



Environment Institute
of Australia and
New Zealand Inc.

Reef 2050 Long Term Sustainability Plan

Detailed Comments

November 2014



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1. Introductory Sections

Section/topic	Comment
Islands	<p>Attention seems to remain focused on the marine component of the GBRWHA and those islands that are national parks. It is important to note that terrestrial and freshwater components of the GBRWHA contribute to the OUV. There is considerable existing development on islands in the GBRWHA, and land tenure of many of these islands does not preclude future development. Islands, and specifically those islands not already afforded protection as national parks areas needs to be covered explicitly in the Reef 2050 Plan.</p>
Current Management	<p>The EIANZ’s comments on the Strategic Assessment identified a number of issues in relation to the lack of specific attention to protecting and managing OUV (as distinct from managing biodiversity, heritage values and so on of the Great Barrier Reef and associated marine ecosystems) in laws and associated policies and management plans. The comments also identified a lack of integration between Federal and State laws, and within Queensland laws. This issue does not appear to have been addressed, nor does progress on this issue appear to have occurred.</p> <p>There is no explicit or implicit recognition of the OUV of the GBRWHA in any Queensland legislation. So, for example, while the <i>Nature Conservation Act 1992</i> may protect some of the animals that are identified as iconic to the GBRWHA, this protection is on the basis of conservation status and not the contribution that these animals may make to the OUV of the GBRWHA.</p> <p>Some values that contribute to OUV, particularly aesthetic values as well as the concept of integrity are not covered in any Queensland legislation (except that the <i>Environment Protection (Water) Policy 2008</i> does recognise the aesthetic values of water bodies).</p>
Adaptive Management	<p>The term “adaptive management” is used throughout the Reef 2050 Plan.</p> <p>The EIANZ notes that adaptive management is a specific type of management approach. It is very useful in situations where there is a high degree of uncertainty, as is the case with many aspects of management of impacts of development and use on the GBRWHA. However, if the adaptive management approach is to be used effectively, it is critical that:</p> <ul style="list-style-type: none"> • Clear, specific and detailed performance outcomes are identified. These performance outcomes must be established based on detailed baseline information (much of which is available in this case) as well as a strong understanding of existing and potential future pressures on these values. • There is a comprehensive monitoring program targeted at checking whether the performance is being achieved. This must include regular review and evaluation of the monitoring data to identify trends, unexpected outcomes and overall achievement of performance outcomes • There is a strong commitment to taking prompt preventative and corrective action as soon as monitoring results indicate that performance criteria are not being met. Preferably, contingency actions in the event that performance criteria are not met should be identified in advance so that these contingency actions can be rapidly implemented. <p>The EIANZ is concerned that “adaptive management” is being used in the Reef 2050 Plan as a way to defer commitment to specific action, that is, to put off developing and implementing clear and effective measures to address known and anticipated impacts on the OUV of the GBRWHA.</p>
Role of the Reef 2050 Plan in development	<p>It is not clear how the Reef 2050 Plan will relate to proposals for development in and adjacent to the GBRWHA. Will proponents be required to demonstrate consistency with the Reef 2050 Plan? Will the objectives and targets of the Reef 2050 Plan be reflected in regional plans, local</p>



Section/topic	Comment
planning and decision making	<p>government planning schemes and port land use plans?</p> <p>If this is indeed the case, then the Reef 2050 Plan needs to contain significantly more guidance in this regard.</p> <p>It is also not particularly clear how the Reef 2050 Plan will underpin decision making regarding development and use of the GBRWHA. The EIANZ believes that this should be clearly elucidated as the Reef 2050 Plan is weak in regards to the level of use and activity that can be carried out in the GBRWHA without causing further degradation.</p>
Resilience	<p>The Reef 2050 Plan refers frequently to resilience of the GBR ecosystem. It is essential to identify how resilience is to be measured, and would continue to be measured in the future as the Reef 2050 Plan unfolds. Otherwise, this concept will remain a vague concept that is not translated into effective management.</p> <p>The EIANZ considers that considerable conservatism should be used in setting indicators of resilience given the potentially very significant nature of the impacts of the threatening process of climate change.</p>
Climate change	<p>The GBR Outlook Reports (2009 and 2014), SAs and the Reef 2050 Plan all highlight climate change as one of the most important issues for the future of the GBRWHA, and particularly the BR ecosystem. Yet, the Reef 2050 Plan is almost silent on how the long term management of the Reef will address the risks resulting from climate change and ocean acidification.</p> <p>The current but un-resourced Great Barrier Reef Climate Change Adaptation Strategy and Action Plan 2012-2017 outlines strategies and actions to build the Great Barrier Reef’s resilience to climate change. At a minimum, the Reef 2050 Plan should specify implementation of this Strategy and Action Plan.</p> <p>In addressing the impacts of climate change on both marine and terrestrial ecosystems, there is an assumption being made that incremental changes to human behaviour will be adequate. The strong feeling of participants at the NCCARF Conference on the Gold Coast, in September 2014, was that generally and for marine systems and the Great Barrier Reef in particular, incremental action is not sufficient. There is a significant risk that targeting resilience through increased commitment to minimizing the impacts of current drivers will not be enough to deal with the current and predicted pending impacts and reef adaptation requirements of climate change in the next few decades.</p> <p>The EIANZ notes that if reversing the anthropogenic component of climate change is not on the agenda, then building resilience through reversal of water quality degradation must become a particularly significant aspect of the Reef 2050 Plan. Aggressive timeframes will be required to achieve water quality targets and this will require significant investment. Please refer to comments on the water quality component of the outcomes framework.</p>
Page 18	<p>In relation to item 2, the EIANZ is concerned that there is insufficient recognition of the overall OUV of the GBRWHA in Queensland legislation, and that Queensland legislation does not deal with the integrity of the GBRWHA or aesthetic values, or “superlative” values, except where these are protected by other provisions. The EIANZ is concerned that without specific recognition of the OUV of the GBRWHA in the various legislation that is identified as relevant to management of the GBRWHA, and without some kind of overarching integrated legislation consideration of OUV of the GBRWHA in decision making processes will remain fragmented.</p>
Compliance and enforcement	<p>The EIANZ is concerned that recent audits by both the Australian National Audit Office and the Queensland Audit Office found significant weaknesses and shortcomings in the Australian and Queensland Government’s enforcement of compliance with environmental regulations and approvals. While the EIANZ supports the cooperative and collaborative approach taken in the Reef 2050 Plan, the EIANZ also considers that stronger enforcement of compliance requirements will be critical to achieving the outcomes sought, particularly in relation to water quality. This will need to include enforcement of compliance with authorised discharge</p>



