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Water Corporation

Report for Southern Seawater
Desalination Plant

Planning and Approvals Stage
Sustainability Review

February 2008

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1. Introduction

GHD has been commissioned by the Water Corporation to conduct a sustainability review of the Southern Seawater Desalination Project (SSDP) as part of the planning & approvals stage of the project. The sustainability review supplements the other key planning & approvals documents, including the Public Environmental Review (Water Corporation, 2008c) and the Social Impact Assessment Report (GHD, 2008).

As announced by the Premier of Western Australia on 15th May 2007, the SSDP is to be located at Binningup in the South West of Western Australia and will initially provide 50 GL/year of water into the Integrated Water Supply System (IWSS) servicing Perth and connected areas of the state, with the intent to upgrade to 100 GL/year in the future. The planning & approvals stage of the project commenced immediately following this announcement, for the purpose of obtaining environmental and other approvals for the project.

The purpose of the sustainability review is to document the Water Corporation's performance against its own Sustainability Business Principles at this point in the project and to develop a sustainability map specifically for the SSDP to guide future decision-making and reviews.

2. Background and Context

This section describes the context within which the planning & approvals stage sustainability review has been conducted, and how this review relates to other project sustainability initiatives.

The SSDP history and technical information is provided in detail elsewhere (see for example GHD, 2007 and Water Corporation of Western Australia 2008c) and is not discussed further here.

2.1 Project decision-making stages

Decision-making with respect to the planning, design and implementation of the Southern Seawater Desalination Plant (SSDP) project can be considered in four distinct stages, from the most strategic to the most detailed:

1. The type of water source to be developed;
2. The location for the infrastructure;
3. Planning and approvals;
4. Detailed design, construction, operation and maintenance.

The Western Australian Government made the first decision on behalf of the community when it was decided not to proceed with the Water Corporation's preferred option of developing the proposed South West Yarragadee Water Supply, and to develop a new desalination plant instead. While both of these alternatives were part of the Water Corporation's *Security Through Diversity* strategy, the Corporation's preference was to develop the South West Yarragadee as the next major water source for the IWSS.

The second decision regarding the location of the new desalination plant was also made by Government, though on the basis of planning undertaken by Water Corporation on its behalf to identify an appropriate site for such a plant. This site selection process incorporated social, environmental and economic considerations as discussed further in Section 2.2.1.

The first two stages of decision-making were effectively completed when the Premier of Western Australia announced on 15 May 2007 that the next water source for the Integrated Water Supply System (IWSS) would be a desalination plant located at Taranto Road, Binningup.

The third stage, planning & approvals (P&A), involving planning, preliminary design, and definition and design, is currently nearing completion. This sustainability review document relates to this stage of the project.

The detailed design, construction, operation and maintenance (DCO&M) stage (Stage 4) of the project will be delivered through an Alliance partnership between Water Corporation, a process provider/operator (PPO) and constructor. Many decisions that will affect the overall sustainability of the project cannot be made until the Alliance is selected and the terms and conditions of the Alliance contract established. Although planning and design are very closely linked and to some degree iterative in most projects, they are distinct in the context of the SSDP because of the key milestone of the establishment of the Alliance contract.

2.2 Sustainability and the SSDP

This planning & approvals stage sustainability review represents just one way in which the Water Corporation is incorporating sustainability considerations into the SSDP. Some of the other sustainability initiatives are discussed further below.

2.2.1 Site selection process

As already discussed, the Water Corporation's preferred option was to proceed with the South West Yarragadee Water Supply as the next main source supplying the IWSS. However, desalination is also a component of the Corporation's *Security through Diversity* strategy (Water Corporation of Western Australia, 2005), and hence some planning had already commenced to identify possible locations for future desalination plants. This is documented in the report entitled *Second Seawater Desalination Plant Site Alternatives and Considerations* (Water Corporation of Western Australia, 2007a).

The identification of Binningup as an appropriate site for a desalination plant was based upon the consideration of possible sites between Jurian and Bunbury that met technical, financial, social and economic criteria. Specifically, it was determined that an appropriate site should:

- be close to the ocean;
- offer easy integration into the Integrated Water Supply Scheme;
- offer access to a suitable power source;
- be environmentally compatible, with minimal environmentally sensitive areas;
- be at least 10ha in size to accommodate plant components;
- have available buffers required for chlorination facilities;
- have compatible surrounding land uses (industrial, rural, park and recreation);
- ideally, be Corporation owned.

Subsequently, and in response to community requests, further analysis was undertaken by engineering firm Worley Parsons to compare the Binningup site with two possible sites within the Kemerton Industrial Park. This review was also based on economic, social and environmental considerations and confirmed the Binningup site to be the most suitable (WorleyParsons, 2007).

While neither of these processes could be considered a full sustainability assessment in accordance with Water Corporation's Sustainability Business Principles, they did take into consideration a broad spectrum of sustainability considerations. However, opportunities to fully involve the community and other stakeholders were missed during this stage of decision-making.

2.2.2 Planning & approvals

In recognition of the limitations of the early stages of decision-making for the SSDP, Water Corporation has made considerable efforts to promote community input into sustainability outcomes and processes in subsequent stages of decision-making, as far as possible within the constraints established by the earlier decisions.

This commitment is evidenced by a number of actions taken by Water Corporation during the P&A stage of the project, including: the extensive programme of community engagement (described in Chapter 3 of Water Corporation of Western Australia 2008c) that began immediately following the Premier's announcement with meetings in Binningup and Myalup on 29 and 30 May 2007; commissioning the Social Impact Assessment (SIA), despite the lack of legal requirement to do so; the extensive communications process; the conduct of this sustainability review itself (discussed in more detail in Section 3); and the inclusion of sustainability considerations in the Request for Proposals for Alliance partners as discussed in Section 2.2.3 below.

2.2.3 Alliance Request for Proposals

Many key decisions affecting the overall sustainability performance of the SSDP will be made during the DCO&M stage (Stage 4) of the project by the Alliance partnership. The selection of the Alliance partners and the development of the terms and conditions of the Alliance contract therefore provide significant opportunities to further enhance the sustainability of the SSDP.

