



Swan Region Strategy for Natural Resource Management

INVESTMENT PLAN

2006/2008

January 2006

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ACRONYMS

ACC	Avon Catchment Council
BMP	Best Management Practice
CALM	Department of Conservation and Land Management
DOE	Department of Environment
DOW	Department of Water
DPI	Department for Planning and Infrastructure
EBICG	Ellen Brockman Integrated Catchment Group
EMRC	Eastern Metropolitan Regional Council
GAWA	Greening Australia WA
LG	Local Government
MAT	Management Action Target
NACC	Northern Agricultural Catchment Council
NAMN	Natural Area Managers Network
NAP	National Action Plan
NHT	Natural Heritage Trust
NRM	Natural Resource Management
RCT	Resource Condition Target
RDP	Regional Delivery Program
SCC	Swan Catchment Council
SCRIPT	South Coast Regional Initiative Planning Team
SME	Small to Medium Enterprise
SRT	Swan River Trust
SWCC	South West Catchment Council
WC	Water Corporation

SECTION 1: OVERVIEW

1. INTRODUCTION

The Swan Region (the Region) contains Australia's fourth largest metropolitan area, housing 1.4 million people. This population is growing faster than the Australian average, with continuing positive net immigration. The Region's environment sets it apart, and still makes Perth one of the most liveable cities in the world. However its environmental quality is under severe threat on many fronts:

- Natural diversity and cultural heritage throughout the Region have been depleted by past practices and are threatened by many new developments.
- Inland aquatic systems and the Swan estuary suffer from changed water flow and quality. Groundwater is threatened by contamination, and the environmental services it yields are threatened by lowering of the water table.
- Coastline and marine habitats are under ever-increasing pressures development and recreational use.
- Agriculture, horticulture, aquaculture, commerce, utilities and industrial activities throughout the Region are facing the challenge of becoming environmentally sustainable.

The Swan Region Strategy for Natural Resource Management (the Strategy) is about the ecological management of a major urban region. It aspires to retain the Region's sense of place in the context of continuing development.

Investment must be targeted to priority threats if this is to be achieved.

The Swan Catchment Council (SCC) produced an Investment Plan for its 2005/2006 allocation of Natural Heritage Trust (NHT), funds which was approved in June 2005. An extensive consultation process was carried out to produce the Plan, and many of the projects identified for funding were intended to continue for more than one year.

The SCC has now produced an Investment Plan for the NHT allocations for 2006 to 2008 (the Investment Plan). A modified consultation process has been used to develop the funding proposal, which covers the full allocation of funds for both years.

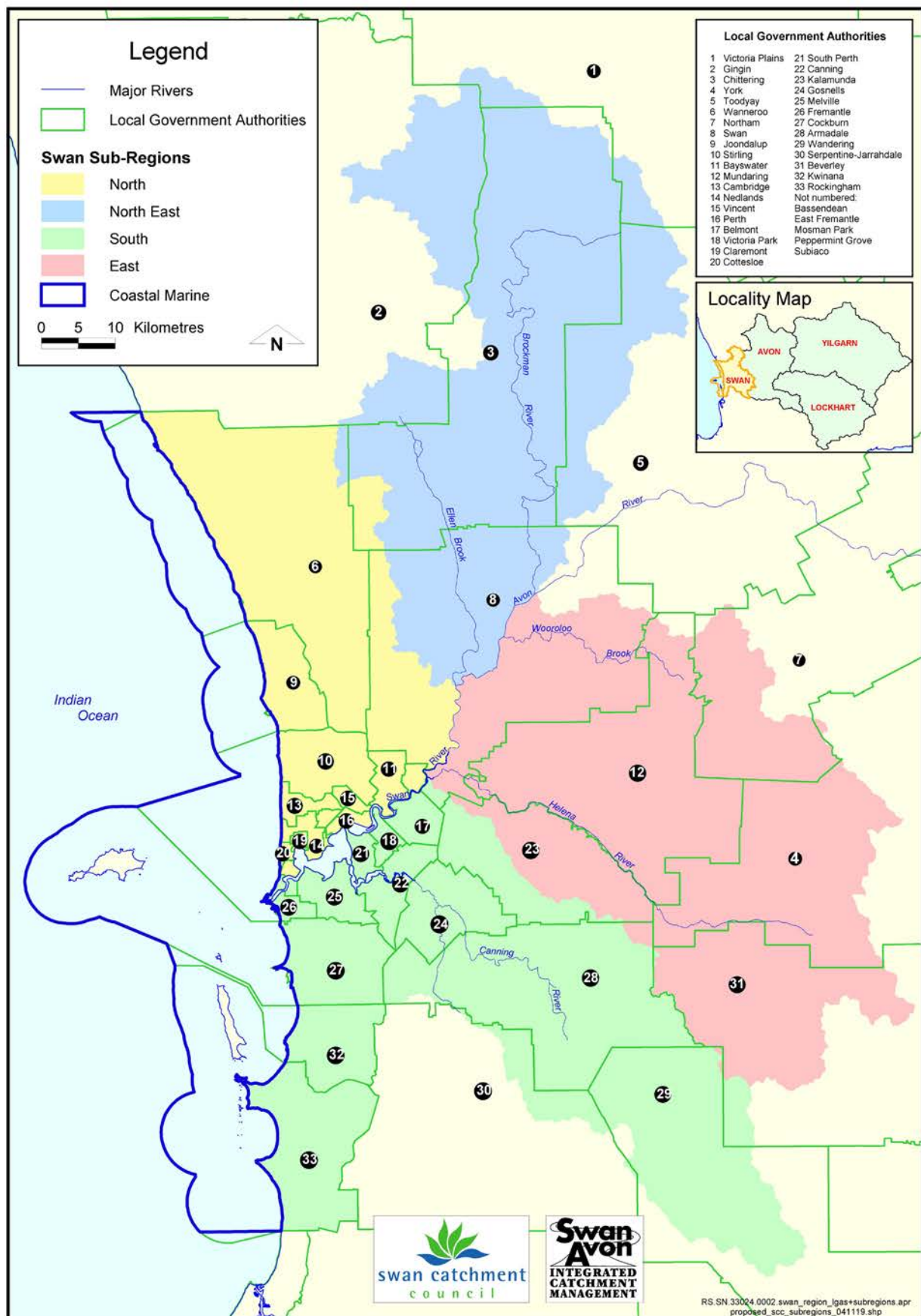


Figure 1: The Swan Region including Local Government boundaries.

2. THE SWAN REGION STRATEGY FOR NATURAL RESOURCE MANAGEMENT

The Swan Region Strategy for Natural Resource Management (the Strategy), which was accredited jointly by the respective Federal and State Ministers in December 2004, is about the ecological management of a major urban region. The Strategy incorporates Aspirational Targets, Matters for Target, Resource Condition Targets and proposed Management Actions (together with appropriate indicators for monitoring and evaluation) for each Asset Category. The Asset Categories in this Investment Plan are referred to as Themes (see Table 1).

Table 1: Number of Resource Condition Targets and Management Actions in the Swan Region Strategy

Theme	Resource Condition Targets	Matters for Target	Number of Management Action Targets
Land	2	Land Salinity, Soil Condition	9
Water	5	Aquatic Ecosystems, Nutrients, Turbidity & Particulate Materials, Salinity	22
Biodiversity	3	Native Vegetation, Significant Species, Invasive Species	15
Coastal & Marine	3	Coastal Habitats, Marine Habitats, Marine Fauna	15
Air	2	Air Quality	3
Cultural Heritage		Indigenous history, Institutional Opportunities, Employment in NRM, Partnerships	3
Regional Capacity		Adaptive Management, Strategy Linkages, Regional Structure, Information System	4
Total	15		71

The Strategy has articulated seven Aspirational Targets to meet the challenges facing each Theme.