Section/topic	Comment
	standards as well as enforcement action against unauthorised discharges from point and diffuse sources.
Funding	<p>A significant gap in the Reef 2050 Plan is the lack of dedicated resources, both financial and human.</p> <p>The EIANZ notes that the Australian Government has allocated over \$1.7 billion for the environmental restoration of the Murray Darling Basin. The EIANZ believes that the Commonwealth and Queensland Governments need to allocate a similar amount for the protection and restoration of the GBRWHA and catchments that flow to the GBRWHA.</p>
Format	Lack of section numbering made the document hard to read and interpret.

2. Outcomes Framework

2.1 Introductory Sections and General Comments

Outcomes framework – Reviews	<p>While regular reviews of the plan are supported, review must lead to continuous improvement in management of the GBRWHA. This in turn requires the setting of much more specific targets than are currently included in the Reef 2050 Plan.</p> <p>The context in which the Reef 2050 Plan will operate will change constantly. However, revisions of the plan are to occur only every five years, this will allow fundamental strategic responses in planning provisions to lag for up to five or more years behind recognition of emerging issues. Recognition of significant issues may lag well behind their impacts as is apparent from the treatment of climate change. The plan lacks the 'agility' that would be afforded by stronger provisions for occasional major adjustment of provisions within the major review periods. Capacity for this vigilance and authority to make strategic changes needs to be articulated in the governance arrangements.</p>
Outcomes Framework – Reporting	<p>While the EIANZ considers that the GBRMPA’s Outlook Report and the Reef Water Quality Protection Plan Report Cards represent a high standard of practice in terms of monitoring and reporting; the EIANZ is concerned that these tools relate specifically to the marine component of the GBRWHA and are targeted on management of marine biodiversity values, as this has been the primary focus of GBRMPA (under the terms of the <i>Great Barrier Reef Marine Park Act 1975</i>). The EIANZ suggests that a monitoring and reporting program that is specifically targeted to the OUV of the GBRWHA. The Outlook Report (framework) could be readily adapted to this broader scope.</p> <p>The EIANZ also notes that the development and implementation of this program is extremely urgent given the ongoing degradation of many ecosystem components of the GBRWHA. Significant information and expertise is already available to support development of this program and it should not be delayed.</p>
Using the outcomes framework in decision making	<p>The EIANZ strongly supports that economic growth must not be achieved at the expense of the OUV of the GBRWHA.</p> <p>The EIANZ supports a decision making framework that has protection of the OUV as “paramount”, but as per comments above and in our comments on the SAs, the EIANZ is concerned that the regulatory framework for embedding OUV in planning and decision making remains weak; and where the regulatory framework does address OUV, the focus is on marine ecosystem values and marine biodiversity rather than the overall OUV of the GBRWHA.</p> <p>If decision making is to “achieve a net benefit of marine and coastal ecosystems” cumulative impacts must be addressed. This will require rapid compilation of existing information on</p>



	<p>impacts of human activity on the OUV of the GBRWHA so that the full nature of existing cumulative impacts can be understood. It will also require the setting of thresholds for development and use, which should in turn be based on quantitative indicators of condition for all aspects of the OUV of the GBRWHA.</p> <p>In relation to decision making being based on the best available information, the EIANZ also notes the “precautionary principle” which states that lack of scientific certainty (inability to indisputably demonstrate cause and effect relationships) should not be used as a reason to put off taking action to protect environmental values from potential adverse impacts.</p>
Aesthetic values	<p>As part of the strategic assessment the then DSEWPaC commissioned a report “<i>Defining the aesthetic values of the Great Barrier Reef</i>” (Context February 2013). The findings and recommendations of this report do not appear to be reflected in the Reef 2050 Plan.</p> <p>Aesthetic values are mentioned under “Community Benefits” however the EIANZ considers that the aesthetic values of the GBRWHA are fundamental to its OUV and integrity with values extending beyond simply the benefit of a pleasant view to a community.</p>
Geological and geomorphological values	<p>The outcomes framework does not provide any actions in relation to geological and geomorphological values, despite this being one of the listing criteria for the GBRWHA. This would appear to be a significant omission, however no reasoning is provided for why this aspect is not covered.</p>
Impacts of recreational use	<p>The EIANZ notes that there is a very limited understanding of the impacts of recreational use of the GBRWHA (see the GBRMPA’s Recreation Management Strategy (2010) for more information). Impacts include the effect of anchoring of small boats on seagrass beds and benthic substrates, water quality impacts from discharges from boats, recreational fishing catch and by-catch and disturbance to animals such as dugong and shorebirds. A stronger understanding of the significance of recreational use would then lead to better education of recreational users and better management of popular recreational areas. The EIANZ notes the distinction between recreational use and commercial tourism activities. The latter appears well understood and managed.</p>
General comments on targets and actions	<p>The use of SMART targets is representative of good practice. However, the EIANZ is concerned that a number of the targets and actions are not particularly specific and lack time frames. There is considerable uncertainty associated with how effective many of the targets and actions may actually be in achieving the outcomes sought. More specific comments are provided in the EIANZ’s comments on the specific areas of the Outcomes Framework.</p>

2.2 Water Quality

The proposed plan correctly identifies the need for a robust ‘program logic’, maintaining a clear ‘line of sight’ between actions and targets (p16). This in turn requires an understanding and quantification of the cause-effect relationships among actions and water quality targets and objectives, and among the water quality objective and the overall outcome that is sought.

