicit, in that building the qualitative models will inevitably require that some linkages are judged to be too weak to be worth including. Because the probabilities assigned to different outcomes are, at least in some applications, apparently determined simply by the relative numbers of positive and negative linkages, decisions about the inclusion of weak linkages appear to have the potential to affect the model results. Developing the CDSIM to the stage where it is considered a transparent, acceptable basis for making decisions that affect specific stakeholders, would seem to require extensive exploration of the sensitivity of the framework to such decisions, and strong consensus on the linkages to be included.

The only legislative reference to cumulative impact assessments identified was the Guideline Triggers for Environmental Impact Statements under the *Environmental Protection Act 1994*, which outline that DEHP can take into account existing information about cumulative impacts as part of its decision making process for mining and petroleum activities. Cumulative impacts are generally required to be considered within an EIA, but there are varying examples of the level of detail expected and the depth of the resulting assessment.

The importance of cumulative impact assessments increases substantially as regulators shift from exclusion-based regulation to merit-based regulation. Without an understanding at an appropriate spatial scale of the impact of incremental development, merit-based decision making can only take into the account direct and tangible impacts.

The various challenges (e.g. financial, scientific, access to data) in developing and implementing a program of on-going or as-required cumulative impact assessments incorporating all relevant land, marine and sea based activities are substantial.

Given public support from a range of different sectors and interest groups, a collaboratively funded program should be established to commence on-going cumulative impact assessments in specific locations. The consideration of OUV within cumulative impact assessments would have increasing relevance to maintenance of World Heritage values.

Both the Great Barrier Reef Region (GBRMPA 2014b) and Coastal Zone (Queensland Government 2014b) Strategic Assessments made several recommendations pertaining to Cumulative Impact Assessments. For example, Recommendation 7 relating to improvements to GBRMPA's management arrangements was "*work closely with Australian and Queensland government agencies to improve understanding and management of cumulative impacts from activities within and adjacent to the Region and provide clearer guidance on how proponents and decision makers should address cumulative impacts in assessments*".

5.4 Regional plans and coastal development

Management of coastal areas is a challenging and complex area, particularly with recent changes to coastal management legislation in Queensland. Regional plans in Queensland are an important statutory tool, providing a detailed expression of high-level State interests and priorities in local governments' planning schemes. The new *Regional Planning Interests Act 2014* and *Regional Planning Interests Regulation 2014* have been introduced for the purpose of identifying and protecting areas of Queensland that are of regional interest. The new Act and regulation seek to strike a balance between protecting priority land uses and delivering a sound economic future for regions.

The importance of regional plans lies partly in their spatial scale of application; they can reflect a strategic direction and coordination at a regional level, which typically includes at least five local government areas. This scale is appropriate for managing the river catchments flowing into the Great Barrier Reef, which may extend well beyond local government boundaries.

The relevance of a measure that operates at the regional scale is further illustrated by the 2013 Scientific Consensus Statement, where it is stated that the Burdekin and Fitzroy rivers are the greatest risk for sediments flowing onto the Reef, and the Wet Tropics, Fitzroy, Burdekin and Mackay-Whitsunday are the highest risk areas for degraded water quality. Such conclusions highlight that the geographic scale of threats to the Reef differ from those in general application within the system of government (Commonwealth, State and council scale). The effective operation of Queensland and Australian government activities at regional scales is therefore an important part of the management framework.

The Queensland Government is developing a new generation of regional plans which create strategic, long term land use certainty, particularly for areas which are appropriate for economic development opportunities and those which are set aside for environmental protection. Of the regions adjacent to the Great Barrier Reef, two new generation regional plans have been developed to date; Central Queensland and Cape York (draft; Queensland Government 2013a, c). Three existing regional plans developed under previous arrangements will also be revised.

Regional plans require local government planning schemes to be aligned with their direction. They can therefore be applied as an important tool for achieving a coordinated and consistent approach to land use and development. They provide the important translation of State interests and detailed local government planning schemes, and a link between State, regional and local stakeholders and priorities.

The 'new generation' regional plans are substantially different in scope and focus from those previously developed, with a strong emphasis on resolving agriculture and resources land use conflicts, rather than environmental protection. A summary of significant differences in two regional plans developed adjacent to the Great Barrier Reef (one previously completed plan and one 'new generation plan') is provided in Table 6.

Although regional plans will have differences that reflect their specific context and priorities, they have the potential to address other significant objectives and provide the strategic economic and environmental direction important for those coastal areas adjacent to, and flowing into the Reef. Given the international standing of the Great Barrier Reef and the Queensland Government's significant role in its management, it is appropriate that regional plans (as the only statutory planning measure operating at this scale) play a clear role. The Great Barrier Reef Coastal Zone Strategic Assessment (Queensland Government 2014b) committed to complete regional plans for areas where gaps exist and update existing plans to ensure they respond to the latest information and pressures (Recommendation 8).

It is too early to assess the effects of recent changes in Queensland land use planning legislation on outcomes for the GBRWHA. Local planning schemes and regional plans are gradually being amended to be consistent with the over-arching Queensland State Planning Policy (Queensland Government 2014d). This is a significant change through all levels of planning in Queensland, and an important opportunity for a consistent

Table 6 – Comparison to two existing Regional Plans applying to sections of the Great Barrier Reef and adjacent lands

	Far North Queensland (2009) (previously completed plan)	Central Queensland (2013) (new generation plan)
Purpose/vision	A stronger, more liveable and sustainable community where the region's outstanding biodiversity and stunning landscape features are valued and protected.	To resolve competing State interests relating to the resources and agricultural sectors.
Recognition of the Great Barrier Reef and OUV	Strongly recognised and OUV is explicitly stated. Underpins many policies and desired regional outcomes.	Recognised under 'Other State Interests', but states its strategic direction cannot be facilitated through a statutory regional plan.
Regional policies, principles relevant to the Great Barrier Reef	Ecological sustainability key underlying principle.	None.
Water quality	Policy on protection of waterways, wetlands and water quality. Interconnection of water quality from land area to the health of the Great Barrier Reef specifically recognised.	Outside of plan scope.
Coastal development	Wetlands and other significant habitats within the Great Barrier Reef catchment mapped and designated Areas of High Ecological Significance with a suite of development controls. Accompanying Biodiversity Conservation Guideline gives detail on how to integrate into local planning schemes.	Not mentioned or addressed.

approach to both coastal development and water quality to be rigorously addressed in the hierarchy of plans. Although the State Planning Policy presents a high level statement of State interests in the coastal zone, it gives little guidance for local decisions without relevant regional plans.

Given water quality and coastal development are consistently viewed as key threats to the future of the Reef, the intended wide-ranging changes to plans at the local and regional level presents an opportunity for a very clear direction and associated objectives to be embedded in all plans.

5.5 Effectiveness

Recent assessments of major threats to the Reef's health and resilience have consistently indicated that climate change, the quality of surface runoff from land catchments and coastal development are the most serious (GBRMPA 2009, 2014; Reef Plan Report Card 2013, Brodie *et al.* 2013). .

Climate change presents an increasing and substantial risk to the Great Barrier Reef, and generally operates at scales beyond the existing institutional and legal framework. Significant action at a Commonwealth scale to reduce greenhouse gas emissions from Australia would make little contribution to improved management of the Great Barrier Reef without broader global action. The efforts of managing agencies to secure international action on climate change are difficult to evaluate and are generally beyond the scope of this review.

However, managing the Great Barrier Reef for increased resilience in response to climate change is one important action that can be taken by managing agencies. This involves reducing the scale of manageable threats on key ecosystem values, so that such threats do not act cumulatively with climate change. In theory, this maximises the likelihood of reducing the impact of climate change, and increases the potential for climate change adaptation to occur. Examples of managing for increased resilience may include the restoration of dune vegetation on turtle nesting beaches threatened by erosion or removal of feral predators from threatened species breeding areas. It is recommended that resilience to climate change becomes an increasing focus for the prioritisation of Reef management tasks.

Two ongoing and considerable challenges for reporting the outcomes of the Great Barrier Reef's legal and institutional management arrangements are the considerable time lags between action and the ecological response of a discernible improvement in reef condition, and identifying the specific causes of impacts being observed. Reporting on outcomes, as contrasted with activities or outputs, is therefore at an early stage.

The most comprehensive and robust information on outcomes is contained in the five yearly Reef Outlook reports and Reef Report Cards. They not only indicate changes and trends in condition against a range of parameters that extend across water quality, signature species and ecosystems, and target the key threats to the Reef, but also report on effectiveness of management arrangements. It is against this assessment of reef condition that the effectiveness of the regulatory and institutional arrangements must ultimately be assessed, as the outcomes of these arrangements are geared toward improving reef condition and sustaining the OUV of the property.

The 2014 Outlook Report (GBRMPA 2014), 2013 Reef Plan Report Card and the two Great Barrier Reef Strategic Assessments (Queensland Government 2014a, b; GBRMPA 2014a, b) indicate a continuing decline in the health of the Reef. Some management measures have commenced recently and it is too early to definitely assess their effectiveness, given the time-lag between on-ground action and ecological outcomes. However, the continuing decline of reef health indicates the key threats of water quality, coastal development and climate change are not yet being effectively addressed. This suggests current arrangements are yet to achieve the progress needed.