This potential was recognised by the Water Corporation in its Request for Proposals to form Alliances to design and construct, and to operate and maintain the Southern Seawater Desalination Plant issued on 29th September 2007 (Water Corporation of Western Australia, 2007d). The Request for Proposals establishes the requirements that Water Corporation has placed upon its Alliance partners, and includes several specific references to sustainability:

- The Project Objectives;
- The requirement that proponents complete a self-assessment under the Water Corporation's Water Scores Benchmarking Program, which is aligned with the Corporation's Sustainability Business Principles (see 2.2.4 below);
- The commitment to establishing an Alliance culture that embraces the Water Corporation's Sustainability Business Principles.

2.2.4 Water Scores Benchmarking Program

The Water Corporation's Water Scores Benchmarking Program has been developed as a means of assessing and benchmarking the performance of contractors and partners contributing to the delivery of Water Corporation's projects (Water Corporation of Western Australia, 2007a).

At the heart of Water Scores is a series of sustainability benchmarks based upon the Water Corporation's Sustainability Business Principles and the Australian Business Excellence Framework. The benchmarks specifically reflect the construction stage of projects, and interpret the Sustainability Business Principles accordingly. Project delivery partners are required to assess their own performance in six-monthly 'waves', using the on-line Water Scores Application.

Potential Alliance partners were required to conduct a preliminary self-assessment as part of the Request for Proposals process. Water Corporation has indicated that Water Scores will continue to the primary mechanism by which the sustainability of the SSDP will be monitored and managed throughout the DCO&M stage.

3. Planning & Approvals Stage Sustainability Review

This sustainability review has been undertaken as a key component of the planning & approvals stage of the SSDP. It draws heavily upon other work undertaken during this stage, particularly the environmental and social impact assessments (Water Corporation of Western Australia 2007g and GHD, 2007).

The sustainability review has three components:

- The development of a SSDP sustainability map identifying relevant sustainability considerations (columns 1 and 2 of the table in Section 4);
- Documenting and reviewing P&A stage actions, decisions and commitments in the context of the sustainability map (column 3); and
- Making recommendations for future stages of the SSDP (column 4).

3.1 Development of the SSDP Sustainability Map

Key to the sustainability review is the development of an SSDP sustainability map for this stage of the project. The sustainability map is based upon the Water Corporation's Sustainability Business Principles, which incorporate and build upon the National Strategy for Ecologically Sustainable Development (NSES) principle to which the EPA's sustainability objective refers. It essentially translates the Sustainability Business Principles into sustainability aspects that are relevant to this project, thus providing the context within which:

- Performance can be assessed at key points in the process, and
- Future decisions can potentially be made.

3.1.1 Sustainability Business Principles

The basis of the sustainability review is the Water Corporation's eighteen Sustainability Business Principles, which have been developed to govern how the Corporation conducts its business. The principles are structured into six key dimensions, with three principles in each of these six dimensions.

The first three dimensions represent the traditional triple bottom line dimensions of social, economic and environmental outcomes, and cover what might be considered 'Outcome Principles.' These Outcome Principles are aspirational, acknowledging that the current state is not yet sufficient, and recognising that there will always be new opportunities to further improve the sustainability performance of our activities and to enhance social, economic and environmental value.

The remaining three dimensions of ethical, stakeholder, and governance might be considered as 'Process Principles', describing the ethos and approach to be adopted in all behaviours and decision making, which will facilitate positive outcomes in the traditional triple bottom line impact areas. These Process Principles might also be thought of as an expansion of the 'governance' dimension referred to in the recently emerging concept of the 'quadruple bottom line.' Process

Principles recognise that sustainable outcomes are only possible if the manner in which issues are approached is itself properly considered and thoughtful.

Hence the Water Corporation's Sustainability Business Principles have a balanced structure, with three dimensions of Outcome Principles on the one hand, facilitated and supported by three dimensions of Process Principles on the other.

Within each of these six dimensions – both Outcome and Process dimensions – are three specific principles (eighteen in total). Again, the three principles form a common structure across all dimensions.

The first principle focuses on preventing harm within each dimension, the second is aimed at preserving current value, whilst the third encourages the creation of positive value within each area.

Consequently, the eighteen Sustainability Business Principles provide the Water Corporation with a comprehensive framework to consider all aspects of its business and provide guidance with specific focus on preventing harm, maintaining value, and enhancing value in each of the areas.

3.1.2 Sustainability Aspects

The SSDP sustainability map translates the Sustainability Business Principles into project-specific sustainability aspects. This process has been conducted by GHD in collaboration with Water Corporation personnel, particularly members of the Sustainability Team. The sustainability aspects were developed with the aims of:

- Reflecting as comprehensively as possible the intent and meaning of the Water Corporation's Sustainability Business Principles;
- Including significant environmental and social impacts identified in the environmental scoping document and SIA report respectively¹;
- Maximising consistency with the Water Scores Benchmarking Program.

The SSDP sustainability map presented in Section 4 of this document includes a broader range of sustainability aspects than the Water Scores benchmarks. This reflects a different focus. Water Scores has been designed specifically for the construction stage of projects, during which opportunities to enhance sustainability are somewhat limited. On the other hand, the planning & approvals stage offers broad scope for enhancing sustainability in terms of both outcome and process.

3.2 Sustainability review methodology

It is important to note that this is not an independent review by GHD of Water Corporation's performance with respect to sustainability during this stage of the project, but rather a self-assessment by Water Corporation, facilitated and verified by GHD.

Its intent is to reflect the current status of the project with respect to sustainability outcomes and process by drawing together the outcomes of a number of key planning & approval activities; to

¹ With respect to social aspects assessed in the SIA, only those determined to be moderate or high significance impacts have been included in the SSDP sustainability map (GHD, 2008).

document actions taken and decisions and commitments made; and to recommend actions that should be taken to ensure not only that these decisions and commitments are implemented in later stages of the SSDP but that future projects learn from the SSDP experience.