The Reef 2050 Plan approach should therefore ensure that actions, targets and objectives be strongly interdependent and linked by a scientifically valid causal chain; thus, by undertaking the actions, the Plan should demonstrate that the targets will be delivered and also (importantly) that delivery of these targets will achieve the objectives. That is, from a perspective of the program logic:

If I undertake the relevant actions, then I will deliver the water quality targets and thus achieve the objective.



The draft Plan fails to articulate a clear program logic for water quality protection. To be consistent with ‘best practice’ program logic, the final Plan will need to demonstrate, at a minimum:

- The proposed actions are sufficient to deliver the water quality targets, and
- The water quality targets reflect the level necessary to achieve the stated objective of ‘no detrimental impact on the health and resilience of the Great Barrier Reef’.

The starting point of a useful water quality planning framework is a clear and unambiguous quantification of the intended objective thus providing the link between the more qualitative objective and quantitative ‘SMART’ targets.

The EIANZ is concerned that the target water quality loads that will ensure, that by 2020, there is ‘no detrimental impact on the health and resilience of the Great Barrier Reef’ have not yet been determined with any rigour. This provides a poor basis for the setting of water quality improvement targets.

The EIANZ considers that there is sufficient information currently available to establish reasonable estimates, for example the work done by WWF for dissolved inorganic nitrogen¹. Because of the central role of these targets, current best estimates of the necessary ultimate sustainable load targets should be included in the Reef 2050 Plan. The EIANZ is disappointed that so much time has been allowed to elapse since the identification of the significant contribution that water quality degradation was making to ecosystem health of the GBRWHA in the 2009 GBR Outlook Report and is concerned that the lack of urgency in the Reef 2050 Plan will mean that another five years will pass without any effective response.

The EIANZ is concerned that the 2018 water quality targets (WQT 1) are well below the level necessary to achieve the stated water quality objective. These targets should be seen as milestones towards the achievement of the ultimate 2020 targets, which unfortunately, are currently undefined. This needs to be made clear in the text.

On the evidence available, the EIANZ is concerned that the actions and the associated management targets currently agreed to are unlikely to meet the 2018 water quality milestones. Moreover, a number of the actions are vague and non-specific (e.g., WQA2, ‘implement innovative management approaches’; WQA4, ‘where feasible, implement voluntary cost-effective market-based trading programs’) and there is considerable uncertainty in how these sorts of actions will deliver on the management targets (WQ2), nor whether achievement of these management targets will meet either the 2018 water quality milestone, or the ultimate 2020 sustainable load target. A properly researched series of actions with proven effectiveness should be established which can demonstrate that the overall objective for the reef will be achieved.

The EIANZ suggests that the outcomes framework for water quality should be re-organised to reflect the logical links among the elements of the framework. This includes separation into “pressure – stressor – condition” model, as well as expanding and clarifying the links between particular action(s) and corresponding water quality targets.

The EIANZ also notes that there is a heavy emphasis on management of dredging and dredge spoil disposal, that appears disproportionate to the contribution that this activity makes to water quality impacts. While not wanting to reduce the level of effort placed on management of dredging and dredge spoil, it would be appropriate to include similar levels of detail on urban stormwater runoff, agricultural runoff, water supply infrastructure and extraction, catchment erosion and releases from mining and other industrial activities.

¹ ‘Hitting the target: How much pollution can the Great Barrier Reef handle?’. 2014 Prepared by Glen Holmes for WWF Australia. http://www.wwf.org.au/news_resources/resource_library/?8980/Hitting-the-target-how-much-pollution-can-the-Great-Barrier-Reef-handle



Some additional comments and suggested modifications to elements of the outcomes framework for water quality are indicated as follows:

- WQT1 –
 - Add text after 2018 “the following milestones will be achieved” to clarify that this target is an intermediate step towards future water quality targets
 - The baseline from which these reductions is to be measured must also be specified or this target becomes meaningless
- WQT2 –
 - In relation to increasing the extent of riparian vegetation, a quantitative target should be adopted
 - The use of quantitative targets in relation to management of agricultural lands and groundcover on grazing lands is appropriate
 - It should not be automatically assumed that best management practices that are adequate to reverse water quality declines are in fact available for agricultural land use, nor that these are cost effective without subsidy to farmers.
 - The EIANZ suggests that rather than using undefined terms such as “best management practice” in targets, that reference be made to specific published standards or guidelines.
- New target - WQT3a –
 - The EIANZ suggest that a new water quality target be added as follows: “By 2020 sustainable load targets for anthropogenic end-of-catchment DIN, TSS, particulate nutrients will be delivered to ensure the quality of water entering the reef has no detrimental impact on the health and resilience of the Great Barrier Reef.”
 - This additional target more clearly delineates the need to achieve water quality targets
 - It will however require definition of the quality of water required to avoid detrimental impact on the GBR.
- WQT4 –
 - The EIANZ strongly supports the involvement of traditional owners but suggests that a number of other stakeholder groups could also be involved in this activity. This would have benefits both in accessing the understanding that different groups have of what impacts on water quality, and enhancing awareness of water quality issues among a range of stakeholders.
- WQT5 –
 - The EIANZ suggests that this target be reworded as follows “Use of cost-effective and innovative measures and mechanisms to improve water quality from broadscale land use, urban, industrial and port activities (including dredging) is increasing is sufficient to deliver the 2020 sustainable load target.”
 - This target needs to be linked to the 2020 sustainable load target or it remains vague, with no clear indication of potential effectiveness
- WQA1 –
 - The timeframe of this target should be revised to 2015 (not 2018)
 - As this action is linked to setting 2020 targets, it must be completed with urgency so that the underlying water quality targets and actions can be reviewed and aligned with achieving the 2020 targets.
 - The EIANZ considers this to be a very urgent action given the importance of water quality to health and resilience of the GBR ecosystem and the ongoing measured decline in water quality.
- WQA2 –
 - This action is particularly vague and non-specific, and it is not clear how this will contribute to the overall water quality target.



- WQA3 –
 - The basis for these standards needs to be articulated and linked to the 2020 sustainable water quality objectives
- WQA4 –
 - The EIANZ suggests that this action be edited as follows “Identify, pilot and, ~~where feasible,~~ where necessary implement voluntary cost-effective market-based trading programs and other innovative mechanisms for point and diffuse sources of pollution”
 - The EIANZ also notes that cost-effectiveness should be a secondary criteria given the urgency of taking action to reverse water quality degradation
- WQA5 –
 - The EIANZ notes that a “best practice” is a method or technique that has consistently shown results superior to those achieved with other means, and that is used as a benchmark. In addition, a “best” practice can evolve to become “leading” or “aspirational” as improvements are discovered. Best practices are used to maintain quality as an alternative to mandatory legislated standards and can be based on self-assessment or benchmarking. More guidance is needed as to what constitutes best practice and careful consideration should be given to claims of best practice. Such claims should be backed by evidence that the practice has achieved superior results in terms of environmental protection.
 - If the Reef 2050 Plan is to have WQA5 as a SMART indicator then the EIANZ suggests that it should be made more specific, for example:
“Use the ABCD (A -Aspirational, B - Best practice, C - Conventional, D – Dated) framework across agriculture, urban, ports and industry to categorise and measure management efforts and encourage achievement of best management practice and to inform regional report cards”
 - In relation to Australian environmental management performance, a recent review by Jacobson et al (2014) found that management performance involved a mix of voluntary, collaborative and market based approaches. As many indicators suggest continuing decline in environmental condition it would appear that these approaches have not been entirely effective.
 - Therefore, rather than a voluntary approach, the EIANZ suggests that a compulsory approach should be used, that is, reporting should be mandatory.
- WQA6 –
 - It should be clarified whether the embargo on capital dredging includes any land within strategic port land (for example Port Alma and Balaclava Island) or only existing developed port areas.
 - A specific date should be set for the embargo period, rather than “the next 10 years”.
 - The EIANZ suggests that this embargo should not be lifted until there is a clearer understanding of the level of port related use and activity that might be acceptable within the GBRWHA without causing deterioration of the OUV. This action should therefore be coupled with specific research on the impacts of port-related activity (including dredging) on GBRWHA values so that suitable thresholds for development can be set, before the embargo is lifted.
 - Such research should examine both acceptable levels of expansion at existing ports as well as whether there are any new port areas that can be developed without causing any impacts on the OUV of the GBRWHA.
- WQA7
 - It is not clear how undertaking “dredging in a planned, structured and strategic manner” will contribute to improved water quality. A more specific action statement is required here.
 - As noted in other comments, the most appropriate dredge spoil disposal or management option will need to be determined on a case by case basis using a rigorous multi-criteria analysis approach to evaluate options.



- The EIANZ suggests that where there are no environmentally acceptable options for maintenance dredge spoil disposal/management at a particular location, (that is, no options that do not carry some risk of degradation of any aspect of the OUV of the GBRWHA) then development at that location should be capped and further maintenance dredging not allowed or significantly restricted. This is consistent with WQ02 and EH03.
- WQA8 –
 - A timeframe must be set for this action
 - The EIANZ notes that a considerable body of information has already been generated by Gladstone Ports Corporation and others in the Gladstone/Port Curtis area, however there has been little if any evaluation and synthesis of this information in a manner that can inform (a) future evaluation of the impacts of dredging projects on marine and coastal ecosystems and (b) the effectiveness of management measures in reducing impacts. EIANZ suggests that a full evaluation of this information be initiated as a priority, with a view to publishing scientifically robust and rigorous papers to inform future use and management.
 - The EIANZ notes that beneficial reuse strategies such as coastal reclamation projects may also have significant impacts on environmental values, with the actual impacts varying from location to location. Any such strategies must be subject to rigorous environmental impact assessment and a robust, multi-criteria analysis of alternatives.
- WQA9 –
 - While a coordinated approach to maintenance dredging is likely to be beneficial for port authorities, it is not clear how this action will contribute to water quality improvement.
 - The action to identify environmental windows belongs with WQA8, ie should be part of the “measures to address dredging related impacts” and “code of practice”.
 - This research should, among other things, lead to setting quantitative targets on annual volumes, both across the entire GBRWHA and at individual port areas.
- WQA10 –
 - The EIANZ is concerned that the actions in the Reef Water Quality Protection Plan 2013 are insufficient to achieve the Reef 2050 Plan’s objectives with respect to water quality.
- WQA11 –
 - As noted above, there is a range of other stakeholders who might contribute to and benefit from involvement in on-ground water quality improvement and monitoring programs.
- WQA13 –
 - This is a fairly meaningless target given that it is already included in many planning schemes.
 - A plan to retrofit stormwater quality improvement devices to existing stormwater systems would yield additional benefits.
 - A time frame should be set for this action..
- WQA14 –
 - It is disappointing that these plans have not yet been finalised given the urgency of water quality issues
 - It is important that these plans are not just finalised, but are implemented.
 - Again (and as with many of the actions) a time frame should be set.
- WQA15 –
 - The extent to which this action will contribute to improved water quality is not clear.
 - This action should be tied to achievement of water quality objectives
 - It is not clear what is meant by local adaptive management frameworks and actions.
- New Action - WQA18b –
 - The EIANZ suggests that a new action be added: *By December 2015, determine sustainable load targets for priority contaminants to ensure the quality of water entering the reef has no detrimental impact on the health and resilience of the Great Barrier Reef.*
 - This is an urgently required action, given the level of uncertainty around the appropriate water quality targets, and the importance of achieving water quality targets to enhancing the resilience of the reef to climate change impacts.