The next Outlook Report is due in 2019, when further assessment can be made of the effectiveness of management arrangements. Some interim measures that are designed to assess progress toward outcomes would be helpful to better understand if and where progress is being made consistent with Recommendation 31 in the Great Barrier Reef Region Strategic Assessment (GBRMPA 2014b). The Monitoring, Evaluation, Reporting and Improvement (MERI) Strategy (Commonwealth of Australia 2013a) could address this gap. It provides a logic for applying a consistent approach across a range of programs. Regardless of the reporting framework used, some interim, targeted measures of outcomes would be useful to assess to what extent the actions and investments are progressing towards the end objectives.

There are differences between the management arrangements of the GBRWHA, and those areas outside of this region – most particularly the coastal zone and catchments that drain into the Reef. These areas adjacent to but external to the World Heritage Area are critically important for the long term integrity of the Reef and its values. The single management authority (GBRMPA) for the Reef contrasts with the complexity of multiple jurisdictions on the land. This requires a greater level of integration and coordination between local, regional, state and industry interests to achieve the intended outcomes.

5.6 Agriculture

Surface run-off draining from catchments adjacent to the Reef has been consistently identified as the most important threat to marine water quality and the state of key marine ecosystems in the southern two thirds of the Great Barrier Reef. Agriculture is the most significant land use affecting water quality, as the main source of fine sediments, pesticides and excess nutrients. The two dominant agricultural land uses, grazing and sugarcane together constitute 75% of the total area of regions draining into reef waters. They are also the principal sources of sediment (rangeland grazing), total nitrogen and phosphorus (sugarcane) and photosynthesis-inhibiting herbicides (sugarcane). Therefore, any review of management arrangements needs to include agricultural land uses.

It is widely acknowledged that agricultural land use in catchments that drain into the Great Barrier Reef is largely ungoverned by the suite of legislative and regulatory arrangements in place. Partnerships, Best Management Practices and other landholder education, training and on-ground works programs are designed to support landholders in changing their farming practices. These are largely voluntary and typically delivered through partnerships between the peak industry bodies, State governments and NRM organisations.

Table 7 provides a breakdown of new farmers engaged in on-farm projects or training activities since June 2008. Most uptake has occurred in the past two years.

Table 7 – On-farm engagement in projects or training activities for improvement practice

Land use	Number individual landholders	Practice improvement (hectares)
Cotton	36	36,547
Dairy	61	4,491
Grains	293	206,803
Grazing	1,238	1,483,836
Horticulture	389	32,243
Sugarcane	1,852	295,282
Total	**3,869**	**2,059,202**

Source: Australian Government Reef Achievements 2008 – 2013, Commonwealth of Australia (2013).

A description of the Smartcane Best Management Program is provided in Table 8.

Table 8 – Canegrowers Smartcane Best Management Program (BMP) case study

Sugarcane and grazing are the two key agricultural land uses that affect the Reef, as they both occupy large or critical areas within the catchments that drain into the Reef's waters. BMP programs are a widely used measure to change farming practices, and have been used by both sectors.

A snapshot of the program

Smartcane is an industry-led, voluntary best management practice program for cane growers across Queensland. Its overriding objective is to change farming practices to improve water quality in catchments that flow into the Great Barrier Reef. It was specifically designed by the industry as an alternative to placing regulatory controls on growers. The Queensland Government has provided $9 million for this program over five years, indicating a government-industry partnership. The program consists of seven modules, of which the first three are critical for water quality, and are required for farmer accreditation.

3 key modules required for accreditation

- Drainage and irrigation.
- Pest, disease and weed.
- Soil health and plant nutrition.

- Crop production and harvest.
- Natural systems.
- Workplace health and safety.
- Farm business.

A network of district-based facilitators support growers and deliver the program. Growers are audited prior

to accreditation. The target is for 380 growers to be accredited in the three key modules for the Queensland Government to roll-back legislative requirements for reef protection. The BMP program has been running for 7 months, and in that time 570 growers have registered with the program, covering around 73,000 ha under cane (25% of total area). As at August 2014, three growers have received full accreditation, but with many more participating in the program, and progressing through the initial self-assessment and then the modules.

Challenges

Cane growing and grazing are the two key agricultural land uses affecting the Reef. Both have important differences compared with other farming groups. They tend to be older demographic with many approaching retirement and often keep important farming information 'in their heads' rather than use computer or written records. They may find the requirement to produce proof of compliance with changing land use requirements challenging. Put simply, it is a major cultural shift for the industry, particularly when then is no sense of an urgent driver or tangible benefit to the farmer to make this change.

For change to occur in farming practices, it needs strong leadership from the industry peak body and active Board support for a culture that accommodates change and achieves a transition to different farming practices. An important element to encourage this is to address and promote the 'what's in it for me?' question to generate interest and buy-in for both the board and growers.

There is a tendency for BMP programs to 'work with the willing', attracting those who are already interested in change and improving their practices, with un-interested and committed growers remaining uninvolved. There is some evidence that Smartcane participation is characterised in this way. A future challenge will be to involve those outside the group of early adopters.

Without an urgent reason for action, one measure on its own is unlikely to achieve the level of change required. A 'toolbox' comprises regulations for non-participants coupled with incentives, best management practice, and industry leadership will be more effective.

This case study illustrates that a well-designed BMP program will address cultural and behavioural issues. BMPs have the potential to produce lasting change across key land uses in the Reef catchments, and so will continue to be an important measure in the suite of management arrangements that complement legislative requirements.

There is some evidence from water quality modelling to suggest that the early adopters of improved farming practices have reduced total pollutant loads, which is a positive step toward improving reef health in the long term (2013 Scientific Consensus). However, the 2013 Scientific Consensus Statement suggests that achieving best management practice alone may not be enough to achieve the Reef Plan's nitrogen target. Other, innovative approaches and a broad-scale commitment to improved nutrient management may be necessary to achieve the targets of the Reef Plan. There is little information available to assess the level of investment that will be required to achieve the desired response. Recommendation 14 of the Great Barrier Reef Region Strategic Assessment (GBRMPA 2014b) commits to promote, recognise and encourage stewardship and best practice efforts by community, industry and government.

5.7 Traditional Owners

Aboriginal and Torres Strait Islander people are the Traditional Owners of the Great Barrier Reef, and have been managing the Reef ecosystem for tens of thousands of years. There are approximately 70 Traditional Owner clan groups whose sea country extends over the Great Barrier Reef Marine Park. A strong involvement of Traditional Owners in management activities is pivotal to the successful protection of cultural and natural heritage values.

In 2008, the Australian Government commenced the Reef Rescue Land and Sea Country Indigenous Partnerships Program (administered by GBRMPA), which engages Traditional Owners to in the management and protection of marine resources and cultural diversity. This is achieved through the development of traditional use marine resource agreements, knowledge sharing and building the capacity of indigenous communities through grants and sponsorship. Queensland Government agencies also work closely with indigenous communities, and employ indigenous rangers to implement management activities 'on country' within QPWS. Hockings *et al.* (2014) assessed the collective management programs associated with the traditional use of marine resources as either 'effective' or 'partially effective', with trends increasing or stable since 2009.

5.8 Natural Resource Management (NRM) organisations

NRM organisations were established in Queensland in 2002 as part of a national program, with regional boundaries that are largely based on major river catchments. There are 54 such bodies across Australia and 14 in Queensland. Six NRM regions drain into the Great Barrier Reef lagoon, and are of particular interest to this review.

The six NRM organisations located within the Reef's catchments have received around nearly $96 million of funding since 2008 from the Reef Rescue program, making them a highly significant group contributing to the Reef's management. This $96 million has been matched by $157 million from industry ($108 million in cash and $49 million in labour, in kind and farmer equipment or machinery work), which totals nearly $250 million (Australian Government 2013). The quantum of funding to the regional NRM organisations over the past five years indicates their substantial role in the areas of agriculture, biodiversity and water quality.

5.9 Opportunities to simplify, integrate and align management arrangements

5.9.1 More efficient re-use of scientific data collected by public and private sector entities

Scientific data are collected by several stakeholders across the Great Barrier Reef for a variety of purposes. Examples include individual research projects, dedicated long term monitoring programs and monitoring completed by project proponents as part of the EIA investigations or compliance obligations in approval conditions. While some of these data are published and shared with the broader scientific community, there would be clear benefits in collecting data in a standard format and publishing this in a central location. Such an approach would provide a useful step in identifying key areas where information gaps exist and in sharing scientific information to improve the effectiveness of management activities. The 2050 Long Term Sustainability Plan has adaptive management actions and integrated monitoring and reporting programs as two of its four strategic elements, providing a means to synthesise scientific studies more efficiently.