- Improve land condition and ensure that land use planning and development is sustainable and appropriate to the land capability and suitability.
- Improve the quality, ensure appropriate and environmentally sustainable use, and minimise impacts, to maintain water resources in all aquatic systems in the Region.
- Conserve, maintain and enhance biodiversity and natural habitat of all species in the region's Indigenous plants and animals, natural fungi and micro-organisms including their genetic variation, and the functionality of the ecosystems which contain these species.
- Conserve, maintain and enhance coastal and marine biodiversity, and improve marine water quality to ensure the ecological integrity of coastal and marine systems.
- Improve air quality in the region to ensure healthy ecosystems.
- Protect, enhance and incorporate cultural heritage values within the region to achieve sustainable natural resource condition outcomes.
- Build regional capacity to promote attitudinal, behavioural and institutional change to achieve sustainable natural resource management outcomes.

The Strategy also sets out Targets for Resource Condition and Management Actions under each of the seven Themes. These Matters for Target and their associated Management Actions are the focus of the Investment Plan.

The Strategy identifies the major threats to the assets of land, water, biodiversity, coastal and marine, air, cultural heritage and regional capacity.

Management of activities under the Strategy is organised by four Regional Delivery Programs (RDPs), called respectively:

- Integrated Water Management
- Natural Diversity
- Sustainable Production, and
- Coastal and Marine

The Investment Plan presents costs within each RDP, taking account of the fact that each RDP incorporates a number of different themes as well as its “core theme”. All Management Actions contained in the Cultural Heritage and Regional Capacity Building Themes have been distributed across the four RDPs.

3. LINKAGES AND INTEGRATION WITH OTHER ORGANISATIONS AND PROGRAMS

The Investment Plan programs are integrated and linked into the activities of our major partners, including State and Local Government, industry and community organisations. Partnerships at an activity level are detailed in Section Two (Project Outline Statements). High level partnerships are outlined below.

3.1 State Government

3.1.1 Department of Environment

The SCC works closely with the Department of Environment (DOE) at many levels. The Swan Catchment Centre, a section of the DOE, has provided community and catchment group support and training for many years. The SCC is currently working with the Swan Catchment Centre to broaden the capacity building activities to include Local Government and Industry. The Canning Environmental Flows project is a partnership with the DOE to develop a model for allocating environmental flows in regulated river systems. The SCC Integrated Water Management RDP Program Manager also sits on the Steering Committee for the Urban Stormwater manual currently in preparation by the DOE.

A partnership has been established with the Waste Management Board with funding of \$120,000 provided through their grant program to develop a holistic approach to waste management in an industrial precinct and document behaviour change. Close cooperation with the Pollution Response Unit and staff at the Swan Goldfields Region of the DOE has assisted the industry audit program which is currently being trialled with Local Government. The Air Quality Branch of the DOE is working on a joint project with the SCC to determine the potential pollution effects from light industrial areas.

The SCC is having initial discussions with the DOE to pilot a project to align a section of the DOE Business Plan with the implementation of the targets within the Strategy.

3.1.2 *Swan River Trust*

A formal partnership agreement has been signed with the Swan River Trust (SRT). Implementation schedules are to be developed as appendices to that document to deliver on collaborative partnerships. The SCC currently jointly funds projects with the SRT to do an assessment of the Swan-Canning river foreshores and to monitor behaviour change in light industry in partnership with the Waste Management Board. The SCC and SRT also both support many of the community Sub-regional structures.

3.1.3 *Water Corporation*

Initial discussions regarding a partnership agreement between the SCC and the Water Corporation (WC) have been held. The SCC are currently in discussions with the WC regarding access to the water quality monitoring data held by the WC and potential investment into a number of the Swan and Canning catchments projects.

3.1.4 *Department of Agriculture*

The SCC works in partnership with the Department of Agriculture to deliver Waterwise on the Farm to intensive horticulture growers in the Wanneroo area through a National Landcare Program. The SCC is currently awaiting confirmation of an extension of that program to the Swan Valley to engage further industry sectors in the program

3.1.5 *Department for Planning and Infrastructure*

The SCC coastal community representative is represented on the Perth Coastal Planning Strategy Steering Committee and the SCC Coastal & Marine RDP Program Manager and Coastcare Officers assist in coordination of the Department's Coastwest Program.

3.1.6 *Department of Conservation and Land Management*

The SCC partners with the Department of Conservation and Land Management (CALM) in supporting the delivery of Threatened Species projects across the Region.

3.2 *Local Government*

The Investment Plan projects are strongly linked to Local Government (LG). The Perth Biodiversity Project assists LGs to identify locally important areas of biodiversity in partnership with their communities. A Biodiversity Strategy can then be developed, with access to a devolved grants scheme. Currently LGs are involved in biodiversity planning. The Biodiversity Action Learning Program also works with Natural Area Managers within LG to develop a research and action learning program to develop best practice.

Management of pollution threats from light industry is dealt with through a LG auditing program. Five LGs are currently piloting the program, which has been designed in partnership with LG Environmental Health Officers.

Our coastal program is well integrated into LG. Two SCC officers hosted within LG work with all the coastal councils, and in the 2006/08 Investment Plan there will be funds devolved to LG to prepare coastal management plans.

Sustainable Landscaping is a project developed as a package for LG in partnership with the State Water Strategy and the Eastern Metropolitan Regional Council. It provides LGs with a model landscaping policy and an educational package for use with its community.

3.3 Industry Involvement

The auditing program for light industry has been developed in consultation with the Motor Trades Association. There is also involvement from the Chamber of Commerce and Industry, Local Chambers, Business Associations and Edith Cowan University.

In the intensive horticulture sector VegetablesWA is hosting a project to improve practices within its grower group. The SCC is also working with the strawberry, turf, avocado, orchard and grape growers to assist their industries to become more sustainable.

On a corporate level, the SCC has sponsorship agreements with Alcoa of Australia, Chevron Texaco and CSBP Limited.

3.4 Multi-Stakeholder Projects

The SCC is also involved in the following projects which have multiple stakeholders from State and LG as well as industry and community.

- Water Quality Monitoring Program – this project is designed to form partnerships between State, LG and the WC to design and implement water quality monitoring programs on a sub-catchment basis across the Region.
- Strategic Reserve Marine Target Setting Project – a multi agency and multi-regional project to set the targets for the south-west of Western Australia.
- Southern River Catchment Integrated Land and Water Management Plan– a land use and water balance project to ensure good NRM outcomes for a sensitive area to be developed for housing. The project involves a large range of stakeholders including State and LG, developers and community.
- Bellevue Sustainable Industry Project – a holistic approach to managing the waste from an industrial precinct involving State and LG, Local Chambers, industry and community.

4. IMPLEMENTATION OF 2005/06 INVESTMENT PLAN

All but two of the projects from the 2005/06 Investment Plan are currently underway. The remaining projects, Linking Best Management Practices with Property Planning in Intensive Horticulture, will commence by the end of January 2006 and the Coastal and Marine Identifying Key Indicators project is currently on hold, as the Strategic Reserve Marine project is expected to set the marine targets for the south-west of WA. The SCC will be represented on the steering committee for Strategic Reserve project, and expects to receive advice as to how to expend its \$200,000 earmarked for the project in a way that complements the larger project outcomes early in 2006.