- WQA19 –
 - It is not clear how this action will contribute to improved water quality. The action is poorly worded.

2.3 Ecosystem Health

The introductory paragraphs are unclear in terms of the intent and the objectives of this section of the plan. The second paragraph appears to imply that there are some components of ecological systems that are more important than others, which seems at odds with systems theory.

The various terminology used to refer to the values and components of GBRWHA ecosystems is confusing and potentially inconsistent, for example, targets and actions refer to “functional ecosystems critical to reef health”, “ecosystems important for protection of the reef”, “priority coastal ecosystems”, “Reef priority coastal ecosystems” “key sites of high ecological value” “coastal ecosystems that contribute to reef health and resilience”. This indicates a poorly coordinated approach to the setting of targets and actions, and will obfuscate attempts measure achievement of the desired outcomes of the targets and actions.

Again, there is a heavy emphasis on the impacts of port development and related dredging but little mention of other uses and activities of the GBRWHA that may impact on ecosystem health.

Comments on objectives, targets and actions are as follows:

- Generally, most of the targets are not SMART, in particular the standards to be achieved are not specific, the targets are worded too vaguely to be measurable, it is not clear what will be achieved, and timeframes are not specified
- EHT1 –
 - This target requires a timeframe
 - Definition of “good condition” should be clarified. Is “good condition” an adequate state given the outstanding universal value present?
- EHT2 –
 - This is a critical, perhaps fundamental aspect of managing the GBRWHA. The EIANZ suggests that this should be considerably expanded and clarified.
 - The phrase “direct human-related activities” is unclear – is this referring to human activities that occur directly within the GBRWHA or directly impact on the GBRWHA or some other type of activity?
 - The target requires these activities to “be managed to address cumulative impacts”. This is also unclear and does not set any measurable target.
 - The term net benefit should be defined
- EHT3 –
 - How will “net improvement in condition” be measured? What level of improvement is sought? These issues need to be quantified if this is to be an effective (SMART) target.
 - Does the term “extent” refer to areal extent? This could be clarified.
 - What will be the baseline for determining an improvement against?
 - Does this target refer to terrestrial ecosystems within the GBRWHA (ie islands) or to terrestrial ecosystems in catchments draining to the GBRWHA? If the latter, would this be more suited to the water quality component of the framework?
 - Does the target refer to all terrestrial ecosystems or only to the examples provided (natural wetlands, riparian vegetation)?
 - Note that there is also a water quality target associated with riparian vegetation in catchments draining to the GBRWHA.
- EHT4 –
 - this target requires a timeframe
 - It is not clear why this is a target rather than an action



- If this is to be a target, then there must be a defined outcome for reef health that arises from the Indigenous Ecological Knowledge Management Systems
- EHT5 –:
 - The wording of this target is unclear. Is the target stating that there will be some ecosystems that are more important than others, and that these should be prioritised? Or is the target stating that functional ecosystems should be a priority in each region? Unclear wording will make it difficult to measure achievement of this target
 - This target requires an actual target, for example, 50% of “functional ecosystems critical to reef health” will be protected or restored. Otherwise, it is an action.
 - This target requires a timeframe
 - it is not clear why this has been set as a target when the knowledge to identify priority areas for protection already exists
- EH Targets – further comments –
 - In order to change the trajectory of declining inshore habitats and coastal ecosystems to a positive trend, the Reef 2050 Plan targets will need to be more specific and SMART in relation to the areas of degraded habitat that will be restored, the increase in “active management” levels and the timeframes for achieving these.
 - A new target should be set that quantifies the amount of restoration of coastal, seagrass and coral reef ecosystems that should occur in and adjacent to port areas (see also EHA3). The timeframe in which this restoration is to occur should also be specified.
- EHA1 –
 - This action requires a timeframe. Given that the latest GBR outlook report shows continued decline in ecosystem health in the GBR, this should be a priority action
 - It would appear that a great deal of knowledge and information is already available
 - The most difficult part of this action will relate to identifying critical thresholds
 - Identification of critical thresholds will not, in itself, contribute to the health of the GBRWHA. The EIANZ notes that there needs to be a commitment to take these critical thresholds into account in decision making, and to take further action if it appears that critical thresholds are being approached.
- EHA2 –
 - This action requires a timeframe
 - Note that methodologies for assessing cumulative impacts are already available. There are however a number of inherent difficulties in assessing cumulative impacts, particularly when this assessment is undertaken on a project-by-project basis. These issues include:
 - Availability of information on the impacts of other activities and projects
 - That the uncertainties associated with project level cumulative impact assessment are magnified when dealing with cumulative impact assessment
 - The setting of thresholds against which cumulative impacts can be measured.
 - The EIANZ suggests that guidelines on assessing cumulative impacts should focus specifically on overcoming these constraints.
 - Effective assessment (and management) of cumulative impacts is likely to require a coordinating body that can work with individual proponents and operators to identify, evaluate and manage cumulative impacts.
 - Targets and actions should also be set to promote effective management of cumulative impacts. This will necessarily need to include thresholds beyond which further activity or development will not be allowed.
- EHA3 –
 - This action overlaps somewhat with actions in the water quality section
 - Does “port planning” refer to Port Land Use Plans or is another type of port plan going to be introduced? As is the case throughout the Reef 2050 Plan, references to various programs and plans are vague and inconsistent and it is rarely clear whether the reference is to an existing program or plan, or something new is to be introduced.