The need for strategic, long term monitoring of the GBRWHA was identified in the strategic assessment process and supporting studies (e.g. SKM 2013b). The Great Barrier Reef Region Strategic Assessment (GBRMPA 2014b) recommended improved coordination between GBRMPA and research institutions to facilitate the delivery of critical research needs (Recommendation 30). Also the Great Barrier Reef Coastal Zone Strategic Assessment (Queensland Government 2014b) committed to develop an integrated monitoring program in partnership with the Australian Government, which incorporates existing Queensland Government monitoring programs and provides improved information to underpin the 2050 Long Term Sustainability Plan for the Great Barrier Reef (Recommendation 19).

The integrated monitoring framework developed by NERP (2013) is a valuable first step in developing such a program. It is logical to build the governance arrangements for the program on existing structures, as proposed by NERP (2013). Agreement on funding arrangements and building partnerships between major stakeholder groups (e.g., scientists, government, industry) will be important early steps in further developing the program. There may be a need to further prioritise the biophysical values, ecosystem processes and pressures listed in Tables 3.2, 3.3 and 3.4 of NERP (2013). Although it is difficult to argue against the importance of the items listed, the utility of prioritisation in making design and resource allocation decisions is reduced when the large majority of items are assigned a high priority.

Using the 'limits of acceptable change' (LAC) approach presented by NERP (2013) may be useful in framing discussions of values and trade-offs among stakeholder groups. Although NERP (2013, p. 78) note that the LAC approach is different from asking 'How much use is acceptable', the subsequent text focuses consideration of LAC on human activities and pressures. It will likely be beneficial to also apply the LAC approach to the state of the system, for example how much coastal wetland loss or loss of coral cover is deemed acceptable. It may not be possible to achieve broad consensus on such questions, but such an approach would be a useful step in establishing what thresholds are essential for the ongoing maintenance of OUV.

5.9.2 Multi and bilateral governance structures could be re-organised to clearly focus on emerging threats and reduce overlap/ duplication

There are multiple consultative committees on the Great Barrier Reef, operating across geographic scales and management issues. There appears to be some merit in reviewing the purpose of these committees, and rationalising their number where appropriate. There are times when the same people meet to discuss the same issues at different committee meetings (for example members of Local Management Advisory Committees meet also at Health Waterways meetings (e.g. Mackay Region) and NRM organisation meetings within their local area).

Following the principle of strategy before structure, the 2050 Long Term Sustainability Plan provides the opportunity to re-consider the existing terms of reference of the different committees and institutional arrangements. The 2050 Long Term Sustainability Plan will set the targets and objectives to achieved and key actions to be taken in regards to threats to the Great Barrier Reef. The opportunity for re-assessment exists where Committees are either established for a special purpose and/or have a regional/catchment scale focus.

Any governance and institutional structure must always have Reef-wide Committees and Forums (e.g. Inter-governmental Agreement – Ministerial Forum, Senior Officers Committee, draft MoU between the Queensland Government and GBRMPA, the Senior Officers Committee to facilitate the implementation of the draft Approval Bilateral Agreement, Field Management Program working groups or Reef Water Quality Protection Plan Committees) and locally based groups with representation from interested sectors.

All other Committees with a specific focus (e.g. Reef Advisory Committees) or regional/catchment scale coverage involved in the protection, management and use of the Great Barrier Reef should be assessed to determine how they will directly contribute to the achievement of 2050 Long Term Sustainability Plan targets. GBRMPA has committed to establish a new, peak Great Barrier Reef advisory group made up of Traditional Owners, scientific, conservation and industry experts to provide high level advice on the implementation of future management programs (GBRMPA 2014a).

Given the complexity of the Great Barrier Reef (its geographical size, the number of sources of potential threats, the wide of uses, the diversity of ecological values, and the number of stakeholders with a passionate interest in the GBRWHA area) it would be unnecessarily limiting to create an organised and highly structured overall governance and institutional framework.

The Reef Water Quality Protection Plan committee structure is generally recognised as being very effective (UNESCO 2012). The key features of the committee structure are:

1. Inter-governmental Officials Group – Government officers who have able to make decisions regarding the allocation of resources

2. Partnership Committee – Representatives from interest groups (e.g. peak bodies) who are able to advise on the merit of different actions, how to achieve the necessary uptake and adoption of programs etc. The Reef Water Quality Protection Plan Partnership Committee is chaired by independent chair

3. Independent Science Panel – Review and advise on the validity of the science underpinning the Plan and interpreting outcomes in order to provide science based advise to the Partnership Committee and Inter-governmental Officials Group.

The Reef Water Quality Protection Plan committee structure potentially represents a model that could be replicated at a regional or catchment scale. That is:

1. A Government Officials Group comprising GBRMPA, Queensland Government and Local Government representatives

2. A Partnership Group comprising representatives from the various sectors with a direct interest in the management and protection of the GBRWHA

3. An Independent Science Group – a group of scientists able to monitor and examine impacts and change in key ecological values.

The benefit of the model is its level of integration spanning the marine, coastal and land based activities and impacts. It is essential that each Committee has a clear set of problems for a geographical place to focus its efforts on. Committees should not be formed to simply help coordinate another bodies or committees above or below them.

Each Group could be assigned responsibilities for:

1. Contributing to one or more of the 2050 Long Term Sustainability Plan targets and objectives within a designated geographical area (regional, catchment or local area)

2. Implementing and monitoring long term actions and outcomes relating to a specific threat within a designated geographical area (regional, catchment or local area).

The geographical scale of the Group should be commensurable with the extent of potential impact of activities within the area and the value to the GBRWHA of avoiding, mitigating or offsetting those impacts. Therefore areas with potential for intense impacts may have two such groups. Relationships must be integrated and therefore facilitate networks as well as following hierarchical reporting lines

Each Group should have the capacity to establish time bound and issue specific working groups (as distinct from forming another committee). Such an approach allows valuable specialist resources and time constrained individuals (e.g. representing their local interest in their own time) to move around and engaged on different issues without committing to permanent membership of a committee (e.g. roving advisors).

At present Queensland Government officials must consult with DPC before any new committees are formed relating to the Great Barrier Reef. This prevents the unnecessary creation of a committee when other arrangements could be more appropriate (e.g. short term working groups).

6. SYNTHESIS OF FINDINGS AND RECOMMENDATIONS

6.1 Findings

The GBRWHA spans a geographic area of 348,000 km^2 and is a large world heritage area by international standards. The scale and diversity of seascapes, combined with the complex jurisdictional environment across multiple layers of government, provides for a complicated management approach, much of which is unavoidable. Despite this complexity, the existing management arrangements have been demonstrated to be functional and highly coordinated. While there are opportunities for streamlining, many of which are being acted upon, the review team consider that the institutional and governance arrangements are strong and robust. Results of the assessment against specific criteria developed for this review are summarised in Appendix A.

This raises the question of why then is the Great Barrier Reef continuing to decline despite the largely effective governance arrangements established for management? The challenges presented to the Reef are across a broad range of complex issues and scales, and are similar for other reef ecosystems across the planet. The Great Barrier Reef is not unusual in facing these challenges, and is generally considered to be in good condition by international standards. Improvement will take at least decades to achieve, and key threats to the Reef are likely to continue. Improved management is needed, but must to be focussed on increasing the scale and effectiveness of actions, not on legislative reform.

The review has made the following findings on the adequacy of current institutional and legal mechanisms that are intended to provide coordinated planning, protection and management of the GBRWHA:

1. Legislation, policies and plans in place for the protection and management of the GBRWHA are generally comprehensive. While gaps exist in the areas of climate change and agriculture, additional regulatory instruments for these complex issues would need to be carefully considered to ensure their practicality and effectiveness.

2. Collectively, the *Marine Parks Act 2004*, *Great Barrier Reef Marine Park Act 1975* and EPBC Act enable regulation of use and management of the environment at a geographic scale relevant to the property.

3. The Strategic Assessment process, informing the development of a 2050 Long Term Sustainability Plan, provides a framework for further alignment of management activities to address the key threats affecting the World Heritage Area and is a positive step in planning for the future.

4. The Reef Trust framework is an important component of coordinating investments for implementation in the 2050 Long Term Sustainability Plan.

5. The Inter-governmental Agreement provides a clear and effective framework for facilitating the cooperative management of the complex landscapes of the Great Barrier Reef under agreed objectives.

6. Substantial evidence exists that the Queensland and Australian governments have put in place and utilise a range of coordination and collaboration mechanisms at a strategic and operational level.

7. There is duplication in the use of consultative committees across the Great Barrier Reef at a variety of spatial scales. The effectiveness of consultative committees and satisfaction with their performance among stakeholders appears to be variable.

8. OUV is a managed and monitored through traditional environmental (and other) surrogates because it is a complex, socially derived and integrated value. It is therefore given little direct specification in the legislative tools used for management of the Reef, but has been progressively integrated into strategic approaches to planning, management and assessment.

9. Given the international standing of the Great Barrier Reef and the Queensland Government's significant role in its management, it is appropriate that regional plans (as the only statutory planning measure operating at a regional scale) play a clear role in future management.