3.2.1 Review of P&A stage actions, decisions and commitments

The sustainability review has been conducted at a point at which the project is still in its planning and preliminary design phase. It therefore reflects the best available information regarding the sustainability performance of the project at this time, reviewing and documenting actions, decisions and commitments made to date that relate to the potential impacts (for outcome principles) and performance to date (for process principles).

The review has been conducted through:

- Discussions with Water Corporation personnel, including members of the SSDP team and the Water Corporation's Sustainability Team;
- Review of project documentation;
- Review of existing Water Corp policies and other documentation, noting that although the Alliance will develop its own policies, existing Water Corporation documentation may provide a useful basis;
- Reflections on performance in the context of best practice sustainability decision-making.

3.2.2 Comments and Recommendations

A large number of decisions and commitments have been made during the planning & approvals stage of the project with the intent of improving the sustainability of the project in terms of both outcomes and process. These are captured in Section 4 of this document and it is vitally important that Water Corporation ensures that they are carried through to the design, construction, operation and maintenance of the SSDP. Comments and recommendations have been made against each sustainability aspect where appropriate for the purpose of facilitating this project continuity. More general conclusions and recommendations are drawn in Section 5 of this document.

4. SSDP Planning & Approvals Stage Sustainability Review

The following table incorporates both the SSDP sustainability map (columns 1 and 2) and the results of the planning & approvals stage sustainability review (column 3) together with comments and recommendations (column 4). The sustainability review draws together various activities undertaken during this stage of the project and therefore refers extensively to other documentation. These references are abbreviated in the table for simplicity as follows:

- 'SIA' refers to GHD, 2007
- 'ESD' refers to Water Corporation of Western Australia, 2007c
- 'PER' refers to Water Corporation of Western Australia, 2008c
- 'Draft Construction EMP' refers to Water Corporation of Western Australia, 2008a
- 'Draft Operations EMP' refers to Water Corporation of Western Australia, 2008b
- 'Pipeline workshop report' refers to Water Corporation of Western Australia, 2007b
- 'Summit tank site assessment' refer to GHD, 2007a
- 'Trunk main preliminary route assessment' refers to GHD, 2007b
- 'Security through diversity policy' refers to Water Corporation of Western Australia, 2005

4.1 Outcome Principles

Sustainability Business Principle	Sustainability Aspects	Planning & Approvals Stage Actions, Decisions and Commitments	Comments and Recommendations
Social			
Protect the health and safety of all and support the wellbeing of our employees and customers	<p>Health and safety:</p> <p>Occupational health and safety</p> <p>Public safety and risks as a result of chemical and fuel spillage / leaks (SIA&ESD)</p> <p>Public safety and risk from construction activities (SIA&ESD)</p>	<p>Relates primarily to DCO&M stage of project, and only considered in general terms in P&A stage. Issues are mentioned separately in several different documents:</p> <p>Public safety and risk issues identified in both SIA & ESD/PER. The PER also makes management and mitigation recommendations;</p> <p>Draft Construction EMP addresses some aspects of occupational health and safety and public safety and risk.</p>	<p>Health and safety should be addressed during DCO&M stage. Consideration should be given to:</p> <p>Management and mitigation recommendations in PER;</p> <p>Draft Construction EMP;</p> <p>Existing Water Corporation policies, including:</p> <p>S028 Occupational Safety and Health Management System Manual and</p> <p>S152 OSH Handbook for Construction Site Hazards</p>
	<p>Personnel wellbeing</p> <p>Labour relations and meaningful work</p> <p>Best people for the right jobs</p> <p>Equity and diversity</p> <p>Career transition at end of project</p>	No decisions made at the P&A stage.	<p>To be addressed during DCO&M stage. Consideration should be given to existing Water Corp policies and guidelines, including:</p> <p>PCY244 Recruitment and Selection</p> <p>PCY292 Equity and Diversity</p> <p>Guideline - Equal Employment Opportunity in Selection and Recruitment</p>

Sustainability Business Principle	Sustainability Aspects	Planning & Approvals Stage Actions, Decisions and Commitments	Comments and Recommendations
	<p>Community wellbeing (construction):</p> <p>Increased demand on community facilities and services (SIA)</p> <p>Increased traffic causing delays and increased risks during construction (SIA)</p> <p>Noise, lighting, dust and vibrations (SIA&ESD)</p> <p>Disruption to business (SIA)</p> <p>Disruption to properties along the pipeline (SIA)</p> <p>Impacts of construction on visual amenity (plant, tanks, pipeline, overhead powerlines) (SIA)</p> <p>Increase in cost of labour for industries and businesses in the region (SIA)</p>	<p>Issues are identified in the SIA (and ESD/PER) and management and mitigation recommendations have been made to the extent possible. However, many key decisions affecting community wellbeing have not yet been made, as noted in the SIA report, including:</p> <p>Location of construction camp (if required);</p> <p>Traffic routes during construction and operation;</p> <p>Power transmission line route;</p> <p>Workforce composition;</p> <p>The commitment has been made in the PER that the reverse osmosis building and lime silo will be no higher than 4m and 18m above surrounding ground level, respectively, to minimise loss of visual amenity;</p> <p>The Draft Construction EMP discusses in broad terms: traffic management, noise and vibration management;</p> <p>It is normal Water Corp practice to put procedures in place to ensure community is notified well in advance of disruptive activities;</p> <p>Water Corp will communicate directly with affected landowners along the pipeline route during construction.</p>	<p>Appropriate management and mitigation strategies should be developed as these key decisions are made and included in the proposed Social Impacts Management Plan (SIMP).</p>