- The strategic assessment (coastal) had identified that Port Land Use Plans already contained this information, (although the EIANZ’s review found that this was not the case for most Ports).
- Historically, significant areas of high value habitat (including coastal ecosystems, corals and seagrass) have been lost or degraded as a result of dredging and disposal in the GBRWHA. Poor planning, poor quality impact assessments and impact assessments that focus on mitigation rather than avoiding impacts and poor compliance and enforcement have been contributing factors.
- The action refers to “coastal ecosystems that contribute to reef health and resilience”. The EIANZ believes that all coastal ecosystems are likely to contribute to reef health and resilience and it is unlikely that any consistent basis can be developed to distinguish between coastal ecosystems that do and do not contribute to reef health and resilience.
- Further, the EIANZ notes that coastal ecosystems are mentioned specifically in the statement of OUV, and also provide habitat for other features such as iconic animals that are also listed in the statement of OUV. Therefore, such ecosystems warrant protection in their own right as well as in recognition of the contribution that these ecosystems may make to reef health and resilience.
- EHA4 –
 - This action is not clear. Does it relate to restoration activities? Does it refer to a policy that will be developed and applied to new development or existing development?
 - How does this differ from the existing offsets policies?
- EHA6 –
 - The EIANZ suggests that a specific target should be set for the proportion of island and coastal habitats within the protected estate and the associated funding for management of these areas
- EHA7 –
 - The EIANZ is pleased to see that islands are specifically mentioned in this action.
 - Refers to “innovative and cost effective measures” but does not give any indication of the likely effectiveness of these measures in achieving the targets.
 - Do such measures currently exist? If so, the measures should be specifically mentioned, with commitments made in relation to the implementation of these measures. If the measures do not currently exist, the actions should be specific to developing such measures. Funding and other resources should be specified. A commitment should be made to quickly develop plans to implement these measures and funding allocated as required.
 - While the EIANZ supports the idea that environmental management and restoration should be cost effective, the EIANZ also considers that there may need to be investment made in restoration of degraded ecosystems and that cost-effectiveness should not be a key driver in selecting effective measures to restore damaged ecosystems.
 - In the absence of specific information on the nature of these “innovative and cost effective measures” and the likely effectiveness, this action cannot be claimed to contribute to achievement of the ecosystem health objectives and targets.
 - Coastal ecosystems and islands are critical components of the Reef ecosystem, and especially important as concentration points for human uses of the Reef. The EIANZ considers that the importance of these ecosystems warrants more specifically targeted actions that align with the SMART approach that has purportedly been adopted for the Reef 2050 Plan.
- EHA9
 - The EIANZ notes that while shipping related incidents are generally low occurrence, the potential for increased shipping related incidents with increased shipping activity has been a major source of public concern. With increasing shipping activity and also increased storage and use of environmentally harmful materials in coastal areas it is critical that incident



response capability keep up with increase in risk levels and new hazards that may be introduced as activities change and grow.

- The EIANZ notes that incident prevention must also be a critical component of incident planning and management.
- The EIANZ suggests that, given the level of public concern regarding shipping and other incidents a more specific action could be adopted as follows “Review existing response planning and capabilities and develop and maintain response plans and adequate response capacity for shipping and other incidents through multi-sector plans, coordinated response procedures and cross-agency training programs, and taking into account potential increase in risk levels with time”.
- EHA10 –
 - This action requires a timeframe
- EHA 12 –
 - This action requires a timeframe
 - How does this relate to the “functional ecosystems critical to reef health”?
 - Sites of high ecological value would appear to already be well known for example from the GBRMPA’s representative areas program. The EIANZ suggests drawing on existing knowledge of sites of high ecological value so that implementation of recovery programs is not delayed by further studies.
- EHA12 and EHA13 –
- These two actions capture important approaches to improving future management of the Reef. However, the EIANZ suggests that both actions would be improved by explicitly recognizing the linkages between them, to maximise integration and effectiveness of future investments available through Reef Trust or other offset programs. Additional action
 - The EIANZ suggests an additional related action as follows: *“Develop a framework based on an analysis of key pressures and priority recovery sites to be used for the design of biodiversity offset activities.”*
- EHA14
 - The Reef 2050 Plan includes several actions relating to Traditional Owner capacity and participation in Reef management. There would appear to be some redundancy here that could be addressed by consolidation of some of these actions into a smaller set that still address the range of important issues.
 - We suggest at least one action that focuses on a more specific method to deliver increased traditional owner capacity. We recommend the following wording for an action: *“Increase Traditional Owner capacity and opportunity for engagement in planning and management of the Reef through culturally appropriate participatory monitoring and environmental leadership programs.”*
- EHA19 –
 - How does this action relate to EHA 7 and 12?