10. Permit assessment criteria under the Great Barrier Reef Marine Park Regulation 1983 and Marine Parks Regulation 2006 do not appear to reflect contemporary knowledge about the threats to the values of the Great Barrier Reef, including OUV.

6.2 Recommendations to improve management arrangements

Recommendations for improvement of the existing management regime, including through the 2050 Long Term Sustainability Plan, are as follows:

1. Further simplification, streamlining and better coordination of regulatory approvals within the Great Barrier Reef Marine Park should be pursued while maintaining environmental standards and levels of assessment. In particular, such efforts should focus on reducing or eliminating the staged process of decision making under relevant legislation. The application of a lead agency assessment model to coordinate multiple approvals at a State and Commonwealth level would reduce the existing multiple step decision making process.

2. Review the existing application of consultative committees across the Great Barrier Reef. Explore the broader application of models such as the Gladstone Healthy Harbour Partnership, which appear to have high levels of stakeholder engagement at an appropriate scale.

3. A review of the assessment criteria for marine park permits under the *Great Barrier Reef Marine Park Regulations 1983* and *Marine Parks Regulation 2006*, or policies applied to their implementation, to reflect the emerging challenges facing management of the Marine Park and assessment of activities.

4. Develop a targeted set of interim measures to assess progress in critical areas of reef health at intervals more frequent than 5 years. Expand the current Reef Plan report card system to include other environmental health indicators, and integrate monitoring results from the mid shelf and outer reef to include the entire reef ecosystem. Monitoring and reporting could have a greater emphasis on outcomes (i.e., protection of the OUV of the GBRWHA).

5. A continuation of recent initiatives to provide a direct link between OUV and management of the Reef. This could include amending legislation, plans, policies and strategies to explicitly link OUV to the assessment of activities and monitoring. For example, ensure measures of progress in reef health are aligned with the attributes that define the OUV of the GBRWHA so as to strengthen links between management actions and protection and management of World Heritage values.

6. Strengthen the connectivity and inter-dependence between land and marine environments in the State Planning Policy and regional plans, particularly for coastal development. Apply regional plans as a statutory tool for managing risks to the reef within the coastal zone.

7. Focus the 2050 Long Term Sustainability Plan on the key threats – climate change, coastal development and land-based surface runoff which are the most complex issues affecting the Reef and difficult to address. Focus field management activities such as compliance, pest control and threatened species management on enhancing resilience at vulnerable reef ecosystems.

8. The 2050 Long Term Sustainability Plan should include specific objectives and targets, which are regularly reviewed and adapted. This will provide a stronger basis for management activities to be targeted to the material issues affecting the World Heritage Area.

9. A Great Barrier Reef Plan Register should be established with all management plans recorded and explained to simplify understanding of management arrangements and assist in locating existing or future plans.

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Queensland Government (2014d). State Planning Policy. Department of State Development, Infrastructure and Planning, July 2014, 91 pp.

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APPENDIX A. SUMMARY OF ASSESSMENT CRITERIA AND FINDINGS

Table 9 presents a summary of the results of the review which applying the assessment criteria to the management of the Great Barrier Reef. A qualitative assessment of the effectiveness of institutional and legal mechanisms is provided. A green colour indicates that a finding that the management is generally effective, a yellow colour indicates a finding that the management is partially effective and a red colour indicates that management is generally ineffective.

Table 9 – Summary of assessment criteria and review findings

Assessment Question	Qualitative Assessment	Basis for Assessment
Is there clear link between the desired outcomes of each agency and the OUV of the Great Barrier Reef?	Agencies are focussed on managing tangible elements of OUV, which are easier to define than the generic criterion descriptions. OUV is not defined explicitly in some key legislation or policies. There is evidence of a growing recognition of the importance of OUV in the management of the Great Barrier Reef. Further work is recommended to improve the line of sight between managing agencies and OUV.	*Great Barrier Reef Marine Park Act 1975* *Marine Parks Act 2004* Queensland Ports Strategy 2014 Great Barrier Reef Region Strategic Assessment Great Barrier Reef Coastal Zone Strategic Assessment EPBC referral guidelines for the OUV of the GBR
Does each regulator have management systems in place that measure and report on their effectiveness in achieving objectives as stated under their relevant Acts or Regulations?	The effectiveness of management activities on the Great Barrier Reef is well described with the completion of several quality studies in recent years. Reporting at a range of temporal scales provides regular updates on the condition and trend of the Reef ecosystem (e.g. GBRMPA Outlook Report, Reef Report Cards from Reef Water Quality Protection Plan)	Great Barrier Reef Outlook Report 2014, including the assessment of management effectiveness Great Barrier Reef Region Strategic Assessment Great Barrier Reef Coastal Zone Strategic Assessment State of the Environment Reporting Reef Water Quality Report Card
How adequate are the management arrangements for conserving and protecting the OUV of the GBRWHA?	Management arrangements are generally effective for issues of low complexity. However, achieving outcomes within the Reef ecosystem for complex issues such as nutrient runoff and climate change remains a challenge. There is evidence that biological diversity (one measure of OUV) is declining. The Queensland Ports Strategy commits to develop guidelines for assessment of cumulative impacts on OUV.	Hockings *et al.* (2014) Great Barrier Reef Region Strategic Assessment Great Barrier Reef Coastal Zone Strategic Assessment Queensland Ports Strategy 2014

Assessment Question	Qualitative Assessment	Basis for Assessment
Are all potential impacts on the property able to be regulated under the existing Acts and regulations relating to the use and management of the property?	Those activities within the control of management agencies are effectively regulated under 26 Acts and Regulations (at a Commonwealth and State level). Threats to the Reef which are unable to be regulated occur at scales beyond management activities (e.g. climate change). There are positive signs from improved agricultural practices, which could be strengthened (primarily outside of legislation). Opportunities to streamline legislative approval processes to reduce duplication of effort are being pursued (e.g. draft Approval Bilateral Agreement). The *Great Barrier Reef Marine Park Act 1975 Part 9 Clause 66.2* provides GBRMPA with legislative powers to prohibit land/foreshore discharges that present a significant risk to the Reef.	Draft Approval Bilateral Agreement Queensland and Commonwealth legislation Review of the *Great Barrier Reef Marine Park Act 1975*
Collectively or individually do the Acts enable the regulation of use and management of the environment related to the geographical scale of the property?	26 different Australian and Queensland Government Acts and Regulations are in place which regulate the use, access and protection of the world heritage area across a variety of spatial scales and impacts	*Great Barrier Reef Marine Park Act 1975* (Cth) *Great Barrier Reef Marine Park Regulations 1983* (Cth) *Environment and Protection Biodiversity Act 1999* (Cth) *Marine Parks Act 2004* (QLD) *Nature Conservation Act 1992* (Cth)
Do agencies use appropriate strategic processes to assess and prioritise property needs at different temporal and spatial scales and balance long term value with short term need?	There are regular reviews of the status of the Great Barrier Reef, and the prioritisation of management tasks in response to key challenges (e.g. recent Strategic Assessments) Queensland Government and Commonwealth officials work very closely to agree on priorities in advance.	Inter-governmental Agreement Business Plan for the Field Management Program Outlook Report (2009, 2014)
Are there areas of clear overlap or duplication in the regulation of risks and hazards to the health of property?	Some areas of overlap occur, particularly in relation to the assessment of major projects. However, these are being addressed through a streamlining process. Consultative committees overlap in their scope and membership, providing some opportunities for improvement.	Draft Approval Bilateral Agreement Stakeholder consultation

Assessment Question	Qualitative Assessment	Basis for Assessment
Does each regulator have management systems in place that are used to assess the relevance and appropriateness of the Acts to the current and future emerging issues and challenges confronting the property?	A comprehensive strategic assessment has been completed for marine and coastal areas of the property. This has assessed the effectiveness of the management program for the Reef, which is underpinned by legislation. There is evidence that legislation is reviewed periodically as needed. Queensland Government has requirements for agencies and departments to undertake Regulatory Impact Statements to evaluate the merit of changing Acts and Regulations to meet future and emerging issues.	Independent review of the *Fisheries Act 1994* (currently underway) Review of the *Great Barrier Reef Marine Park Act 1975* (2006) Great Barrier Reef Region Strategic Assessment Great Barrier Reef Coastal Zone Strategic Assessment Queensland Government Regulatory Impact Statement System Guidelines
Are current institutional arrangements adequately responsive to the changing needs of the property and different uses that impact on the property? Are strategic planning and change management processes scalable to respond to fast moving threats/risks?	Managing agencies are aware of the threats facing the Great Barrier Reef, and have implemented significant programs to address these risks (e.g. Reef Plan). The extent to which such programs are scalable appears to be limited by the available resources. There is little information available on the level of investment that will be required to achieve the desired response. As regularly acknowledged in the Great Barrier Reef Region Strategic Assessment Report more needs to be done to advance to an integrated monitoring and reporting (e.g. setting of outcomes and targets). It is important that monitoring and reporting strikes the right balance between inputs, outputs and outcomes in order to inform stakeholders that agree actions are being implemented(and reasons why the action is not being implemented to proposed timeframes).	Reef Water Quality Protection Plan Outlook Report 2014
Is there documented evidence to support the status of the implementation of agreed Inter-governmental actions?	The Intergovernmental Agreement is effectively implemented and respected by Queensland and Australian Government Agencies. The Field Management Program tacks progress of implementing actions agreed in its Five Year Strategy.	Inter-governmental Agreement Field Management Program Five Year Strategy Stakeholder consultation