5. INVESTMENT PLAN METHODOLOGY

5.1 Methodology for 2005/06 Investment Plan

The Investment Plan for 2005/06 was developed through an intensive program of stakeholder workshops. The workshops were professionally facilitated and supported by extensive desk research undertaken by staff of the SCC, project proponents and consultants. In these workshops:

- Participants assessed the relative triple-bottom-line returns to investment across threats to asset values (See 2005/06 Investment Plan Technical Report No 2 *Assessment of relative returns to investment across assets and threats*). Three workshops - Theme based.
- Participants prioritised all potential investments across Strategy's Themes and Management Actions (See 2005/06 Investment Plan Technical Report No 3 *Assessment of overall priorities for investment across themes*). Four workshops – three Theme based, and one comprising SCC members.
- Stakeholders then identified activities that are already taking place to fulfil each Management Action set out in the Strategy, and their adequacy. Projects were nominated to be funded by NHT2 or externally (See 2005/06 Investment Plan Technical Report No. 4 *Evaluation of current activities and gaps against Strategy management actions*). Seven workshops – five Delivery Program based, and two dealing with the Cultural Heritage and Regional Capacity Themes.
- After proponents had drafted detailed Project Statements and Technical Review Panels had undertaken preliminary assessments, a SCC workshop selected and prioritised projects for NHT2 funding. See 2005/06 Investment Plan Technical Report No 5 *Project Funding Priorities Workshop* and Technical Report No. 6 *Project Statements*.

5.2 Methodology for 2006/08 Investment Plan

The SCC established six Reference Groups in 2005 to provide expert advice. The Reference groups are:

- Integrated Water Management Regional Delivery Program Reference Group
- Natural Diversity Regional Delivery Program Reference Group
- Sustainable Production (Light Industry) Regional Delivery Program Reference Group
- Coast and Marine Regional Delivery Program Reference Group
- Indigenous NRM Advisory Group
- Local Government Reference Group

Membership of the Reference Groups is drawn from a broad range of stakeholders to ensure an integrated approach. The four Regional Delivery Programs (RDPs) Reference Groups all have two Local Government (LG) members to enable a LG viewpoint to be represented in each RDP. Relevant State Agencies were invited to join the groups, as well as skilled community representatives and representatives from various industry bodies.

The Indigenous Reference group has one male and one female Indigenous representative from each of the five sub-regions. The LG Reference Group is comprised of the LG representatives from each RDP Reference Group as well as two additional representatives from Regional LG Organisations.

The membership of each Reference Group is provided in Appendix 1.

The process used for developing the 2005/06 Investment Plan identified the investment which the community of the Region wished to make into particular theme areas. This information was used again in the development of the 2006/08 Investment Plan, with funding allocations to RDPs retained.

The Reference Groups developed the RDP activities within the 2006/08 Investment Plan. The SCC decided to form a Rural Landuse Reference Group, however this was not in place for the 2006/08 Investment Plan development. A working group was formed with relevant stakeholders to assist the SCC with the investment planning process

Many of the projects from the 2005/06 Investment Plan were intended to be ongoing for more than one year, and had developed project proposals over a longer period. Reference Groups were asked to review progress to date, and confirm that funding should continue for the specified period. In addition, some projects will be finalised in 2005/06, with the funds requiring redistribution.

The Implementation Framework Projects were identified by the Joint Steering Committee as requiring more strategic development for the 2006/08 Investment Plan. Sub-regional groups provided strategic project concepts which extended the work that was being done in 2005/06. In addition, Program Managers worked with Reference Groups to identify important gaps within RDPs.

Strategic projects were then developed using indicative available funds for each RDP. The indicative allocation for the Region was reduced by \$600,000 in 2007/08, and a prioritisation process was used to decide on which projects would be cut in that year. The proposed projects for the 2006/08 Investment Plan was presented to the SCC for final endorsement.

The proposed list of projects for the 2006/08 Investment Plan are listed in Table 2:

6. PROPOSED PROJECTS 2006/08 INVESTMENT PLAN

The SCC established Reference Groups in 2005 to help guide NHT investment in 2006/08 (see Section 5.2: Methodology for 2006/08 Investment Plan).

The list of proposed projects for the 2006/08 Investment Plan are listed in Table 2.

Table 2: Proposed 2006/08 Investment Plan Projects

NHT Programs and Projects	Investment (\$)	
	2006/07	2007/08
Integrated Water Management Regional Delivery Program	1,585,593	1,556,046
<i>Foreshore Assessment and Water Monitoring Sub-program</i>	918,401	738,204
Swan-Canning Foreshore Assessment	79,910	0
Swan-Canning Tributary Foreshore Assessment	104,896	106,338
Water Quality Monitoring & Evaluation Framework	393,922	285,241
Water Quality Partnership Project	211,367	214,273
Superficial Aquifer Health	128,306	132,352
<i>Water Management, Training and Technical Support Sub-program</i>	667,192	817,842
Avon Upper Swan Salinity and Nutrient Management	318,514	322,893
Canning Environmental Flows	94,541	0
Wetland Watch	0	237,320
Wetlands Indigenous Project	103,433	104,855
Sustainable Landscaping Strategy	105,684	107,136
Ribbons of Blue/Waterwatch WA	22,510	22,819
Swan Alcoa Landcare Program	22,510	22,819
Natural Diversity Regional Delivery Program	1,794,709	1,583,201
<i>Local Diversity Management and Training Sub-program</i>	860,552	859,828
Stop Dieback- The Biological Bulldozer	119,302	120,942
Ecological Corridors	105,684	107,136
Invasive Species	119,190	120,828
Behaviour Change for Natural Diversity	122,566	107,136
Private Landholder Incentive Package	105,684	107,136
Biodiversity Action Learning Project	174,451	181,413
Skills for Nature Conservation	113,675	115,237
<i>Biodiversity Planning & Threatened Species & Communities Sub-program</i>	934,159	723,371
Perth Biodiversity Project	468,205	474,641
Threatened Species Program	465,954	248,730
Sustainable Production Regional Delivery Program	643,781	595,583
Salinity Management in Wooroloo	51,773	52,484
Waterwise on the Farm	16,882	17,114
Linking BMPs with Vegetable Growers	135,059	136,916
Linking BMPs with Grape Growers and Orchardists	51,773	52,484
SME Sustainability Project	330,895	319,470
SME Air Emissions Study	40,518	0
Bellevue Sustainable Industry Project	16,882	17,114
Coastal and Marine Regional Delivery Program	610,917	448,170
Marine Indicators Project	326,393	159,735
Coastal Managers Devolved Grants	90,039	91,277
Coastcare Program	165,222	167,493
Coastal Seed Program	12,380	12,551
Coastal Indigenous Project	16,882	17,114
Total Programs	4,635,000	4,183,000
Carryover 2005/06	78,000	183,000
Carryover from Foundation Funding and Priority Projects	140,000	0
NHT2 Indicative Allocation	4,600,000	4,000,000
Total Allocation	4,818,000	4,183,000

7. REGIONAL DELIVERY PROGRAMS

7.1 Integrated Water Management Regional Delivery Program

7.1.1 Rationale

The Swan Region contains the Swan-Canning river system, which is a major natural icon for Perth. There are also many tributaries to that system, including Bennett, Ellen, Susannah, Jane, Wooroloo, Wungong and Yule Brooks and the Helena, Brockman and Southern Rivers.

Wetland systems include the Yellagonga and Beeliar systems as well as many important lakes and swamps. There are three Ramsar-listed wetlands, namely the Becher Point wetlands, Forrestdale Lake and Thompsons Lake. The lakes and wetlands are sites of great biodiversity. During the long hot summers there is little precipitation or runoff, so the lakes and wetlands have special ecological significance.

Groundwater is an increasingly important asset, and falling groundwater levels are threatening the ecological values of many water dependant ecosystems. Groundwater supplies the Perth Metropolitan Area with approximately half of its water requirements and maintains lake, wetland and cave systems. These are all very highly valued services.

The Strategy identified three key pressures threatening waterways, wetlands and groundwater in the Region:

- Incompatible planning and development;
- Inappropriate land and water management practices; and
- Population growth

These have resulted in eutrophication of wetlands and waterways, biological and chemical pollution, erosion and sedimentation, increased salinity of waterways and wetlands, habitat loss and ecosystem fragmentation, drainage modifications, acidification and over-abstraction of groundwater. All these forms of degradation are documented in detail in the Strategy and in the 2005/2006 Investment Plan Technical Report No 2 *Assessment of the Relative Returns from Investment Across Assets and Threats*.