Sustainability Business Principle	Sustainability Aspects	Planning & Approvals Stage Actions, Decisions and Commitments	Comments and Recommendations
	<p>Community wellbeing (operations):</p> <p>Increased provision and security of water supply to IWSS (SIA)</p> <p>Noise and light (SIA)</p> <p>Impact on visual amenity (plant and summit tanks) (SIA&ESD/PER)</p>	<p>The SSDP will increase security of water supply to the IWSS (i.e. the broader community), a positive benefit that the SIA report notes is recognised by the community. Water security will be further enhanced when the SSDP is upgraded to 100 GL/year.</p> <p>Water Corp has made public commitments relating to community amenity that include the following (as currently documented in the SSDP Communications Plan):</p> <p>At the boundary of the desalination plant, noise levels will be below the sound of the ocean;</p> <p>The plant will be virtually unnoticeable from the beach;</p> <p>Lighting at the plant will be no more intrusive than normal street lighting.</p> <p>The commitments relating to noise and light have subsequently been revised so that they are legally enforceable and auditable, as follows (documented in the PER):</p> <p>The Water Corporation will comply with the <i>Environmental Protection (Noise) Regulations 1997 (WA)</i> for the construction and operation of the plant;</p>	<p>While it is appropriate that commitments made to the community have been reworded to ensure they are legally enforceable and auditable, the new commitments may not be consistent with the original commitments and therefore may not be considered acceptable by the community;</p> <p>It is important that commitments made during the P&A Stage are adhered to during the DCO&M stage of the project;</p> <p>The Operations EMP should include mitigation and management strategies for noise and light.</p>

Sustainability Business Principle	Sustainability Aspects	Planning & Approvals Stage Actions, Decisions and Commitments	Comments and Recommendations
		<p>The desalination plant designers will be instructed to design lighting to minimise light projection from the Southern Seawater Desalination Project (SSDP) Plant site as far as practicable (while remaining in compliance with the Occupational Safety and Health Act 1984 (WA) for operator safety);</p> <p>No specific commitment relating to visual amenity has been included in the PER;</p> <p>Important decisions have already been made to minimise the visual impact of the plant, most significantly the decision to purchase a portion of Lot 8, adjacent to Water Corporation's existing wastewater treatment plant but further back from the beach. The intake pump station will be located behind the primary dunes to reduce visibility from the beach and pipework will be buried. Furthermore, three sides of the plant site (Lots 8, 32 and 33) will be planted with screening vegetation.</p>	

Sustainability Business Principle	Sustainability Aspects	Planning & Approvals Stage Actions, Decisions and Commitments	Comments and Recommendations
Respect the values of all	<p>Community values:</p> <p>Impacts on community character and amenity (SIA)</p> <p>Impact on community cohesion (including crime and antisocial behaviour) (SIA)</p>	<p>As indicated in the SIA report, it is not possible to predict at this stage what effect the SSDP will have on community character and amenity. However, it is important to note the following:</p> <p>Water Corp is committed to minimising the nuisance effects of the plant as per above (noise, light, visual amenity);</p> <p>The proposed SSDP is one of a number of changes currently taking place in the area, including the recent proposal by Mirvac and Binningup Nominees Pty Ltd to develop immediately south of the plant site.</p> <p>The SIA report identifies crime and anti-social behaviour as a factor affecting community cohesion, and suggests that these impacts will depend on the location, nature and management of particularly the construction workforce, issues that cannot be addressed until key decisions regarding the construction workforce are made (see above).</p>	<p>Decisions around the location, make-up and management of the construction workforce should be made with the aim of minimising crime, anti-social behaviour and maximising community cohesion (refer to SIA report).</p>
	<p>Respect for culture, heritage and diversity (ESD/PER):</p> <p>Indigenous heritage and Native Title</p> <p>Non-indigenous heritage</p>	<p>The Department of Indigenous Affairs database of previously recognised places and objects that are of Aboriginal significance has been searched, and none of the sites will be impacted by the proposal. Further archaeological surveys of the proposed SSDP site and pipe route will be</p>	<p>The commitment to conduct further archaeological surveys of the proposed SSDP site and pipe route should be incorporated into DCO&M management systems.</p>

Sustainability Business Principle	Sustainability Aspects	Planning & Approvals Stage Actions, Decisions and Commitments	Comments and Recommendations
		<p>undertaken prior to ground disturbing activities in consultation with the DIA and local claimant groups (ESD/PER).</p> <p>No shipwrecks have been located off the coast at Binningup (ESD/PER)</p>	
Enhance community capacity	<p>Community capacity:</p> <p>Opportunities for community participation in proposal development</p> <p>Educational opportunities (water, environmental issues)</p> <p>Community development through sponsorships</p> <p>Employment, training and skills development</p> <p>Indigenous employment opportunities</p>	<p>Opportunities for community involvement in proposal development have been limited, due to the project background described earlier, with the exception of the Pipeline Route Workshop in which community members had a real opportunity to have input into the decision;</p> <p>Throughout the P&A Stage, Water Corp has offered education to the community through community meetings, newsletter, project brochure and fact sheets, the provision of information on the project web site, and tours of the Kwinana Desalination Plant;</p> <p>Workforce capacity building has not been considered at the P&A Stage.</p>	<p>Further community education opportunities should be sought during the DCOM Stage of the project</p> <p>Sponsorship opportunities directed at enhancing community capacity should be sought.</p> <p>Workforce capacity building, including indigenous employment opportunities, is the responsibility of the Alliance contract during the DCOM State of the project.</p>
Economic			
Preserve our capacity to provide water services to meet present and future needs	<p>Project management:</p> <p>Cost management</p> <p>Risk management</p> <p>Scheduling (available when needed)</p>	<p>Water Corp is managing the SSDP as a fast-track project and uses project management tools and systems for scheduling and cost management. Weekly scheduling meetings are held and the project is currently on track. The fast track approach, with many activities in parallel has some implications for</p>	<p>Project management will become the responsibility of the Alliance during the DCO&M stage</p>