Assessment Question	Qualitative Assessment	Basis for Assessment
Are the administrative arrangements between each of the regulatory and policy agencies sufficiently well-defined to ensure the relevant agency is consulted in a timely manner regarding potential uses of the property and management actions/ interventions (e.g. do the administrative arrangements state when and why information is to be provided, what the scope of assessment or review is expected and timelines in which the assessment or review should be undertaken within)?	GBRMPA's Water Quality Protection Guidelines are embedded with Queensland Water Quality Guidelines and therefore considered in local and Queensland Government assessments of development applications. GBRMPA Water Quality Protection Guidelines could be made easier to find and apply particularly for Councils. The capacity of Councils to adequately assess local development applications against existing Water Quality Protection Guidelines was questioned by several stakeholders. An assessment of the capacity of Local Councils to effectively assess and condition local development projects to help ensure optimal water quality outcomes should be undertaken and based on findings a targeted program of capability development undertake across Local Councils and local urban, residential and industrial developers. There is evidence that the expertise of GBRMPA is regularly sought for a range of development activities occurring outside of the GBRMPA's jurisdiction (e.g. EPBC Act approvals in port areas).	Stakeholder consultation Draft MoU between Queensland Government and GBRMPA (on behalf of the Commonwealth) Draft Approval Bilateral Agreement
Does each regulatory and policy agency have performance measures used to assess the effectiveness of the administrative arrangements?	IUCN guidelines for the assessment of management effectiveness are applied every 5 years through the Outlook Report. Performance of park operations in achieving the business plan tasks is tracked and reported.	Hockings *et al.* (2014) Day to Day Management Unit Business Plan
How, and to what extent is collaboration and co-operation between multiple jurisdictions facilitated?	The Department of Premier and Cabinet plays an important role in coordinating the Queensland Government departments. High levels of cooperation at an operational level are important in achieving good outcomes, particularly during marine incidents. GBRMPA has a strong track record in reaching partnership based outcomes (e.g. securing a partnership with Tourism Operators in the 1980s, addressing sewage discharges with Councils in the mid 1990s and more recently producing the Great Barrier Reef Marine Park Zoning Plan).	Stakeholder consultation Inter-governmental Agreement
Where are the greatest opportunities to change or modify arrangements to achieve better outcomes?	Increasing the scale of investment in management will be critical to arresting the decline of key values and achieving outcomes on the ground. A strengthened management framework in the coastal zone would enhance outcomes. Undertaking targeted cumulative impact assessments for areas facing the greatest challenges from multiple threats is needed.	SKM (2013, 2014) World Wildlife Fund's, Queensland and Resources Council submission to Australian Government's Senate Inquiry into the management of the Great Barrier Reef.

Assessment Question	Qualitative Assessment	Basis for Assessment
How effectively are the management arrangements delivering outcomes for issues that cover diverse ecosystems and landscapes (coastal, estuarine, marine, land)? To what extent are the overall objectives being achieved (or likely to be achieved)? What is the evidence-base for the response?	Effectiveness varies across landscapes and the complexity of issues. Activities within the marine park of low complexity are highly effective. Complex issues located outside of the marine park are less effective, particularly at achieving outcomes on the ground. There is a strong evidence base of current management effectiveness, arising from the Strategic Assessments and Outlook Report 2014.	Hockings *et al.* (2014)
Are the management activities consistent with the overall objectives for the GBRWHA?	Management activities are well organised, structured, and consistent with the long term conservation of the GBRWHA.	Queensland and Commonwealth Legislation
Many outcomes for the GBRWHA are by their nature, long term. What are some more short-term indications that the management arrangements are on track?	Report cards for Reef Plan are showing some initial achievements in reducing nutrient and sediment runoff to the Reef. There is evidence that Marine National Park Zones are effective, with more fish and fewer outbreaks of crown of thorns starfish. Achievement of business plan objectives, linked with priorities for the Reef, also provides some confidence that management actions are effective.	Reef Plan Report Cards Great Barrier Reef Region Strategic Assessment Business Plan for Field Management Program
Is the implementation of Inter-governmental agreement actions being appropriately tracked and reported?	Implementation of the Inter-governmental Agreement is being appropriately tracked and reported. Engagement occurs at a variety of levels in accordance with the Agreement.	Stakeholder consultation Inter -Governmental Agreement
To what extent do the current arrangements address each of the main threats to the GBRWHA?	There are management systems in place to address the main threats to the GBRWHA. For complex threats, involving multiple jurisdictions and cumulative impacts, management is only partially effective, and is not achieving outcomes on the ground.	Hockings *et al.* (2014) Great Barrier Reef Region Strategic Assessment Great Barrier Reef Coastal Zone Strategic Assessment

Assessment Question	Qualitative Assessment	Basis for Assessment
Are the objectives of the Acts and Regulation sufficiently consistent regarding the outcomes they are seeking pertaining to the impacts potential different uses may have on the property?	The objects of the Acts and Regulations providing for environmental, natural resource and heritage protection in place at a State and Commonwealth level are generally consistent. Several Queensland Government Acts (*State Development and Public Works Organisation Act 1971*) pursue economic development objectives and provide for environmental management coordination. Given it is proposed that Matters of National Environmental Significance will be assessed and approved under accredited Queensland Acts such as the *State Development and Public Works Organisation Act 1971* it is essential for public confidence that Commonwealth and Queensland Government publish clear guidelines regarding how potential economic, environmental and social trade-offs will be managed.	Queensland and Commonwealth Legislation Draft Approval Bilateral Agreement
Do clear processes and procedures exist for the timely identification, escalation and resolution of conflicting regulatory assessments and approvals and management plans exist between the relevant regulatory and policy agencies?	There are processes in place to resolve conflicts between managing agencies. The Department of Premier and Cabinet has this role within the Queensland Government. Issues between Australian and Queensland Government agencies can be escalated to a variety of forums, consistent with the Inter-governmental Agreement. Queensland Acts relevant to the GBRWHA are overseen by six Ministers. All Ministers are members of the Queensland Government Cabinet which provides a structured and robust forum for resolving potential cross-departmental issues.	Inter-governmental Agreement Stakeholder consultation
Does each relevant regulatory or policy agency produce a long term and annual management plan stating the short, medium and long priorities for the sustainable and responsible use and management of the property?	There a large number of short, medium and long term business and management plans and strategies at different spatial scales. There are opportunities to rationalise some plans once the 2050 Long Term Sustainability Plan has been produced. Planning across the GBRWHA could be made easier by providing a central register of what plans exist rather than trying to identify possible dependencies by searching across a number of Commonwealth and Queensland Government Department websites. The field management program produces a detailed business plan which is agreed by the State and Commonwealth in advance and jointly funded.	Field Management Unit business plan Stakeholder consultation

Assessment Question	Qualitative Assessment	Basis for Assessment
Does each regulator have management systems in place that are used to review whether regulations are being consistently and rigorously applied?	Within the GBRWHA the joint permit assessment process involving GBRMPA and QPWS has a process of review to provide for consistent decisions. Queensland Government departments should follow the Queensland Government's Regulatory Impact Statement Guidelines. Proposed draft Approval Bilateral Agreement and MoU between Queensland Government and GBRMPA contain a number of continuous improvement processes and requirements.	Stakeholder consultation Draft Approval Bilateral Agreement Draft MoU between GBRMPA and Queensland Government
Does each Act and/or Regulation clearly delineate the decision making authority (authorising environment) pertaining to the assessment of use impacts, approving uses, assigning conditions on use, assessing compliance with conditions and enforcing breaches of the conditions (e.g. are the conditions under which a use activity requires a permit or licence clear, is the assessment pathway and information requirements specified, is the decision making criteria for granting or refusing an activity documented and publicly available, are the delegations for decisions relating to use and/or management of the property clear)?	Legislation outlines the decision making criteria for Great Barrier Reef Marine Park permit application, and provides details of the application process. Permits are published once issued. A decision notice or statement of reasons is only published for some high profile permit decisions. There are opportunities to better coordinated decision making processes between Queensland Government and GBRMPA. Where approval is required by Queensland Government and GBRMPA due to the proposed development requiring direct use of the Marine Park, decision making should occur concurrently rather than sequentially. All six Queensland Government Ministers responsible for use, protection and impact on the Great Barrier Reef are all members of the Queensland Government Cabinet. This provides a forum to ensure decision making responsibilities are clear and Ministers can be held to account for their own Department's decision making processes. The draft Approval Bilateral Agreement provides a number of checks and balances that will enable the Australian Government to determine whether the Queensland Government is operating in accordance with the Agreement.	*Marine Parks Act 2004* (QLD) *Great Barrier Reef Marine Park Act 1975* (Cth) Stakeholder consultation Public submissions to Australian Government's Senate Inquiry into the management of the Great Barrier Reef
Does the enforcement and compliance components of the Act provide for sufficient auditing, inspection and intelligence gathering capabilities regarding the regulated and unregulated uses of the property?	There is a highly coordinated, strategic, risk based compliance program in place for the Great Barrier Reef involving GBRMPA, QPWS and DAFF. Multiple agencies are involved in implementation through a central coordination point.	Stakeholder consultation