The key targets for investment in water quality of the Swan-Canning Estuary and Swan Coastal Plain Streams cluster around pollutants, most notably nutrients, and include: nutrient export and enrichment; urban and industrial discharges; and drainage modification. Important investment targets relate to agricultural land management practices particularly in the Ellen Brook and Brockman catchments, where nutrient export and rising salinity levels are of significance. The condition of the foreshores of the estuary and tributaries still leaves much to be desired, and there is a major effort to restore the foreshores to an appropriate condition. Another important issue is altered water flow, especially in the Helena and Canning Rivers.

Wetland systems require investment into protection of water quality from the impacts of polluting activities such as agriculture, urban landuse and industry. Both surface water and groundwater flows contribute to the problem. Falling groundwater levels are in part due to reduced rainfall, however effects can also be managed through reducing the use of water in the superficial aquifer or by recharge. In addition, the riparian vegetation of many wetlands is degraded or gone, contributing to the loss of ecological values.

The Integrated Water Management RDP is presented in the following sub-programs:

- Foreshore Assessment and Water Monitoring Sub-program
 - Swan-Canning Foreshore Assessment
 - Swan-Canning Tributary Foreshore Assessment
 - Water Quality Monitoring and Evaluation Framework
 - Water Quality Partnership Project
 - Superficial Aquifer Health
- Water Management, Training and Technical Support Sub-program
 - Avon Upper Swan Salinity and Nutrient Management Project
 - Canning Environmental Flows
 - Wetland Watch
 - Wetlands Indigenous Project
 - Sustainable Landscaping
 - Ribbons of Blue/Watchwatch WA
 - Swan Alcoa Landcare Program

7.1.2 Targets

The Matters for Target and the associated Resource Condition Targets addressed by the Integrated Water Management RDP are as follows.

Aquatic ecosystems integrity

- WR1 Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites by 2020, with quantified targets for major rivers and waterways in the Region set by 2005.
- WR2 Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites by 2020, with quantified targets for priority wetlands in the Region set by 2005.

Nutrients in the aquatic environment

- WR3 Maximum concentrations for priority waterways do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen by 2020.

Turbidity/suspended particulate matter in aquatic environments

- WR4 Maintain and improve condition of aquatic environments in the Region, as measured at representative sites by 2020, with quantified targets for turbidity/suspended particulate matter set by 2005.

Surface water salinity in freshwater aquatic environments

- WR5 Maintain and improve condition of surface waters in priority catchments in the Avon Upper Swan Region, as measured at representative sites by 2020, with quantified targets to reduce salinity set by 2005

The following projects are proposed to be funded through the 2006/08 Investment Plan to address these targets:

Table 3: Integrated Water Management RDP Proposed Projects, Expected Outcomes and Key Partners

Activity and RCT's addressed	Expected Outcome	Key Partners
Foreshore Assessment and Water Monitoring Sub-program		
Swan-Canning Foreshore Assessment (WR1, WR3, WR4)	The project will develop a decision support tool for foreshore restoration in the Swan-Canning, enabling Local Government and community to prioritise foreshore works and use comprehensive data to determine appropriate actions	Swan River Trust Swan Alcoa Landcare Program Local Government Community
Swan-Canning Tributary Foreshore Assessment (WR1, WR3, WR4, WR5, LR2)	The project will develop a decision support tool for foreshore restoration in the Swan-Canning, enabling Local Government and community to prioritise foreshore works and use comprehensive data to determine appropriate actions. It will use a similar methodology to the project above to enable consistency	Department of Environment Local Government Community
Water Quality Monitoring and Evaluation Framework (WR1, WR2, WR3, WR4, WR5)	The project will establish comprehensive sub-catchment monitoring across the Swan Region to determine hotspots and development of action plans to reduce contaminants	Department of Environment Water Corporation Local Government Industry Community
Water Quality Partnership Project (WR1, WR2, WR3, WR4, WR5)	The project will have a role in assisting stakeholders to assess their water quality data requirements and provide assistance to prepare sampling and analysis plans, undertake actual sampling activities and in the preparation of reports in conjunction with the Department of Environment.	Department of Environment Local Government Water Corporation Developers Community
Superficial Aquifer Health (WR2)	The project will collect information on the current levels and quality of the superficial aquifer	Department of Environment Local Government Developers
Water Management, Training and Technical Support Sub-program		
Avon Upper Swan Salinity and Nutrient Management Project (WR1, WR2, WR3, WR4, WR5, LR1, LR2, BR1, BR3)	The project will continue to work with landholders in the Ellen/Brockman catchment to implement the catchment strategies to reduce salinity and nutrient export	Avon Catchment Council Community Department of Environment Local Government
Canning Environmental Flows (WR1)	The project will determine the required environmental flows for the Canning River, and provide a model for other regulated river systems such as the Helena River	Department of Environment Water Corporation Swan River Trust Community

Activity and RCT's addressed	Expected Outcome	Key Partners
Wetland Watch (WR2, BR1)	The project will continue to advise and offer devolved grants to private landholders with significant wetlands	Landholders WWF Local Government
Wetlands Indigenous Project (WR2)	The project will raise awareness with Local Government and the community of the Indigenous values of wetlands and will involve Indigenous people in the protection	Indigenous Community Local Government
Sustainable Landscaping (WR3)	The project will work with Local Government to develop appropriate policies and community educational tools to reduce water and fertiliser use in gardens	Local Government Community
Ribbons of Blue (WR1, WR2, WR3, WR4, WR5, CMR1, LR1, BR2)	The project will raise the awareness of the community about water quality issues and their solutions	Swan River Trust Community
Swan Alcoa Landcare Program (WR1, WR2, WR3, WR4, WR5, LR1, CMR1, BR1)	A partnership with the Swan River Trust and Alcoa Australia Limited, this program provides funds for on-ground restoration works	Alcoa Australia Limited Swan River Trust Local Government Community

7.1.3 Integration with other Programs and Projects

The Sustainable Production RDP targets contamination of water assets by light industry and agriculture, and the outcomes from the RDP are improved water quality and quantity for protection of ecological values.

The Integrated Water Management RDP will also work closely with the Avon Catchment Council to coordinate the National Action Plan (NAP) funded projects which the Avon is implementing across the Avon Arc, which includes the Avon Upper Swan area. Activities are not yet finalised but will include groundwater monitoring, fencing and demonstration sites.

Projects which are largely funded through other sources and support and integrate with the Integrated Water Management RDP include:

- **Bellevue Industrial Project** (Waste Management Board \$120,000): A holistic project focusing on one industrial area and developing a collaborative project to manage waste with all stakeholders.
- **Waterwise on the Farm** (NLP \$410,000): A project which is developing BMPs for minimum water and fertiliser use with growers in the Wanneroo area.

The SCC is also working with the cities of Wanneroo and Joondalup to develop an Integrated Catchment Management Plan for the Yellagonga Lake System.

7.1.4 Public/Private Benefit

The majority of water assets in the Region are public assets, including the much valued Swan-Canning river system.

Private assets include the agricultural land of the Avon Upper Swan. This area contributes significant agricultural production to the Region and it is important to retain the viability of this area into the future.

Wetlands on private property will also receive investment. The clearing and filling of the majority of wetlands on the Swan Coastal Plain have produced an imperative to preserve the remaining wetlands on private property for the long term public benefit.

7.2 Natural Diversity Regional Delivery Program

7.2.1 Rationale

The Strategy draws attention to the very high level of threat to biodiversity values that exists in the Region. Threats to terrestrial biodiversity cluster around prevention of the clearing or loss of threatened native vegetation, biodiversity decline, ecosystem fragmentation and habitat loss. These factors are particularly threatening on the Swan Coastal Plain.

The preservation of an adequate and representative set of reserves will enrich the Region by maintaining the full range of endemic landform/soil/vegetation complexes. Ecosystem integrity that is essential to species survival requires the creation of reasonably large inter-linked areas, and not just the protection of small, isolated remnants. There are currently not enough corridor links.