Sustainability Business Principle	Sustainability Aspects	Planning & Approvals Stage Actions, Decisions and Commitments	Comments and Recommendations
	Fit for purpose	governance (see below).	
	Asset management: Design Reliability and longevity Operability and maintainability Plant performance	The Alliance partnership will be responsible for design, construction, operation & maintenance, an approach that can be expected to promote good asset management. Specific asset management issues will be addressed in the DCO&M stage.	To be addressed in DCO&M stage
	Capacity of water industry in WA: Maintenance of skilled resources (see also <i>Stakeholders</i> below) Maintenance of environmental assets	No consideration yet given to enhancing and maintaining the capacity of water industry resources; SSDP is a climate-independent source, thus preserving other water potential sources for the future.	Opportunities to maintain capacity of suppliers and water industry workers should be considered in the DCO&M stage (see also <i>Stakeholders</i> below)
Find efficiencies that reduce internal and external costs	Resource efficiency (see also Environment): Energy Consumables Materials	No decisions made at time of review, as resource efficiency is heavily dependent on plant design. However, the structure of the Alliance contract, which will be in place for 25 years, covering design, construction, operation and maintenance, encourages resource efficient design and operations.	Consideration should be given to resource efficiency in the DCO&M stage.
	Cost accounting: Whole of life costing Full cost accounting – i.e.	Not conducted. However, Alliance contract structure promotes whole of life accounting approach (see also <i>Resource efficiency</i> above).	

Sustainability Business Principle	Sustainability Aspects	Planning & Approvals Stage Actions, Decisions and Commitments	Comments and Recommendations
	no externalities (no cost shifting to partners, stakeholders or suppliers)		
	Process efficiencies: Elimination of duplication in engineering Elimination of duplication in decision-making	Civil works for the maximum plant capacity of 100GL/year will be completed in the first (50 GL/year) phase of the project in order to reduce duplication and minimise disruption to the community; The fast-track project schedule, whereby many activities are conducted simultaneously, increases the risk of duplicated effort. This is discussed further under <i>Governance</i> below.	
Enhance the economic value to our customers, suppliers and the community while delivering shareholder returns	Local economic community: Increased local economic activity (SIA) Local business efficiency and effectiveness Contractor and supplier development	While the SIA identified the potential for increased local economic activity as a result of the project, the overall impact is predicted to be low; No decisions have been made at this point regarding the local contractors and suppliers, or the use of local services.	Opportunities should be sought during the DCO&M stage to work with local contractors and suppliers, to enhance capacity to create mutual benefit to Water Corporation as well as the local businesses.
	Western Australian economic community: Affordability of asset over life (return on assets) Enhancement of Western	Water Corporation is responsible under the <i>Water Corporation Act</i> (1995) for delivering cost effective water supplies to the community of Western Australia, and desalination has been identified as an appropriate water source according to the	

Sustainability Business Principle	Sustainability Aspects	Planning & Approvals Stage Actions, Decisions and Commitments	Comments and Recommendations
	Australian economy	<p><i>Security through Diversity Policy;</i></p> <p>Water Corporation and the Premier have committed that the SSDP will be powered by renewable energy. However, Water Corp has gone further than this in specifying in its call for Expressions of Interest that 20% of this renewable energy should come from unproven/sub-economic sources;</p> <p>SSDP contributes to the security of the IWSS and therefore to WA industries that depend on water (e.g. garden industry).</p>	
Environment			
Prevent harm to the environment	Terrestrial (PER): Flora Fauna (including subterranean) Wetlands and watercourses Dewatering and acid sulphate soils Stormwater Soil contamination Wastes	<p>Impacts on flora and fauna have been minimised through the selection of infrastructure sites as documented in the Pipeline selection report, Summit tank preliminary site assessment and Trunk main preliminary route assessment;</p> <p>The decision to purchase part of Lot 8 (which is mostly quarry) and identification of construction and rehabilitation areas on Lot 8 (presented to the community on 3 December 2007) represent significant commitments to minimise impacts on flora and fauna;</p> <p>According to the PER, EPA objectives with respect to all of these factors can be met during both construction and operations.</p>	Construction and Operations EMPs will become the responsibility of the Alliance partnership during the DCO&M stage.

Sustainability Business Principle	Sustainability Aspects	Planning & Approvals Stage Actions, Decisions and Commitments	Comments and Recommendations
		Impacts will be managed in accordance with the Construction and Operations EMPs.	
	Marine (PER): Benthic habitat (marine flora) Marine fauna Coastal processes Marine dilution and dispersion (hydrodynamics) Marine water quality and sediment quality Waste management Eco-toxicity and Marine Protection Areas	According to the PER, EPA objectives with respect to all of these factors can be met during both construction and operations. Impacts will be managed in accordance with the Construction and Operations EMPs.	Several important decisions that relate to potential marine impacts remain to be made during the DCO&M stage, including the number of intake pipes (1 or 2), the pipeline construction methods and the design of the outfall diffuser. Environmental impacts should be taken into consideration in making the final decisions; Potential impacts will be managed through the Construction and Operations EMPs.
	Atmospheric (PER): Greenhouse gases emissions Particulate matter (dust)	The decision to locate the SSDP close to the ocean (Site Selection Report) helps to minimise energy usage and therefore greenhouse gas emissions; Furthermore, the commitment has been made that, subject to availability, 100% of the energy requirements to operate the SSDP will come from renewable energy with 20% from technology currently commercially unproven; The commitment has therefore been made in the PER that there will be zero net	Potential impacts will be managed through the Construction and Operations EMPs.