Assessment Question	Qualitative Assessment	Basis for Assessment
Are the criteria for the composition (skills, experience) of any boards and/or advisory committees documented and clear?	The membership criteria, qualifications and experience of the GBRMPA board are published on the GBRMPA website. The outcomes of quarterly board meetings are also published. The board includes the Director General of the Department of Premier and Cabinet (representing the Queensland Government).	GBRMPA website Stakeholder consultation
Does each relevant regulatory or policy agency have a clear strategic planning and implementation process that outlines how interested and concerned stakeholders can participate in the process, how the plan is reviewed and approved?	There are a variety of committees in place for consultation on reef management issues. At times there is duplication in the location, purpose and membership of committees. Some further work to review and streamline committees is recommended. Some stakeholders feel that the current consultation framework is not fully committed to partnerships, but is a top down approach.	Stakeholder consultation Public submissions to Australian Government's Senate Inquiry into the management of the Great Barrier Reef
Does each regulator and policy agency have a clear definition as to what they consider to be competent, experience and skilled individuals able to provide specialist advice regarding the use and/or management of the property?	Expert advice is provided by GBRMPA on certain management issues. When external peer reviewers are engaged by proponents of major project, the reviewers must first be approved by the managing agency.	Stakeholder consultation Draft Approval Bilateral Agreement Draft MoU between Australian and Queensland governments
Does each entity have a clear requirement and process to undertake any assessments and approval decision making based upon sound science and evidence?	Science underpins much of the management of the GBRWHA. There is strong evidence that all managing agencies seek and apply the latest scientific evidence to their decisions. For some issues, the meaning of reef science studies is ambiguous, leading to different perspectives in the interpretation of results. Managing agencies are generally reliant on others to progress science to assist management (although some exceptions exist, such as turtle research within the Queensland Government). The publication of the Scientific Consensus Statement by the Reef Water Quality Protection Plan is well regarded and helps facilitates decision making by mitigating the need for significant debate regarding the merits and validity of the causes and impacts on water quality.	Stakeholder consultation

Assessment Question	Qualitative Assessment	Basis for Assessment
Are key decision making processes (e.g. setting of strategic priorities and objectives, allocation of resources) of regulatory and policy agencies visible to each other and key stakeholders of the property (e.g. is the reasoning behind decision making transparent)? Do entities publicly disclose the standards and criteria used to assess regulatory approvals including explanations of the reasons an application for use may be granted or denied including relative weightings for social, environmental, and economic considerations?	Many stakeholders feel let down by decision making on key development projects. GBRMPA and Queensland Government Agencies each publish extensive guidelines processes such as Environmental Impact Statements. Several stakeholders indicated they while they felt consulted on key development projects they were unable to see how their views had been taken into consideration. This could be improved by the publishing of a full statement of reasons for each application and how the decision making process had taken into account the views provided by stakeholders.	Public submissions to Australian Government's Senate Inquiry into the management of the Great Barrier Reef Stakeholder consultation
Do management planning and legal protection reviews enable tailored participation of communities and stakeholders? Are directly affected stakeholders and communities informed and consulted on potential new uses and limitations on existing uses?	There are extensive consultation processes in place for major reforms. Examples include the development of the Strategic Assessment and rezoning of the Great Barrier Reef in 2003. While local advisory committees are in place, these do not appear to be meeting stakeholder expectations and could be reviewed and reformed. Several local advisory committees expressed frustration at the lack of progress on key actions relating to their region of the Great Barrier Reef.	Stakeholder consultation Public submissions to Australian Government's Senate Inquiry into the management of the Great Barrier
If implementation of agreed actions is behind schedule are their remediation plans in place and funded to achieve timely implementation of the action?	There is evidence that actions are tracked and where they are behind schedule, action is taken to address the situation.	Reef Plan Report Card Field Management Program Business Plan Stakeholder consultation
Does the Inter-governmental agreement outline an equitable arrangement for assessing and allocating costs associated with the management of the property?	Cost sharing arrangements between the State and Commonwealth are clearly agreed. Oversight is provided by the Department of Premier and Cabinet on behalf of the Queensland Government.	Inter-governmental Agreement Stakeholder consultation

Assessment Question	Qualitative Assessment	Basis for Assessment
Do key decision makers and parties to the Inter-governmental Agreement feel they are adequately informed and briefed prior to Ministerial Forums and associated senior officer meetings to the make the required decisions and scrutinise implementation progress? Are key decision makers and parties sufficiently engaged in the Inter-governmental Agreement implementation process (e.g. attendance at Forums and senior officer meetings)?	The Inter-governmental Agreement provides a strong framework for cooperative management of the Great Barrier Reef, and is effectively implemented.	Inter-governmental Agreement Stakeholder consultation

APPENDIX B. REPORTS REVIEWED AS PART OF PROJECT

The following reports were reviewed as part of the project:

- Independent Review of the Port of Gladstone (Commonwealth of Australia 2013b);
- State Party Report on the state of conservation of the GBRWHA (Commonwealth of Australia 2014);
- A method of risk analysis across governance systems, Great Barrier Reef case study (Dale *et al*. 2013);
- EPBC referral guidelines for the OUV of the GBRWHA (Commonwealth of Australia 2014);
- Response to the Outlook Report 2009 (Commonwealth of Australia and Queensland Government 2009);
- Review of the *Great Barrier Reef Marine Park Act 1975* (Commonwealth of Australia 2006);
- Improved management of dredge material in the Great Barrier Reef Region (SKM 2013a);
- Independent review of the draft Great Barrier Reef Coastal Zone Strategic Assessment (SKM 2013b);
- Independent review of the draft Great Barrier Reef Region Strategic Assessment (SKM 2014);
- Improved governance of shipping and ports on the Great Barrier Reef (Gretch *et al.* 2013);
- Integrated monitoring framework for the Great Barrier Reef World Heritage Area (NERP 2013);
- A framework for understanding cumulative impacts on the GBRWHA (Anthony *et al*. 2013);
- Great Barrier Reef Coastal Zone Strategic Assessment (Queensland Government 2014a, b);
- Great Barrier Reef Region Strategic Assessment (GBRMPA 2014a, b);
- Queensland Draft Bilateral Agreement for environmental approvals (Commonwealth of Australia and State of Queensland 2014) and draft memoranda of understanding between the Queensland Government and Commonwealth;
- Great Barrier Reef Outlook Report 2009 and 2014 (GBRMPA 2009, 2014);
- Great Barrier Reef Inter-governmental Agreement (Commonwealth of Australia and State of Queensland 2009);
- Draft North-East Shipping Management Plan (AMSA 2013);
- Reef Trust Investment Strategy (Commonwealth of Australia 2014b);
- Queensland Ports Strategy (Queensland Government 2014c).

APPENDIX C. DETAILS OF CONSULTATION

The review team conducted limited consultation with selected reef management stakeholders.

Agency	Attendees and date
GBRMPA	Russell Reichelt, Margaret Johnson, Andrew Skeat (31 July 2014)
AIMS	Jamie Oliver (31 July 2014)
DEHP	Claire Anderson (1 August 2014)
DSDIP	Sally Noonan, Andrew Walls, Carmel D'Arcy (1 August 2014)
DTMR	Patrick Quirk, Paul Brandenburg (1 August 2014)
QPWS	Ben Klaassen, Neil Cambourn (1 August 2014)
DAFF	Scott Spencer (1 August 2014)
NRM organisations	Mike Berwick (24 July 2014), Rob Cocco (6 August 2014)
Canegrowers	Malcolm Petrie (31 July 2014)
Independent Consultant	Di Tarte (28 August 2014)

Additionally, submissions on the draft strategic assessment of the following individuals or organisations who agreed to publicly release their comments on the Department of the Environment website were considered, where the comments were relevant to the scope of the review:

- Australian Heritage Council
- Carefish
- Department of Agriculture
- Douglas Local Marine Advisory Committee
- EDO
- Environmental Defenders Office of Northern Queensland
- Environment Institute of Australia and New Zealand
- 10 Individuals
- Local Government Association of Queensland
- QGC
- Queensland Conservation
- Queensland Coral Reef Fin Fish Fishery
- Queensland Resources Council
- Regional Development Australia Far North Queensland & Torres Strait Inc
- Terrain NRM.