2.4 Biodiversity

While the objectives relate to biodiversity generally, the actions focus only on a small number of key iconic species or groups of species.

All of the actions in this section should have time frames assigned. As identified in earlier comments, some of the actions remain vague and it is not clear what, if any contribution these actions might make to achievement of the objectives and targets, for example BA3 and BA5.

- BO1 –
 - It will be necessary to define “indices of biodiversity” and what constitutes good or very good condition.
 - Confusing use of terminology may make this objective difficult to measure. In scientific literature, a term such as “indices of biodiversity” would normally be used to refer to the



variables that are used to measure biodiversity, such as the number of species or abundance of individuals of a particular species. A further scale would then need to be developed to determine how the scores of the various indicators translated into good or very good condition (note that higher scores against some indicators may not necessarily be better in all situations as increases in species variability or abundance may actually indicate perturbations in a system). This objective may be better worded “biodiversity indicators show that biodiversity values are maintained or, where previously degraded, restored, at reef wide and regionally relevant scales”.

- The research and information management actions do not contain any actions relating to monitoring of these “indices of biodiversity”, except for specific species
- BT1 –
 - In order that this target is measurable, a baseline will need to be set, for example “compared to 2014 levels”
- BT2 –
 - In order that this target is measurable, a baseline will need to be set, for example “compared to 2014 levels”
 - Would it also be appropriate to include humpback whales and migratory shore birds in this list as both are iconic species/species groups? A number of other species or groups of species are also referred to in the statement of OUV. The EIANZ suggests that it would be appropriate to include all of these in this target.
- BT3 –
 - We assume that coral trout is considered as an indicator species for fish populations more generally?
- BT4 –
 - Should a similar target be set in relation to recreational and commercial fishing?
- BA3 –
 - It would be appropriate to list the specific measures that will be implemented. Otherwise, it cannot be claimed that this action will contribute to the objectives and targets that have been set.
 - If the specific “actions” that might be effectively used are not known, then the action must also focus on research and development of actions to reduce impacts on dugong.
- BA5 –
 - Again, specific actions need to be stated here or the action cannot be considered to contribute to the objectives and targets that have been set.
 - If actions to reduce cumulative impacts on dolphins are not currently known, then the action must also focus on research and development of appropriate actions.
 - It may be necessary for the commercial fishers to be included in this action
- BA10, BA11 –
 - For both of these actions, it would be preferable to name the particular locations that will be protected so that the action is specific and achievement can be measured. In both cases, the key locations can readily be identified from existing information.
- BA13 –
 - The word “impacts” should be inserted after noise
 - Note that while the methodologies for assessing underwater noise are well established, considerable additional study and research on the effects of underwater noise is likely to be required before any meaningful guideline on management can be produced
 - Similar to this action, it would also be appropriate to conduct further study and research on the response of migratory shorebirds to disturbance so that migratory shorebird habitat can be better protected



2.5 Heritage

The EIANZ considers that the objectives, targets and actions in this section are detailed and specific. Time frames should be added to each target and action.

The focus of the targets and actions is on specific items and places of heritage significance. Consideration must also be given to less tangible heritage values, for example the place that the GBRWHA holds in Australia’s history.

2.6 Community Benefits

Some specific comments are as follows:

- The overall outcome refers to an “informed community”. In this regard, the EIANZ suggests that considerable attention be given to increasing the understanding of community members of the impacts of their actions within and adjacent to, and use of the GBRWHA on the values of the GBRWHA. This should include ongoing awareness about how users of the GBRWHA can be proactive in avoiding impacts and protecting values.

2.7 Economic Benefits

The EIANZ notes that the targets and actions in this component of the framework are focussed on managing the impacts of development in and adjacent to the GBRWHA. However, the Reef 2050 Plan does not provide any mechanism for guiding the level and type of development that is consistent with achieving the objectives of restoring the GBRWHA and its constituent components.

Target EBT1 refers to increasing understanding of cumulative impacts and adopting a net benefit approach. However, this can only succeed if thresholds are set to guide and limit development and use of the GBRWHA and adjacent areas. Considerable data and information is available on the impacts of industrial and port development and other uses and activities on the OUV of the GBRWHA, however very little of this information has been evaluated and synthesised into a format that can inform management of current activities and prediction of impacts from future activities. The EIANZ strongly recommends that thorough monitoring and follow up studies be undertaken and made available in the public domain. This will significantly reduce the uncertainty in impact prediction that currently exists as well as inform decisions regarding suitable levels of use and development.

Some specific comments are offered as follows:

- EBA1 – mentions the Integrated Monitoring Reporting Program. This is the first time that this has been mentioned, and yet it would seem to be relevant to all of the outcome areas
- EBA2, EBA 3 – these actions would seem to overlap with actions in the water quality component of the framework
- EBA4 would seem to overlap with EH03, EHT2 and EHA4.
- EBA5 –
 - See comments ab above regarding the urgent need for monitoring and evaluation of data on impacts of development. This work would provide significant insight into the effectiveness of mitigation and management measures in protecting the OUV of the GBRWHA.
 - The EIANZ notes that there are considerable methodological and implementation issues associated with offsetting that undermine the reliability of this as a measure to maintain biodiversity and other values.
- EBA8 –
 - The relationship between the Reef 2050 Plan and the Australian Government’s Strategy for Ecologically Sustainable Development should be identified
 - Further guidance will be required on the interpretation of the term “sustainable” and application of sustainability principles to allow effective implementation of this action. For



example, what sort of trade-offs will be allowed when determining whether practices are sustainable?