Sustainability Business Principle	Sustainability Aspects	Planning & Approvals Stage Actions, Decisions and Commitments	Comments and Recommendations
		<p>greenhouse emissions associated with purchased energy;</p> <p>According to the PER, EPA objectives with respect to all of these factors can be met during both construction and operations. Impacts will be managed in accordance with the Construction and Operations EMPs.</p>	
Conserve the values of the environment	Resource efficiency (see Economic)		
	<p>Conservation of ecosystems (integrity, connectivity, habitat):</p> <p>Wetlands</p> <p>Terrestrial</p> <p>Marine</p>	<p>As discussed above, infrastructure sites have been selected to conserve ecosystems as much as possible;</p> <p>According to the PER, all EPA objectives, many of which relate to conserving ecosystems, will be met.</p>	
Enhance the resilience of the natural and human environment	<p>Enhancement of ecosystems (integrity, connectivity, habitat):</p> <p>Wetlands</p> <p>Terrestrial</p> <p>Marine</p>	<p>The commitment is made in the PER that 10ha of degraded vegetation on the Lot 8 site will be rehabilitated (in addition to the rehabilitation of the construction areas.</p>	

4.2 Process Principles

Sustainability Principle	Sustainability Aspects	Planning Stage Actions, Decisions and Commitments	Comments and Recommendations
Ethical			
Meet our legal requirements and do the right thing	<p>Legal requirements, due diligence and 'the spirit of the law':</p> <p>Contractual (including International Labour Organisation standards)</p> <p>Environmental</p> <p>OSH</p> <p>Native Title and Aboriginal heritage</p>	<p>Legal requirements applicable to the SSDP are identified in the PER document;</p> <p>During the P&A stage legal requirements have been met with respect to the environmental approvals process (<i>Environmental Protection Act 1986</i>), Native Title checks (<i>Native Title Act 1993</i>) and aboriginal heritage reviews (<i>Aboriginal Heritage Act 1972</i>) (refer to PER);</p> <p>Water Corporation has also gone beyond legal requirements in some cases, e.g. the conduct of the SIA;</p> <p>Some aspects of OSH have been given preliminary consideration (e.g. in draft Construction and Operations EMPs) but this will be taken up in the DCO&M stage along with contractual issues.</p>	<p>Procedures and management systems addressing contractual, as well as occupational health and safety requirements to be developed in DCO&M stage;</p> <p>The EPA Bulletin that will be issued based on the PER will contain legally binding commitments in the form of Ministerial Conditions, and it therefore vital that processes be put in place during the DCO&M stage to ensure compliance with these conditions;</p> <p>Processes are also required to ensure that any aboriginal artefacts uncovered during construction are dealt with in accordance with the <i>Aboriginal Heritage Act 1972</i>.</p>
Be accountable for our business and responsible for our actions	<p>Accountability means:</p> <p>Following through on commitments</p> <p>Responsiveness to incidents</p> <p>Acceptance of responsibility for actions</p>	<p>Water Corp is proposing to develop a Community Brief documenting all non-environmental commitments made during the P&A stage. This is commended;</p> <p>Incident management will be addressed during the DCO&M stage.</p>	<p>The Community Brief should be prepared as planned and subsequently managed through the Alliance partnership;</p> <p>Construction and Operations EMPs should include appropriate incident response procedures.</p>

Sustainability Principle	Sustainability Aspects	Planning Stage Actions, Decisions and Commitments	Comments and Recommendations
Be trustworthy in our actions and honest in our communications	<p>Communications:</p> <p>Full and frank disclosure</p> <p>Regular communications</p> <p>Timely communications</p>	<p>Communication with the local communities in Binningup and Myalup commenced immediately following the Premier's announcement of 15 May 2007, in a spirit of openness (as evidenced by the items including presentations and Q&As available on the project website www.watercorporation.com.au/D/desalination_plant2.cfm);</p> <p>A Communications Plan has been developed during the P&A stage, proposing a wide range of types of communication with the community and other stakeholders. Many of these have been implemented during the P&A stage, including the provision of fact sheets, newsletters, presentations and briefings, advertising, Water Corp participation in local events, an open house on 2 December 2007 (sausage sizzle on the SSDP site), maintenance of a website (as above), and a dedicated project email address (desalination@watercorporation.com.au). Further details are provided in Chapter 3 of the PER document;</p> <p>Communications regarding disruption to community and incident management to be considered in the DCO&M stage.</p>	<p>Chapter 3 of the PER makes commitments with respect to ongoing communications processes that must be addressed by the Alliance partnership;</p> <p>The Communications Plan includes some additional recommendations for the construction phase of the project that should be considered by the Alliance partnership. These include: site boards and signage, viewing platform, time-lapse photography, DVD series;</p> <p>As discussed under <i>Social – community wellbeing (construction)</i> it is normal Water Corporation practice to put procedures in place to ensure community is notified well in advance of disruptive activities – this will be the responsibility of the Alliance partnership;</p> <p>Incident response procedures to be developed during the DCO&M stage should be based upon the principles of full and frank disclosure and timely communications.</p>
Stakeholders ²			

² 'Stakeholders' in this case refers to Government (as shareholder) and regulatory stakeholders who control Water Corporation's mandate to operate. Local community processes, concerns and engagements considered under *Governance* below.

Sustainability Principle	Sustainability Aspects	Planning Stage Actions, Decisions and Commitments	Comments and Recommendations
Maintain our mandate to operate our water business	Provision of water supplies: Timely project delivery Access to water	The severity of water restrictions will be minimised by the on-time delivery of the SSDP; The decision to proceed with the SSDP, a climate-independent water source, preserves capacity of inland water sources	Effective project management to ensure the on-time delivery of the SSDP will become the responsibility of the Alliance partnership.
	Processes to maintain and manage relationships: Regulators Other agencies (Shires etc) WA community	These processes will be included the responsive Communications Plan currently being developed	Processes to maintain and manage these relationships should be developed for the DCO&M stage of the project.
	Responsiveness to: Premier Minister	The SSDP itself is being developed in response to the Premier's decision (announced 15 th May 2007); The scheduling of the project and the process currently underway to identify sources of renewable energy to power the plant, are also responses to Government commitments; Any Ministerial questions relating to the project will receive a response in accordance with the Water Corporation's Priority 1 process.	
Responsibly advocate the water service needs of the community to our shareholder	Water service needs: Identify needs Plan to meet needs Effectively communicate needs to Government	The announcement by the Premier of Western Australia of the SSDP and its timing is evidence that community water service needs have been effectively demonstrated to Government.	