APPENDIX D. LIST OF PRIMARY ACTS AND REGULATIONS RELATED TO THE USE, PROTECTION AND MANAGEMENT OF THE GBRWHA

Act or Regulation	Responsible Minister and Administering Unit	Purpose/Objectives
Jurisdiction – Federal/Australian		
Great Barrier Reef Marine Park Act 1975	Commonwealth Minister for the Environment Great Barrier Reef Marine Park Authority	Provides for the long term protection and conservation of the environment, biodiversity and heritage values of the Great Barrier Reef Region.
Great Barrier Reef Marine Park (Environmental Management Charge-Excise) Act 1993 and Great Barrier Reef Marine Park (Environmental Management Charge-General) Act 1999)	Commonwealth Minister for the Environment Great Barrier Reef Marine Park Authority	Provides for GBRMPA to impose an environmental manage charge on specific access to and use within the Great Barrier Reef Marine Park in a manner that is compliant with Section 55 of the Constitution.
Great Barrier Reef Marine Park Regulations 1983	Commonwealth Minister for the Environment Great Barrier Reef Marine Park Authority	Regulations control wide range of activities, uses, impacts and access within the Great Barrier Reef Marine Park including untreated sewage on vessels and discharge of sewage, observing whales and dolphins, human activities impacting dugongs, littering, vessels, aircraft, feeding of cetaceans, swimming with cetaceans, fishing, removal of property, animals not to be taken onto Commonwealth islands, mooring buoys and public infrastructure.
Great Barrier Reef Marine Park (Aquaculture) Regulations 2000	Commonwealth Minister for the Environment Great Barrier Reef Marine Park Authority	Regulates the discharge of waste from aquaculture operations outside the Marine Park, which may affect animals and plants within the Marine Park, and gives recognition to Queensland law (which has been accredited by the Commonwealth Minister for the Environment) under which aquaculture businesses can operate.
Historic Shipwrecks Act 1976	Commonwealth Minister for the Environment Commonwealth Department of the Environment	Ensures that historic shipwrecks located in the GBRWHA are protected for their heritage values and maintained for recreational, scientific and educational purposes.
Environment Protection (Sea Dumping) Act 1981	Commonwealth Minister for the Environment Commonwealth Department of the Environment, with delegations to the Great Barrier Reef Marine Park Authority	Regulates the deliberate loading and dumping at sea of wastes and other matter.

Act or Regulation	Responsible Minister and Administering Unit	Purpose/Objectives
Protection of the Sea (Prevention of Pollution from Ships) Act 1983	Commonwealth Minister for Infrastructure and Regional Development Australian Maritime Safety Authority	Protection of the Great Barrier Reef Region from pollution by oil and other harmful substances discharged from ships (e.g. oil, noxious substances, and garbage).
Sea Installations Act 1987	Commonwealth Minister for the Environment Commonwealth Department of the Environment, with delegations to the Great Barrier Reef Marine Park Authority	Ensure sea installations within the Great Barrier Reef Region are operated in a manner that is consistent with the protection of the environment.
Environment Protection and Biodiversity Conservation Act 1999	Commonwealth Minister for the Environment Commonwealth Department of the Environment	Assessment, determinations and conditions associated with projects that may have an indirect or direct impact on the Matters of National Environmental Significance related to the Great Barrier Reef.
Jurisdiction - Queensland		
Nature Conservation Act 1992	Minister for National Parks, Recreation, Sport and Racing Department of National Parks, Recreation, Sport and Racing	Establishes protected areas (e.g. national park islands) and protects wildlife within Queensland.
Marine Parks Act 2004	Minister for National Parks, Recreation, Sport and Racing QPWS	Used to establish, manage and protect the Great Barrier Reef Coast Marine Park.
Marine Parks Regulation 2006	Minister for National Parks, Recreation, Sport and Racing QPWS	Provides the establishment of estuarine conservation zone in the Great Barrier Reef Coast Marine Park. Includes permit assessment functions.
Coastal Protection and Management Act 1995	Minister for Environment and Heritage Protection Department for Environment and Heritage Protection	Provides for protection and management of the coastal zone of Queensland.
Water Act 2000	Minister for Natural Resources and Mines Department of Natural Resources and Mines	Permitted activity in watercourse, lake or spring flowing into the Great Barrier Reef relating to impacting on vegetation, banks and freshwater ecology.
Environmental Protection Act 1994	Minister for Environment and Heritage Protection Department for Environment and Heritage Protection	Through *Environmental Protection (Water) Policy 2009* gives legislative recognition to water quality policies. Regulates environmentally relevant activities such as dredging and waste discharges.
Vegetation Management Act 1999	Minister for Environment and Heritage Protection Department of Environment and Heritage Protection	Regulates land clearing in Queensland, including the Great Barrier Reef Catchment.

Act or Regulation	Responsible Minister and Administering Unit	Purpose/Objectives
Water Act 2000	Minister for Natural Resources and Mines	Regulates interfering with water, such as water extraction of rivers which flow into the Great Barrier Reef.
Wet Tropics World Heritage Protection and Management Act 1993	Minister for Environment and Heritage Department of Environment and Heritage	Protection and management of the Wet Tropics World Heritage Area, which lies immediately adjacent to the Great Barrier Reef.
Fisheries Act 1994	Minister for Agriculture, Fisheries and Forestry Queensland Department of Agriculture, Fisheries and Forestry	Regulates recreational and commercial fishing within Queensland, including the Great Barrier Reef.
Maritime Safety Act 2002	Australian Maritime Safety Authority Maritime Safety Queensland, National Regulator	Provides for the establishment of Maritime Safety Queensland.
Transport Operations (Marine Pollution) Act 1995	Australian Maritime Safety Authority Maritime Safety Queensland, National Regulator	Protect Queensland's marine and coastal environment (Great Barrier Reef Coastal Park) by minimising deliberate and negligent discharges of ship-sourced pollutants into coastal waters.
Transport Infrastructure Act 1994	Minister for Transport and Main Roads Department of Transport and Main Roads	Provides the legislative framework for planning the development of new and expansion of existing Ports
Economic Development Act 2012	Minister for Economic Development Economic Development Queensland	Used to undertake land use planning and prepare land for development purposes. Land may be located in catchment and coastal areas.
Sustainable Planning Act 2009	Minister for State Development, Infrastructure and Planning Department of State Development, Infrastructure and Planning	Used to assess some types of development in catchment and coastal areas that may have a direct or indirect impact on the GBRWHA. Sets out legislative requirement to produce Regional Plans.
State Development and Public Works Organisation Act 1971	Minister for State Development, Planning and Infrastructure Coordinator General (within Department of State Development, Infrastructure and Planning)	Used to assess major infrastructure projects in catchment and coastal areas that may have a direct or indirect impact on the GBRWHA.

APPENDIX E. LIST OF THREATS TO WORLD HERITAGE AREA REGULATED BY EXISTING ACTS

Table 10 provides a high-level summary of the collective coverage of threats to and/potential impacts on the GBRWHA regulated by the current set of Commonwealth Government and Queensland Government Acts and regulations. The list is not comprehensive. It is based on a scan of the different clauses contained in all 26 primary Acts. The purpose of the summary is to illustrate the breadth of threats and/or potential impacts currently controlled/regulated.

Table 10 – Overview of threats or potential impacts on the GBRWHA regulated by current Acts and Regulations

Act or Regulation	Overview of threats or potential impacts on the GBRWHA regulated by current Acts or Regulations
Jurisdiction – Commonwealth	
Great Barrier Reef Marine Park Act 1975	• No operations for recovery of minerals • Waste not discharged into Marine Park • Operation of fishing vessel where prohibited or without approval • Considerations in determining whether approval to undertake an activity should be granted (e.g. permitting) • Requirement for compulsory pilotage
Great Barrier Reef Marine Park Regulations 1983	• Regulation of untreated sewage on vessels and discharge of sewage • Observing whales and dolphins within the Marine Park waters • Regulation of human activities impacting dugongs • Littering is prohibited • Regulation of operation of a prohibited vessel in the Marine Park • Regulation of operation of a non-prohibited vessel in the Marine Park • Regulation of operation of aircraft in the Marine Park • Regulation of feeding of cetaceans in the Marine Park • Regulation of swimming with cetaceans in the Marine Park • Fishing and related offences • Regulation of removal of property in the Marine Park • Regulation of animals not to be taken onto Commonwealth islands • Mooring buoy and public infrastructure must not be removed
Great Barrier Reef Marine Park (Aquaculture) Regulations 2000	• Regulates the discharge of waste from aquaculture operations outside the Marine Park, which may affect animals and plants within the Marine Park, and gives recognition to Queensland law (which has been accredited by the Commonwealth Minister for the Environment) under which aquaculture businesses can operate.
Historic Shipwrecks Act 1976	• Requires discoveries to be notified. • Prohibition of certain action: destroys, causes interference, disposes or removes historic shipwreck • Regulations may prohibit certain activities in protected zone e.g. bringing in equipment
Environment Protection (Sea Dumping) Act 1981	• Disposal of wastes or other matter at sea in order to prevent marine pollution, and applies to all Australian waters including the GBRWHA. • Regulates incineration at sea and artificial reef placements