Many of the flora and fauna species at risk are endemic to the Region, and it is the areas of highest diversity that face the most risk. There is limited understanding of the population dynamics of many threatened species. Table 4 shows the number of species that the Strategy considers to be critically endangered or potentially threatened.

Table 4: Number of terrestrial species that are endangered or potentially threatened.

	Number Critically Endangered	Plus Number Potentially Threatened
Flora	34	110
Invertebrates, insects, spiders	3	9
Birds	8	10
Mammals	6	7
Reptiles	2	3

The *Phytophthora* dieback disease is a major risk to native vegetation. Invasive exotic plants, which replace native species, alter the structure of ecosystems and increase risks. Feral cats and foxes are key targets for control programs and are an essential ingredient in the protection of significant fauna species (see above).

The Natural Diversity RDP integrates effort across a number of specialist natural diversity projects and is presented in two sub-programs, dealing respectively with:

- Local Diversity Management and Training Sub-program:
 - Stop Dieback – The Biological Bulldozer
 - Ecological Corridors
 - Invasive Species
 - Behaviour Change for Natural Diversity
 - Private Landholder Incentive Packages
 - Biodiversity Action Learning Program
 - Skills for Nature Conservation
- Biodiversity Planning and Threatened Species and Communities Sub-program:
 - Perth Biodiversity Project
 - Threatened Species Program

7.2.2 Targets

Native Vegetation Communities Integrity

BR1a The comprehensiveness, adequateness and representativeness (CAR) of the protected area system (including formal reserves and off-reserves) is improved by 50% by 2015, based on 2005 baseline data.

BR1b Maintain and improve the condition of high priority native vegetation (including formal reserves and off-reserves) by 2020, based on 2005 baseline data.

Significant Species and Ecological Communities

BR2 50% of critical habitat for identified significant species and ecological communities protected by 2014.

Ecologically Significant Invasive Species

BR3 Reduction in impact of regionally significant invasive species by 2020, with a quantified target set by December 2005.

The following projects are proposed to be funded through the 2006/08 Investment Plan to address these targets:

Table 5: Natural Diversity RDP Proposed Projects, Expected Outcomes and Key Partners

Activity and RCT's addressed	Expected Outcome	Key Partners
Local Diversity Management and Training Sub-program		
Stop Dieback – The Biological Bulldozer (BR1, BR2, BR3)	The project will build the capacity of LGs and the community to manage the impacts of dieback through education. The project will review the success of LGs managing <i>Phytophthora</i> dieback to determine the current level of management and identify areas in need of improvement.	Local Government Community Department of Conservation and Land Management
Ecological Corridors (BR2)	This project targets ecological linkages that are necessary to maintain the diversity and long term viability of species at risk through fragmentation of natural areas.	Local Government Community
Invasive Species (BR3)	The project will aim to prioritise weed species based on their threat to biodiversity and set targets for the management invasive species throughout the Region. Additionally, the project will establish an environmental weed database for ongoing monitoring and management of priority invasive species.	Local Government Community State Weeds Committee Department of Conservation and Land Management Department of Agriculture
Behaviour Change for Natural Diversity (BR1, BR2, BR3)	This project will assess the current attitudes of the community towards natural areas they live close to and determine the barriers to behaviour change and potential incentives for change. Once a set of potential strategies for behaviour change have been defined, they will be piloted in a defined set of natural areas	Local Government Community
Private Landholder Incentives Program (BR1)	This project aims to protect, maintain and improve high priority natural vegetation on private property through focusing on developing a provision of incentives for delivery by LG. Additionally, the project will work with LG to explore options for the enforcement of non-clearing on Special Rural zoning.	Local Government Community Department of Environment
Biodiversity Action Learning Program (BR1, BR2, BR3, CMR1)	The project aims to develop an action-learning process for land managers covering a number of vegetation types in the Region. The managers of these priority areas will then carry out the highest priority on-ground management actions on site as part of the active learning program.	Local Government

Activity and RCT's addressed	Expected Outcome	Key Partners
Skills for Nature Conservation (BR1, BR2, BR3, CMR1, WR1, WR2, WR3, WR4)	The Skills for Nature Conservation (SFNC) project addresses the capacity of the community to manage, protect and restore natural areas. This is achieved through the delivery of a calendar of training courses that focuses on transferring skills and knowledge	Swan River Trust Greening Australia WA Department of Conservation and Land Management Local Government Community
Biodiversity Planning and Threatened Species and Communities Sub-program		
Perth Biodiversity Program (BR1, BR2, BR3, WR2, CMR1)	This project enables Local Governments to identify the highest value natural diversity areas by the consistent use of regional and local significance criteria and by setting targets for the protection and retention of these natural areas.	Local Government Community Department for Planning and Infrastructure
Threatened Species Program (BR1, BR2, BR3, WM2)	This project provides support to an on-going program coordinated by the Department of Conservation and Land Management with other organisations to protect and recover the threatened species and ecological communities of the Swan Region	Department of Conservation and Land Management Local Government Community

7.2.3 Integration with other Programs and Projects

The Coast and Marine RDP is assessing terrestrial biodiversity on the coastal dune system. The methodology used is the Perth Biodiversity Program templates for vegetation classification and condition assessment. This will ensure that all terrestrial vegetation in the Region is assessed using one comprehensive process. Many of the Integrated Water Management RDP projects also address biodiversity in wetlands and link to the projects in the Natural Diversity RDP.

7.2.4 Public/Private Benefit

The majority of the identified biodiversity assets in the Region are in public ownership. The preservation of biodiversity within the Region is seen as a public rather than a private benefit and on that basis, landholders with high value biodiversity assets will be given assistance to protect them.

7.3 Sustainable Production Regional Delivery Program

7.3.1 Rationale

The rationale for the Sustainable Production RDP is that a common approach is needed to changing systems and behaviours in productive activities. The SCC provides a suitable framework for government/community linkages for NRM improvements. This RDP has therefore been given responsibility for addressing issues of change in broad acre and intensive agriculture, industry and commerce leading to improved natural resource outcomes.

Broad acre agriculture is restricted in the Region and occurs only in the Avon Upper Swan. There are significant salinity and nutrient export issues in this area. Erosion, waterlogging and acid soils development are also significant threats to the natural values in this area, particularly aquatic ecology. Waterlogging is instrumental in sheet erosion and nutrient transport, especially during winter in areas where the groundwater table lies close to the surface. Development of acid sulphate soils can be devastating to both natural systems and the built environment.

Intensive horticulture is a significant sector in the Region. It includes market gardening on the sandy soils and grape and fruit production on the eastern side of the coastal plain and the Darling Scarp. Threats to natural assets from this sector include wetland loss through over extraction of groundwater and pollutant export from poor farming practices.

There are over 120,000 small to medium enterprises in the Region, and these are almost totally non-regulated. Many additional industrial areas are planned into the future. Initial evidence from audits and water quality monitoring indicates that there is a pollutant threat to ground and surface water from poor practices. Problems from air emissions in this sector are currently unknown.

7.3.2 Targets

Land Salinity

LR1 There will be a reduction in the area of salinity-affected land within the Avon Upper Swan NAP region by 2020 (RCT to be set by December 2005)

Soil Condition

LR2 Maintain and improve soil condition, at measured at representative sites, including extent of water erosion, waterlogging and acid sulfate soils by 2020. (RCT to be set by December 2005)

Integrated Water Management

LR3 Implement identified remedial actions to address surface water salinity in the Avon Upper Swan Region by 2009

Aquatic Ecosystem integrity

WR1 Maintain and improve the condition of inland aquatic ecosystems integrity, as measured at representative sites, by 2020 (with a quantified target for major rivers and waterways in the region set by 2005)

WR2 Maintain and improve the condition of inland aquatic ecosystems integrity, as measured at representative sites, by 2020 (with a quantified target for priority wetlands in the region set by 2005)

Surface water salinity in freshwater aquatic environments

WR5 Maintain and improve condition of surface waters in priority catchments in the Avon Upper Swan Region, as measured at representative sites by 2020, with quantified targets to reduce salinity set by 2005

Nutrients in Aquatic Environments

WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus (TP) and 1.0mg/L for total nitrogen (TN) by 2020

Air

AR1 Continue to progress towards improved air quality, with resource condition target(s) to be set for air quality by 2005.