Sustainability Principle	Sustainability Aspects	Planning Stage Actions, Decisions and Commitments	Comments and Recommendations
Enhance our capacity to support WA's water future	<p>Technology transfer</p> <p>Enhancing capacity of local workforce</p> <p>Enhancing capacity of local business</p>	<p>Desalination represents leading edge technology, widely used in other parts of the world. The world-wide search for potential Alliance partners reflects a commitment to technology transfer and enhancing local capacity;</p> <p>The SSDP builds upon the success of the Kwinana Desalination Plant, which demonstrates Water Corporation's capacity to support WA's water future;</p> <p>The 25 year term of the Alliance partnership ensures that it is in joint interests to develop appropriate expertise to support desalination technology in WA.</p>	<p>Opportunities should be sought during the DCO&M stage to develop the capacity of the local workforce and local businesses to support the SSDP over the course of its life.</p>
Governance			
Maintain best practice business systems and follow our corporate procedures and policies	<p>Business systems and processes:</p> <p>EMS</p> <p>Continuous improvement</p> <p>Knowledge management</p> <p>HR</p> <p>OSH</p> <p>Contracting</p>	<p>Water Corporation has business systems and processes in place to ensure that policies are complied with. However, it is not clear with which of these policies and systems the Alliance partnership will be required to comply.</p>	<p>It will be important to determine which Water Corporation policies and systems will apply to the Alliance partnership. The Alliance partnership should either elect to follow Water Corp management systems or develop its own systems. Just some examples of relevant Water Corporation policies are:</p> <p>Greenhouse Policy (and commitment to net zero greenhouse gas emissions by 2030)</p> <p>State Government local supplier policy (with which Water Corporation voluntarily complies)</p> <p>Apprenticeship and training policies.</p>

Sustainability Principle	Sustainability Aspects	Planning Stage Actions, Decisions and Commitments	Comments and Recommendations
	<p>Decision-making processes:</p> <p>Clear process for managing fast-track projects</p> <p>Guided by Sustainability Business Principles</p> <p>Effective flow of information between decisions</p>	<p>It has not been possible within the scope of this exercise to comprehensively assess the SSDP decision-making processes. However the following observations can be made:</p> <p>Planning and approvals activities have been conducted in much less time than would be the case for non-fast track projects proceeding through 'normal' channels in IPB and IDB, and many activities have been conducted in parallel. This situation carries certain risks;</p> <p>There is greater potential for process inefficiencies (an example being the challenges associated with ensuring the alignment of the PER, SIA report and sustainability review). This is ultimately an economic issue and is discussed under <i>Economic</i> above;</p> <p>There is also a high risk of decisions and commitments not being followed through appropriately, and there is no evidence of processes in place to manage this risk. The proposed Community Brief (discussed under <i>Ethical</i> above) is an attempt to address this issue to some extent and is commended;</p> <p>As discussed in Section 2 of this document, although sustainability considerations have been incorporated into project decision-making at various points, planning has not been consistently conducted in accordance with the Water Corporation's Sustainability Business Principles.</p>	<p>Water Corporation is currently developing processes for the incorporation of the Sustainability Business Principles into all stages of the planning process. It is strongly recommended that:</p> <p>All future projects (including fast-track projects) adhere to these processes; and</p> <p>Opportunities be sought during the DCO&M stage of the SSDP to follow the intent of these processes in making significant decisions (in conjunction with Water Corporation's Sustainability Team).</p>

Sustainability Principle	Sustainability Aspects	Planning Stage Actions, Decisions and Commitments	Comments and Recommendations
<p>Make decisions with humility, recognising our duty to be properly informed and account for what we cannot know</p>	<p>Information and decision-making: Best possible information Local knowledge Broad perspectives (here, now, there, then) Knowledge humility and the precautionary principle Flexibility in design to allow for uncertainty</p>	<p>The ESD identifies a wide range of environmental studies that have now been conducted and the results documented in the PER. This is an example of Water Corporation obtaining the best possible information to aid decision-making;</p> <p>Stakeholder engagement processes have provided an opportunity for local knowledge to be collected.</p>	<p>Knowledge humility and the precautionary principle, as well as building flexibility into design, will be important during the DCO&M stage.</p>
	<p>Corporate learning Processes for reflection and capturing lessons learnt Processes for ensuring lessons learnt are incorporated into processes</p>	<p>Although impossible to verify within the scope of this review, there is a sense that Water Corporation does not always take every opportunity to reflect upon and learn from past experiences; for example, no post-project review of the South West Yarragadee (SWY) project was conducted. It is suggested that the SSDP has consequently not benefited from lessons learnt from SWY, particularly in relation to the need for early stakeholder engagement that the failure of the SWY project ultimately demonstrated.</p> <p>This sustainability review, however, has provided an early opportunity to reflect upon the progress of the SSDP from a sustainability perspective, and other opportunities should be taken throughout the project life.</p>	<p>It is specifically recommended that a post-project review be conducted (for example at practical completion) to capture lessons learnt from the SSDP. This sustainability map could be used as the basis for the review, the purpose being to improve the incorporation of the Sustainability Business Principles into future major project processes.</p>

Sustainability Principle	Sustainability Aspects	Planning Stage Actions, Decisions and Commitments	Comments and Recommendations
<p>Listen to and consider our stakeholders' views throughout planning and decision making</p>	<p>Stakeholder engagement: Equity and diversity in stakeholder engagement Responsiveness in addressing concerns Building ongoing relationships</p>	<p>During the P&A stage, Water Corporation has worked hard to build relationships particularly with the local Binningup and Myalup communities and to respond to questions and concerns (as discussed under <i>Ethical</i> above);</p> <p>The P&A stage has also provided opportunities for stakeholders to comment on documents including the ESD and the PER;</p> <p>Questions asked by the community have been addressed and answers posted on the project website. Chapter 3 of the PER document also lists community concerns and indicates how they are being addressed by the project;</p> <p>The broader community has been surveyed by phone twice during the P&A stage (August and November 2007) by the independent market research firm Synovate. The results are presented in Chapter 3 of the PER document demonstrate an increase in the extent to which the community feels informed and an increase in satisfaction with project communications between the two surveys.</p>	<p>The Alliance partnership should ensure that relationships with community stakeholders are maintained and that stakeholders are engaged to the greatest extent possible during the DCO&M stage;</p> <p>Consideration should be given to establishing a representative Community Reference Group.</p>