Act or Regulation	Overview of threats or potential impacts on the GBRWHA regulated by current Acts or Regulations
Protection of the Sea (Prevention of Pollution from Ships) Act 1983	• Prevention of pollution by oil • Prevention of pollution by noxious substances • Prevention of pollution by packaged harmful substances • Prevention of pollution by garbage from ships • Regulating disposal of garbage from ships • Prohibition of discharge of sewage into the sea
Sea Installations Act 1987	• Regulates the construction and operation of sea installations to ensure that they are constructed and operated safely and in a manner that is consistent with the protection of the environment. • Provides for a number of aspects relating to sea installations including requirements that they be operated in a manner that is consistent with protection of the environment
Environment Protection and Biodiversity Conservation Act 1999	• Regulates proposed projects which may have a potential direct or indirect impact on Matters of National Environmental Significance relating to the Great Barrier Reef area (world heritage properties, national heritage properties, nationally threatened species and ecological communities, migratory species, Great Barrier Reef) • Requires the Commonwealth Department of Environment to undertake an assessment of an Environmental Impact Statement provided by the Proponent and a recommendation to the Commonwealth Minister of the Environment to approve or reject the proposal
Jurisdiction – Queensland	
Nature Conservation Act 1992	Establishes and regulates activities within protected areas including: • Protection regime for listed threatened plants and animals (extinct in the wild wildlife, endangered wildlife, vulnerable wildlife, near threatened wildlife, least concern wildlife) • Issuing interim conservation orders – protection, conservation or management of wildlife habitat at risk • Regulations identifying critical habitats or areas of major interest and local government must not issue or give any approval, consent, permit or other authority for a use of, for development on the land that is inconsistent with regulation • Permitted uses of the national park – permitted use in national parks (service facility, ecotourism, service facility - public interest, ecologically sustainable) • Allowing a past use to continue for an allowable term specifically for forestry, grazing (no longer than what is remaining on lease) • Felling of timber in regional parks, commercial logging • Prohibition on mining, geothermal tenure and greenhouse gas storage activities • Part 4 Section 62 Prohibited removal of a cultural or natural resource unless under several exemptions (e.g. interim or declared management intent of the area, fishing in prescribed area) • Dedication, revocation, amalgamation of protected areas
Marine Parks Act 2004	• Regulates all activities in Queensland's Marine Parks through zoning and management plans

Act or Regulation	Overview of threats or potential impacts on the GBRWHA regulated by current Acts or Regulations
Coastal Protection and Management Act 1995	Regulates the potential impacts and activities within the coastal zone: • Damaging or removing vegetation, or damaging coastal Dunes • Placing signs on unallocated State land • Removing quarry material The coastal zone may include only coastal waters and land and Queensland waters landward of coastal waters and seaward of the coastal zone inner limit. The coastal zone inner limit is the imaginary line every point of which represents the most landward of the following points: • The point that is 5 km landward of the high-water mark; • The point nearest the high-water mark where land reaches the height of 10m Australian Height Datum. • If the imaginary line mentioned in subsection (3) intersects a lot, the line may follow either the seaward or landward boundary of the lot instead of following the imaginary line.
Water Act 2000	• Regulates interfering with water, such as water extraction from rivers which flow into the Great Barrier Reef.
Environmental Protection Act 1994	• Provides for management of mining on land and other environmentally relevant activities. • Environmental Protection (Water) Policy 2009, provides detailed requirements on water quality management • Prohibiting the making of a stated noise
Vegetation Management Act 1999	• Regulates broad scale clearing for agriculture and establishes the conservation status of regional ecosystems • Regulates Vegetation clearing
Wet Tropics World Heritage Protection and Management Act 1993	In areas designated as Wet Tropics of Queensland World Heritage Areas, prohibited activities include: • relation to a forestry operation – destroying a forest product, constructing or establishing a road or vehicular track or carrying out any excavation works; or • destroying a forest product, unless exempted under a regulation

Act or Regulation	Overview of threats or potential impacts on the GBRWHA regulated by current Acts or Regulations
Fisheries Act 1994	Manages commercial and recreational fisheries and aquaculture development, protects fish habitat areas, marine plants and dugong protection areas through regulation of: • A person must not unlawfully contravene a closed season or closed waters declaration. • A person must not unlawfully take, possess or sell a regulated fish. • A person must not mutilate or disfigure a regulated fish with intent to hide the fact that it is a regulated fish • A person must not unlawfully contravene a quota • A person must not unlawfully take fish in a way prohibited under a regulation or management plan. • A person must not unlawfully perform, or cause to be performed, works or related activity in a declared fish habitat area. • Use of explosives etc. prohibited • Prohibited fishing apparatus • Sale etc. of commercial fishing apparatus prohibited in certain circumstances • A person must not unlawfully interfere with an aquaculture activity or fishing apparatus • Noxious fisheries resources not to be possessed, released etc. • Nonindigenous fisheries resources not to be possessed, released etc. • Aquaculture fisheries resources not to be released • Offence to build waterway barrier works without approval • A person must not unlawfully remove, destroy or damage a marine plant
Transport Operations (Marine Pollution) Act 1995	• Prohibits pollution by oil • Prohibits pollution by noxious liquid substances in bulk • Prohibits pollution by packaged harmful substances • Prohibits pollution by sewage • Prohibits pollution by garbage
Transport Infrastructure Act 1994	• Regulates proposed port developments to ensure they are consistent with the Queensland Ports Strategy and ports-related legislative provisions including provisions requiring port land use plans (LUP). • Regulates consignment of goods too dangerous to be transported prohibited
Economic Development Act 2012	• Regulates proposed port developments to ensure they are consistent with the Queensland Ports Strategy and ports-related legislative provisions including provisions requiring port land use plans (LUP). • Regulates consignment of goods too dangerous to be transported prohibited
Sustainable Planning Act 2009	• Regulates development and provides for the coordination and integration of planning at a local, regional and state scale.
State Development and Public Works Organisation Act 1971	• Regulates projects of state and local significance (prescribed projects, prescribed developments, approved works or program of works) through use of Environmental Impact Statements to identify, assess and inform the determination of the project. Significant projects are assessed on their basis of economic and social benefits, capital investment or employment opportunities, significant environmental effects or significant infrastructure requirements.

APPENDIX F. MANAGEMENT PLANS

Table 11 presents a categorisation of the different business and management plans and strategies identified from the independent review, illustrating the volume of instruments in place and that several can serve multiple purposes.

Once the 2050 Long Term Sustainability Plan is finalised all future plans should be aligned with specific objectives and targets. A simple Great Barrier Reef Plan Register should be established with all plans recorded to make it easier and simpler for stakeholders to locate existing or future plans which may have key inter-dependencies (e.g. similar spatial and geographical scale, similar values, processes or impacts).

Table 11 – Overview of different plans by spatial scale and purpose

Spatial Scale	Values (Biodiversity, Indigenous Heritage, Historic Heritage, Community Benefits to the Environment)	Processes (waves, currents, tides, cyclones, sedimentation and sea level)	Impacts			
			Catchment Run Off	Climate Change	Degradation of coastal ecosystems	Direct Use
Whole of GBRWHA	Field Management Business Strategy 25 Year Strategic Plan for GBRWHA	25 Year Strategic Plan for GBRWHA	Reef Water Quality Protection Plan DAFF Business Plans DEHP Business Plans 25 Year Strategic Plan for GBRWHA		DEHP Business Plans DAFF Business Plans	North East Shipping Management Plan Field Management Business Strategy
Great Barrier Reef Marine Park	Great Barrier Reef Zoning Plan 2003 GBRMPA Business Plans	GBRMPA Business Plans	DAFF Business Plans DEHP Business Plans GBRMPA Business Plans		DEHP Business Plans DAFF Business Plans GBRMPA Business Plans	Great Barrier Reef Zoning Plan 2003 Recreation management strategy for Great Barrier Reef GBRMPA Business Plans
Great Barrier Reef Coast Marine Park	Great Barrier Reef Coast Marine Park Zones		DAFF Business Plans DEHP Business Plans		DEHP Business Plans DAFF Business Plans	QPWS Master Plan Great Barrier Reef Coast Zones

Spatial Scale	Values (Biodiversity, Indigenous Heritage, Historic Heritage, Community Benefits to the Environment)	Processes (waves, currents, tides, cyclones, sedimentation and sea level)	Impacts			
			Catchment Run Off	Climate Change	Degradation of coastal ecosystems	Direct Use
Regional	Great Barrier Reef Plans of Management		Queensland Government Regional Plans		Queensland Government Regional Plans	Great Barrier Reef Plans of Management Whitsunday and Mackay Island Visitor Management Strategies
Catchment			Best Practice Management Plan for Cane and Cattle Grazing State Development Area Plans Priority Planning Areas		State Development Area Plans Priority Planning Areas	
Local	Great Barrier Reef Plans of Management		State Development Area Plans Priority Planning Areas Local Government Planning Schemes		State Development Area Plans Priority Planning Areas Local Government Planning Schemes	Great Barrier Reef Plans of Management QPWS Management Plans (e.g. Gloucester Island National Park) Queensland Ports Strategy (Port master plan)