The following projects are proposed to be funded through the 2006/08 Investment Plan to address these targets:

Table 6: Sustainable Production RDP Proposed Projects, Expected Outcomes and Key Partners

Activity and RCT's addressed	Expected Outcome	Key Partners
Salinity Management in Wooroloo (LR1, WR5)	Development of a salinity reduction strategy, implemented through field days and development of farm plans.	Landowners Local Government
Waterwise on the Farm (WR2, WR3)	Identification and implementation of BMPs for irrigation and fertiliser use with a range of intensive horticulture sectors.	Department of Environment Department of Agriculture Growers
Linking BMPs with the Vegetable Growers (WR2, WR3)	Collation of BMPs and delivery through industry association field days, one-on-one delivery and farm plans.	VegetablesWA Enviroveg Vegetable Growers Department of Agriculture
Linking BMPs with the Grapegrowers and Orchardists (WR1, WR3, WR4)	Collation of BMPs and delivery through industry association field days, one-on-one delivery and farm plans.	Grape Growers Orchardists Department of Agriculture
Small to Medium Enterprise (SME) Sustainability Project (WR1, WR2, WR3)	A Region wide auditing program for SMEs implemented through Local Government with supporting information sheets feeding into a central database. A model for new industrial developments produced. Green procurement of services implemented by Local Government. A model for behaviour change for waste management within an industrial precinct developed.	Industry Chambers Local Government Developers Department of Environment Water Corporation Department for Planning & Infrastructure CSBP Limited
SME Air Emissions Study (AR1)	A final report on the air emissions of SMEs with recommendations for action.	Industry Local Government Department of Environment
Bellevue Sustainable Industry Project (WR1, WR3)	A holistic approach to managing waste and implementing BMPs in an industrial precinct. The model can then be used in other industrial areas.	Waste Management Board Local Government Department of Environment Swan River Trust Industry Community

7.3.3 Integration with other Programs and Projects

The Integrated Water Management RDP targets the problems of salinity and nutrient export in the Ellen/Brockman Catchments and the Sustainable Production RDP will work together on associated projects.

The Sustainable Production RDP will also work closely with the Avon Catchment Council to coordinate the NAP funded projects which the Avon is implementing across the Avon Arc, which includes the Avon Upper Swan area. Activities are not yet finalised but will include groundwater monitoring, fencing and demonstration sites.

The intensive horticulture projects build on the work already done by industry groups and provides a mechanism for implementation.

Five Local Governments are currently involved in the SME Sustainability Project, and many more are interested in a second trial. The project is also well supported by the Chamber of Commerce and Industry and Local Chambers. The Green procurement of services development will complement the work the Western Australian Local Government Authority has already undertaken on Green procurement of goods. The Greenstamp program initiated through the Motor Trades Association is supported through the SME Sustainability Project. The Air Emissions study is a partnership project with the Department of Environment, and implements one of the recommendations of the Perth Air Quality Strategy.

A project that is funded through external sources and support and integrate with this RDP is the Light Industry Information Sheets series (CSBP \$14,000, SRT \$4000): Six generic fact sheets have been funded to provide information through the Local Government Auditing program.

7.3.4 Public/Private Benefit

Throughout the world, land close to a major metropolitan area attains a high value. While zoning introduces considerable effects on land price, the effect of land degradation on land value within a planning zone is approximately proportional to its land price. In other words, salinity will have a larger absolute impact on land value in a high-value area zoned rural, than in a remote area with the same zoning.

The Strategy supports the retention of high quality rural land for agricultural use. Investment in agricultural land protection will have multiple benefits, not just for production but also for the value of water and biodiversity assets.

The investment in intensive horticulture and SMEs of light industry has both a public benefit (protection of water assets) and a private benefit (compliance with the Unauthorised Discharge Regulations and increased efficiency and profitability).

7.4 Coast and Marine Regional Delivery Program

7.4.1 Rationale

Perth's coastline and offshore waters are the playground for a large part of the growing population. The brilliant colours and clarity of the water and the rich diversity of sea life attract thousands of

recreational users throughout the year. Power boating, yachting, surfing, sailing, fishing, snorkelling and beach usage are at their height in summer. The beach shacks are no longer, but the intensity of use is much higher. Four large marinas have been built between Fremantle and Yanchep, and two further marinas are proposed in Cockburn Sound. Gage Roads provides the entry route for the vastly increased amount of commercial shipping coming to Fremantle and Cockburn Sound. Rottnest Island remains a premier recreational and environmental focus for many Perth residents and tourists. Therefore, protection of estuarine, coastal and marine habitats integrity, and the cultural values associated with the marine environment must be a high priority for the Swan Region.

Symptoms of degradation of the Region's coastal and marine environment, which creates a need for new investment, are biodiversity decline, exotic marine species; ecosystem fragmentation; exotic plants and habitat loss. Prominent causes are recreational activities, urban or industrial discharges, erosion and sedimentation, nutrient export and enrichment (which are a major factor in sea grass death and which can create monocultures elsewhere), process disruption, infrastructure development, and chemical contamination. Beach access is an ongoing issue for dune preservation. There is generally inadequate recognition of the long-term effects of usage and development along the coastal strip.

7.4.2 Targets

Estuarine, Coastal and Marine Habitat Integrity

CMR1 Maintain and improve condition of terrestrial coastal habitats in the Region, as measured at representative sites by 2020, with a quantified target set by 2005

CMR2 Maintain and improve condition of marine habitats in the Region, as measured at representative sites by 2020, with a quantified target set by 2005

CMR3 Maintain and improve condition of marine fauna in the Region, as measured at representative sites by 2020, with a quantified target set by 2005

The following projects are proposed to be funded through the 2006/08 Investment Plan to address these targets:

Table 7: Coastal and Marine RDP Proposed Projects, Expected Outcomes and Key Partners

Activity and RCT's addressed	Expected Outcome	Key Partners
Marine Indicators Project (CMR2, CMR3)	The marine targets will be set for the Region in consultation with the Strategic Reserve Marine Project Steering Committee and relevant projects funded.	Strategic Reserve Marine Project Steering Committee
Coastal Managers Devolved Grants (CMR1)	Coastal Local Governments will prepare Coastal Management Plans in consultation with community	Local Government Community
Coastcare Program (CMR1)	Coastal Local Governments will be assisted to work with their community to implement Coastal Management Strategies	Local Government Community
Coastal Seed Program (CMR1)	A seedbank of local seed will be established to assist coastal rehabilitation projects	Local Government Community

Activity and RCT's addressed	Expected Outcome	Key Partners
Coastal Indigenous Project	This project will be hosted by GAWA and run in conjunction with the Coastal Evaluation Project. The outcomes will be coastal Indigenous sites identified, stories recorded and community awareness of Indigenous cultural heritage raised. Indigenous communities will be encouraged to become involved with coastal community groups.	Greening WA Lotterywest Community

7.4.3 Integration with other Programs and Projects

The Coastal and Marine RDP is well integrated with both the Water and Natural Diversity RDPs. The water quality data being collected through the Beach Health Program is being collected with the same methodology as the Water Quality Monitoring and Evaluation Framework, and is stored in the Department of Environment WIN database.

The coastal vegetation information is integrated with the Perth Biodiversity Project, and uses the same vegetation classification and condition assessment.