Sustainability Principle	Sustainability Aspects	Planning Stage Actions, Decisions and Commitments	Comments and Recommendations
	<p>Taking stakeholder views into account in decision-making</p>	<p>As noted in Section 2 of this document, there was no community engagement during the site selection process;</p> <p>However, during the P&A stage stakeholders were able to comment on the ESD and Water Corporation's responses to these comments and questions were placed on the project website and incorporated into the final ESD;</p> <p>Stakeholders will also have an opportunity to comment on the PER and Water Corporation will be required under the <i>Environmental Protection Act</i> 1986 to address these comments;</p> <p>Stakeholders were actively engaged in the process of identifying pipeline routes, particularly through the identification of values and constraints, as documented in the Pipeline workshop report.</p>	<p>Opportunities should be sought during the DCO&M stage to solicit stakeholder views and incorporate them into consideration. For example, this could be achieved through the establishment of a Community Reference Group.</p>

5. Conclusions and Recommendations

While this review has been a valuable exercise for capturing and reflecting upon the sustainability implications of actions, decisions and commitments made during the planning & approvals stage, it has also highlighted:

- That many important project decisions have not yet been made, and that many of these will not be made until the Alliance contract is established; and
- That opportunities lost early in the project, particularly during Stages 1 and 2, have limited the potential to maximise the overall sustainability of the SSDP.

The final conclusions drawn and recommendations made by GHD with respect to the sustainability review process conducted in behalf of Water Corporation are therefore presented in two sections:

- The ongoing management of the SSDP with respect to sustainability, particularly through the Alliance partnership; and
- The incorporation of sustainability considerations into future major projects.

5.1 SSDP

The overall sustainability of the project appears to have been significantly enhanced through the actions, decisions and commitments made during the planning & approvals stage, as documented in Section 4. Water Corporation is to be commended for their efforts, particularly in the light of the somewhat unfortunate way in which the project was formally initiated.

Of particular significance was the decision to purchase a portion of Lot 8, adjacent to the originally proposed site for the plant, which will significantly reduce the impacts of the plant on the environmental and the local community.

The SSDP team is strongly urged to ensure that the gains made during the planning & approvals stage are not lost, but are built upon during the design, construction, operation and maintenance stage through the Alliance partnership, and that good sustainability practice is systematised or institutionalised. As a minimum this should involve:

- Completing the preparation of the proposed Community Brief, documenting in the public domain the non-environmental commitments made;
- Preparing the Social Impact Management Plan (SIMP) as recommended in the SIA report (GHD, 2007), in conjunction with the community and the Alliance partnership;
- Ensuring the construction and operations EMPs reflect the commitments and issues captured in Section 4 of this document;
- Ensuring that the comments and recommendations made in Section 4 of this document are taken into consideration by the Alliance partnership to ensure that commitments are kept;
- Conducting a post-project performance audit to assess the overall performance of the project against the sustainability map presented in this document.

It is understood that the Alliance partnership will be required to follow the Water Scores Benchmarking Program throughout the life of the project. This is commended, and it is suggested that Water Scores may be an appropriate mechanism to manage and ensure the effective implementation of the above recommendations.

5.2 Future capital projects

The planning & approval stage of the SSDP that is the subject of this review has been undertaken against the backdrop of community opposition and distrust of Water Corporation, largely due to the lack of consultation in the earliest stages of the project. This provides a valuable lesson on the importance of meaningful community and stakeholder engagement from the earliest stages of the project.

The other significant conclusion that can be drawn from the sustainability review process is that while good outcomes have been achieved across many areas of sustainability, there are also 'gaps' in the sustainability map. This highlights that there are some sustainability aspects that the Water Corporation itself has identified as being relevant to its business that have not been addressed in this project. This is particularly true of aspects relating to the higher level 'sustain' and 'enhance' principles; in other words while there is little reason to doubt that the project will perform well in terms of minimising detrimental impacts and ensuring basic management processes are in place, opportunities for real sustainability enhancement have not always been taken.

Water Corporation is currently in the early stages of implementing sustainability decision-making and assessment processes within its capital creation function. This is highly commendable, and should address exactly the kinds of issues described above. However, the point to be made here is that it is very important that these sustainability processes extend beyond the routine planning, design and project management functions into large, high-profile fast-tracked projects such as the SSDP. The time and resource constraints that characterise fast-track projects, together with the use of Alliance partnerships, should not be permitted to undermine water Corporation's enhanced sustainability practices.

Some of the general principles that should guide all future projects with respect to sustainability are:

- Sustainability principles should guide decision-making from the earliest stages of planning;
- The Water Corporation's Sustainability Business Principles should be interpreted for each project in a way that reflects the intent and meaning of the principles, and a project sustainability map developed;
- This map should be developed early in the planning process and serve as a guide to decision-making throughout the project, from planning through to operation and maintenance³;
- As an important component of this, the community and other stakeholders should be effectively and meaningfully engaged throughout the project;
- Appropriate sustainability decision-making tools should be developed to guide key decisions;
- Processes should be put in place to ensure that decisions and commitments are captured to ensure consistency and continuity of approach;

³ The sustainability map should reflect Water Scores benchmarks but also acknowledge additional aspects should also be included for consideration at stages of the project other than construction.

- These recommendations could be facilitated by the appointment of a sustainability specialist to major project teams.

6. References

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GHD

GHD House, 239 Adelaide Tce. Perth, WA 6004
P.O. Box Y3106, Perth WA 6832
T: 61 8 6222 8222 F: 61 8 6222 8555 E: permail@ghd.com.au

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Document Status

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		Name	Signature	Name	Signature	Date
1	Bill Grace	Bill Grace		Bill Grace		