- EBA12 –
 - The use of pilots should be considered as a way to reduce risk of shipping incidents

2.8 Governance for Plan Delivery

The EIANZ's earlier comments include a number of comments on governance issues and the regulatory framework supporting protection and management of the OUV of the GRBWA. As with targets and actions throughout this draft document, timeframes need to be specified.

It is of concern that the funding requirements and arrangements have not been made more explicit. The EIANZ notes that GT4 sets a target that investment be prioritised using "evidence-based risk assessment". A clearer methodology should be specified that takes into account the importance or sensitivity of the particular values or features at risk, the magnitude of the impact or potential impact, reversibility and potential for rehabilitation, and the potential effectiveness of the measures to be taken. As mentioned earlier, the EIANZ notes that "precautionary principle" states that lack of scientific certainty (inability to indisputably demonstrate cause and effect relationships) should not be used as a reason to put off taking action to protect environmental values from potential adverse impacts.

People are the most important asset and resource for protection of the reef. There is no dedicated training for reef managers, industry or community. It is suggested that the LTSP include "SMART" targets and indicators around improving capacity of reef managers, industry and the community to better understand the issues and assist with implementation of the LTSP.

According to Grech et al (2013) the current governance arrangements (regulatory, administrative, operational) are inhibiting the effective management of key issues such as port management in the GRBWA and need to be significantly improved around four themes: governance systems, planning and location of ports, assessment and decision process, and ecosystem services. The EIANZ suggests:

- A new objective, "Improve governance in the GRBWA by federal, state, industry and community by developing an integrated governance system covering planning, assessment and decision processes"
- A new action "Initiate a GRBWA Training and Education centre to transfer knowledge about the reef, issues, governance, planning, assessment and decision process, ecosystem services management and leadership by 2018".

Some specific comments in relation to this section are:

- GO1 – More detail on the proposed Intergovernmental Operating Committee would give more confidence in the likelihood of effective implementation of the Reef 2050 Plan. It would be appropriate to set out the terms of reference of this Committee, the powers that will be ascribed to the committee and funding arrangements.
- GA2 – More detail is also needed on the roles, functions, make-up and funding arrangements for the proposed multi-sectoral Reef Advisory Committee to give confidence that this committee will be effective. It is not clear why GBRMPA is the only stakeholder identified for this action.
- GO3 – as mentioned earlier, the use of an adaptive management framework is supported, but the EIANZ notes that adaptive management must be underpinned by
 - (a) clear definition of the performance criteria and outcomes sought (the EIANZ does not consider that the Reef 2050 Plan, as it stands, provides the level of clarity required in this regard)
 - (b) identification of appropriate indicators that can be used to monitor whether the performance criteria and outcomes are being achieved



- (c) a comprehensive monitoring program that includes regular review and evaluation of monitoring data to allow for early detection of any trends away from the required performance criteria
- (d) pre-determined contingency measures that can be adopted in the event that monitoring indicates that performance criteria are not being met and availability of funding to implement these measures without delay.
- GT5 – the frequency of monitoring, reporting and review activities should be specified
- GA3 – The EIANZ supports updating the GBR Intergovernmental Agreement to include OUV, but also notes that there is a wide range of other agreements, policies, plans, strategies and programs that should also be updated to include specific reference to (and actions to protect and manage) the OUV of the GBRWHA.
- GA10 – The EIANZ recommends that the ISC or a similar body should be involved in technical review of all environmental impact statements and planning approval applications (for larger developments) as well as management plans that are required to be produced by industrial users of the GBRWHA.

3. Implementing the Plan

The EIANZ is concerned with the lack of detail presented in this section. The text appropriately identifies the importance of partnerships between various stakeholders but it is of concern that only one example is given, and that being an example that pre-dates the Reef 2050 Plan, and there is no firm commitment to form similar partnerships and programs in other locations or contexts. The EIANZ's preference would be for this document to set out proposals for actual programs and partnerships rather than imply that these will be created in the future.

Adaptive management is again mentioned and the EIANZ's earlier comments in this regard are relevant here.

Further plan preparation is proposed in the form of regional and sectoral implementation plans. The EIANZ is concerned that this detail is lacking at this stage of the process, given the amount of time that has elapsed since UNESCO's concerns regarding management of the GBRWHA were initially raised and the level of effort that has been expended to date. The EIANZ is concerned that action to address issues affecting management and protection of the OUV of the GBRWHA will be further delayed while these more detailed plans are developed.

The EIANZ suggests that partners in the plan's delivery should also include:

- Environmental assessment and management professionals, such as those represented by EIANZ
- Recreational user interest groups.

In addition, "Reef associated industries" should include the entire resource sector, not just mining, and also the manufacturing sector.

4. Integrated Monitoring and Reporting Program

As discussed earlier, the EIANZ considers it is critical that comprehensive follow up of the actual impacts recent developments in and adjacent to the GBRWHA be undertaken. This follow up should cover:

- Review of monitoring data to determine, as best as possible, the actual impacts, that is, the actual changes that occurred in the receiving environment as a result of the actions being undertaken. This would give critical information on the consequences of these actions which would, in turn, inform future decision-making regarding future actions as well as ongoing management of existing activities
- Comparison of the actual impacts with predicted impacts. This may include validation of water quality models and other prediction tools used by proponents in environmental impact assessment.



This would help to improve the accuracy of prediction of impacts in environmental impact assessment.

- Review of the effectiveness of the various management and mitigation measures proposed and implemented by proponents.

The EIANZ supports the establishment of an integrated monitoring and reporting program, but is disappointed that this program was not started earlier. In relation to the timeframes proposed, the EIANZ considers that it is unacceptable to delay the operationalisation of the program to 2016/2017.