Other projects which are funded through external sources and support and integrate with this program include:

- **Beach Health program** (priority project \$300,000): This project is assessing water quality of major stormwater outlets into the ocean to determine whether further research is required to determine nearshore impacts
- **Coastcare and Swan Alcoa Landcare Program Project funding** (Alcoa, Swan River Trust, \$550,000): Funding from both these programs is accessed each year by community and Local Government to carry out coastal rehabilitation

7.4.4 Public/Private Benefit

The coastal and marine assets are exclusively public assets.

8. CAPACITY BUILDING PROGRAM

Capacity building within the Swan Region relates to a range of activities by which the Regions' people and institutions can improve their capacity to achieve the targets set out in the Strategy.

Although many of the projects have capacity building components within them, there is also a dedicated capacity building program in the form of the Regional NRM Education and Training Program that underpins the four Regional Delivery Program areas. Two officers are employed to implement the project which includes training for community groups, NRM professionals, Local Government (LG) officers and industry personnel.

In the 2005/06 Investment Plan, the project focused mainly on training community groups and catchment group officers in areas such as groundwater management; water quality monitoring; river restoration; cross-cultural awareness; acid sulphate soils management; first aid and facilitation

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techniques. Although this target audience is still important, the focus for the 2006/08 Investment Plan will be on building the capacity of LG and industry. As the Region is predominantly urban, LG and industry are considered to have a substantial contribution to make to NRM.

Issues to be covered in LG training modules include: water quality monitoring; river foreshore assessment and management; drainage management; cross-cultural awareness; sustainable landscaping; light industry management; supporting community groups; and planning and development.

The training project aims to facilitate change in how LG operate in managing their natural resources and to provide opportunities for partnership projects between LG and other stakeholders such as industry, State Government and community groups.

9. INDIGENOUS CULTURAL HERITAGE PROGRAM

The Indigenous Cultural Heritage Program underpins all RDPs and activities. Indigenous interests are incorporated into many of the current activities of the SCC. For example all steering committees for biodiversity planning through the Perth Biodiversity Project have an Indigenous representative.

An Indigenous NRM Coordinator has been employed by the SCC since 2004 to implement the five Cultural Heritage Targets outlined below:

CH1.1 Research, record, and publish Nyoongar history of the Swan Region by 2009.	The initial CD-ROM of Nyoongar stories was published and provided with the Swan Region Strategy for NRM in 2004. A second CD-ROM of stories is currently being recorded. The work of the Indigenous wetlands and Coastal officer will add to this information.
CH 1.2 Review and identification of opportunities in policy and legislation to include Indigenous cultural heritage by 2009	The SCC Indigenous NRM Coordinator researches and provides advice to all levels of government and community.
CH1.3 Increase Indigenous employment and participation in NRM activities locally and regionally by 2009	The SCC will have an Indigenous Coordinator and a Wetlands Indigenous Officer by July 2006. The SCC will also have facilitated the employment of an Indigenous Coastal Officer at Greening WA. The SCC is in partnership with the Swan River Trust to develop an Indigenous Traineeship Program.
CH1.4 Achieve 75% per cent increase in the number of community, LG and State government agencies involved in NRM incorporating Indigenous cultural heritage included as part of their processes by 2009.	The SCC initiates 2 Cross Cultural Heritage Training programs a year. Aboriginal Lands Trust caring for country grants are assessed based upon NRM Strategy Targets throughout the State.
CH1.5 Establish partnerships to further incorporate NRM principles into heritage protection by 2008.	The Wetlands and Coastal Indigenous Officers will establish partnerships in 2006 with community and Local Government to ensure mutually beneficial outcomes for NRM and Heritage protection.

10. INTEGRATION ACROSS REGIONAL DELIVERY PROGRAMS

All RDP activities are linked and integrated with other programs. Specific links between RDPs are detailed under Section 6, Regional Delivery Programs. The Regional Delivery Program Managers and the Indigenous NRM Coordinator work closely to ensure all activities are linked where relevant. The staff are all placed within one office and communicate on a daily basis.

The Reference Groups of the SCC are described in Section 4, Investment Plan Methodology. The six Reference Groups are encouraged to work together on activities, and to refer items to other Reference Groups. For example, the Indigenous NRM Advisory Group and the Integrated Water Management Reference Group will work together to develop and implement the Wetlands Indigenous project.

11. REGIONAL STRUCTURE

The Swan Region has the need to liaise with a greater number of stakeholders than any other Western Australian NRM Region. Although this does give the SCC opportunities to establish other partnerships to increase the funding available for implementation of the Strategy, it requires sufficient resources. The SCC currently has a Partnership Agreement with the Swan River Trust (SRT), and is likely to develop a similar agreement with the Water Corporation. The following projects are currently externally funded through partnerships (ie. not NHT) and managed through the SCC staff:

- Waterwise on the Farm (NLP \$410,000, 1.4 FTE)
- Bellevue Sustainable Industry project (Waste Management Board \$120,000, 1 FTE)
- Industry Fact Sheets (CSBP, SRT \$18,000)
- Coastal Indigenous Project (Lotteries \$160,000)
- Swan Alcoa Landcare program (SRT, Alcoa \$550,000)

Staffing within the Region is currently under review for 2006/08, however it is likely to have the following structure:

Table 8: Swan Catchment Council Staff Structure 2006/08

Description	Responsibilities	% Admin/project	Funding
Executive Officer Level 7/8	• Overall management of the implementation of the Strategy and Investment Plan. • SCC executive support • Partnership development	100% Admin	Core Funding
Business Manager Level 5/6	• Financial management • Contract management • Financial reporting	80% Admin 20% Project	Core Funding
4 x Program Managers Level 5/6	• Management of 4 RDPs and activities • Executive Support to six Reference Groups	50% Admin 50% project	NHT funded

Description	Responsibilities	% Admin/project	Funding
	• Management of externally funded projects and associated staff • Project reporting • Monitoring and Evaluation • Policies and procedures • Partnership development		
Promotions Officer Level 5	• Implement Communications Strategy • Produce publications • Organise SCC events	80% Admin 20% Project	NHT funded
Local Government Coordinator 0.6 Level 5	• Develop projects with Local Government and Local Government Reference Group	100% Project	NHT Funded
Executive Support Officer Level 3	• Executive support to six Reference Groups, Management Sub-committee and Swan Catchment Council	80% Admin 20% Project	NHT Funded
Training Coordinator Level 3	• Coordinate training of community, industry and Local Government • Develop partnerships with other training bodies	100% project	NHT Funded
Training Officer Level 2	• Manage Skills for Nature Conservation Program • Assist Program Managers with training requirements for projects	100% project	NHT Funded
Administration Assistant Level 2	• Manage bookkeeping • Manage reception	100% Admin	Core Funding

The costs of the structure are as follows:

Table 9: Swan Catchment Council Staff Structure Costs

Type of Funding	Cost
Core Funding	\$258,400
NHT Admin Funding	\$276,200
NHT Project Funding	\$397,300
TOTAL	\$931,900

12. INVESTMENT POST 2008

The Swan Region will have completed the first three years of implementation of the Swan Region Strategy for Natural Resource Management (the Strategy) by June 2008. Much of the first three years of investment will have funded baseline studies and pilot projects. This will logically lead to extension of successful pilot projects to large scale implementation. It is likely the Swan Region will be seeking funding in the following areas:

12.1 Integrated Water Management Regional Delivery Program

12.1.1 Foreshore Assessment and Water Quality Monitoring Sub-program

Foreshore Assessments for the Swan-Canning river system and its tributaries will be complete by June 2008. There will be a requirement for funding to implement on-ground actions where these are identified through the assessment process. Water quality monitoring will also be established across the Region by June 2008, and an initial assessment of hotspots will have been made. Investment will be required to implement remediation actions where hotspots are creating significant water quality problems.

12.1.2 Water Management, Training and Technical Support Sub-program

Broadacre agriculture in the Avon Upper Swan area and its issues of salinity and nutrient leaching is being dealt with through implementation of the Ellenbrook and Brockman Integrated Catchment Management (ICM) Plans. The principles enshrined in those plans will also be applied to the Wooroloo Catchment. The ongoing partnership with the Avon Catchment Council for NAP investment into this area will be important into the future. Post June 2008, there will be a need to continue implementation of the ICM plans.

Negotiations for Water Allocation Planning for the Canning Environmental Flows project will be initiated by the Department of Water. Restoration of the Canning River is currently being coordinated by funding to the community from the Swan River Trust and on-ground works are funded through the Swan Alcoa Landcare Program or Envirofunds. There will be a need for funds to extend the Environmental Water Provisions model to the Helena River post June 2008.

The Wetlands Indigenous project will have achieved its initial aims and the focus past June 2008 will be on Indigenous involvement in on-ground works and employment.

The Sustainable Landscaping Project will be adopted by most Local Governments by June 2008. There will be a need for a additional funding to assist Local Government to implement education programs for the community.

12.2 Natural Diversity Regional Delivery Program

12.2.1 Local Diversity Management and Training Sub-program

The first three years of investment in this sub-program are targeting increased capacity of land managers and community to manage biodiversity values. An initial investment is made into developing strategies for dealing with invasive species and defining requirements for corridors. Post June 2008 there will be a need to continue to build the capacity of Local Government and private landowners to protect biodiversity. There will also be a need for a large investment into implementing recommendations for dealing with invasive species, controlling dieback and implementing corridor projects where these are identified as essential.

12.2.2 Biodiversity Planning and Threatened Species and Communities Sub-program

The Swan Region has a number of threatened species and communities which require protection. Investment into this area is limited in 2006/08 by a reduction in the overall allocation from NHT. The SCC will be looking to expand investment in this area post June 2008.

Biodiversity planning will be developed through Local Government by the Perth Biodiversity Project in the first three years of investment. Post June 2008 there will be a need for ongoing funding for the Perth Biodiversity Project to work with the remaining outer metropolitan Local Governments to develop Biodiversity Plans. New funding will also be required to assist Local Governments with Biodiversity Plans to implement the recommendations.

12.3 Sustainable Production Regional Delivery Program

12.3.1 Agriculture

There are three sectors for investment in agricultural landuse:

- The broadacre agriculture in the Avon Upper Swan area and its issues of salinity and nutrient leaching is being dealt with through the Integrated Water Management Regional Delivery Program
- Intensive horticulture is a significant sector in the Region . The first three years of investment will establish partnerships with industry associations to compile Best Management Practices (BMPs) for industry sectors and to establish training and pilot demonstration sites. Post June 2008 will see further partnerships with national programs such as Enviroveg and will extend the BMPs and pilot sites across the intensive horticulture sector in a large scale implementation program.
- Small landholders are growing in numbers on the outskirts of Perth and pose potential risks to biodiversity and water quality. The Swan River Trust (SRT) run a program for this sector (Heavenly Hectares and Property Planning workshops), however the SCC has no investment in this area in the first three years of investment planning. Post June 2008 there will be a need to evaluate the effectiveness of the SRT Program in changing behaviour of small landholders and to establish whether the program needs to be enlarged to include more stakeholders across the Region.

12.3.2 Light Industry

The first three years of investment planning are expected to establish a baseline for the impact of light industry on water quality, investigate the potential for a central online database for light industry and develop pilot projects with Local Government for assisting industry to move towards BMP. Post June 2008, the SCC will be seeking funds to develop the database across the Region and to extend the pilot program targeting hotspots for water quality.

12.4 Coast and Marine Regional Delivery Program

12.4.1 Coastal

By June 2008, most of the Coastal Councils will have developed Coastal Management Strategies developed capacity to support their community groups and will have baseline information on vegetation condition for coastal dunes in the Region. There will be a need to assist the Coastal LGs to implement their strategies. Initial costs of implementation will be high as the most degraded areas of coastal vegetation are re-established. Once initial recommendations from strategies are implemented, LGs will be able to maintain coastal condition.

12.4.2 Marine

The marine targets will be set by June 2008 and recommendations for protection of marine fauna and habitat will be ready for implementation. It is expected that the Region will be establishing partnerships and seeking funding to implement strategic projects for marine protection.

12.5 Capacity Building Program

It is expected that there will be an ongoing need for capacity building within Local Government, industry and community post June 2008.

12.6 Indigenous Cultural Heritage Program

The coastal and wetlands Indigenous officers will have raised awareness of Indigenous sites and values and begun the process of Indigenous engagement in those areas by June 2008. There will be a need post June 2008 to look at the same process for the Swan-Canning river system and bushland areas. There will be a need to fund assistance to Local Government to review management plans to include Cultural Heritage issues.

13. MONITORING AND EVALUATION

13.1 Development of the Swan Region Monitoring and Evaluation Framework

To provide consistency to regional Monitoring and Evaluation Frameworks, the SCC has been working with other regional NRM groups and the State NRM Office to develop a generic draft Monitoring and Evaluation Framework. Progress to date has included agreement on the general contents of the document with further refinement required to tailor it specifically to the needs of the Region. The SCC will continue to work in partnership with other regional groups and the State NRM office to finalise the Monitoring and Evaluation Framework by September 2006.

13.2 Setting of Resource Condition Targets

The setting of Resource Condition Targets (RCTs) for the Region was due to have been completed by December 2005, this date representing three years since the signing of the Bilateral agreements between the State and Commonwealth Governments for NHT2.

Until very recently, the SCC has had insufficient resources to focus on the setting of RCTs with considerable staff time committed to activities associated with the development of the Swan Region Strategy for Natural Resource Management and both the 2004/06 and 2006/08 Investment Plans. In addition to limited staff resources, availability of relevant data has also prevented the informed setting of some RCTs. Some refinement of the indicators is also required to more appropriately reflect the RCT.

The recent appointment of a Monitoring and Evaluation Coordinator will now allow progress to be made towards setting of all RCTs for the Region.

Of the 15 RCTs in the Strategy, only three have already been set. The status of the remaining 12 are shown on Table 10.

Table 10: Status of Resource Condition Targets

REF	TYPE	TARGET	INDICATOR
MATTER FOR TARGET - LAND SALINITY			
LR1	RCT	Reduction in the area of land affected by salinity, within the Avon Upper Swan National Action Plan Region, by 2020 (with a quantified target set by December 2005)	- Location and size of salt affected areas - Depth to groundwater - Groundwater salinity
Target to be set by September 2006 The relevant baseline data to set this RCT exists but to date, available staff time in collating and interpreting the information has been limited. The Ellen Brockman Integrated Catchment Group and the Agriculture Department will be working collaboratively to set this RCT.			
MATTER FOR TARGET – SOIL CONDITION			
LR2	RCT	Maintain and improve soil condition, as measured at representative sites, including extent of water erosion, waterlogging and acid sulfate soils, by 2020 (with a quantified targets set by December 2005)	- Targets set - Soil erosion - Waterlogging
Target to be set by September 2006 The relevant baseline data to set this RCT exists but to date, available staff time in collating and interpreting the information has been limited. The Ellen Brockman Integrated Catchment Group and the Agriculture Department will be working collaboratively to set this RCT.			
MATTER FOR TARGET – AQUATIC ECOSYSTEM INTEGRITY			
WR1	RCT	Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005)	- Riparian vegetation community assemblages - Riverine physical structure and in-stream habitat - Water quality - hydrology
Target to be set by December 2006 - There is currently insufficient data to allow informed target setting for the Swan-Canning river system to occur. A regional Water Quality Monitoring and Evaluation Framework program has been established in partnership with the Department of Environment's Aquatic Sciences Branch. This project includes the development of water quality monitoring programs to be implemented in winter 2006 with the results being used to set targets for the Swan-Canning river by December 2006. - The Swan Canning Foreshore Assessment project is currently collecting data on the condition of the foreshore along the Swan and Canning river systems. This project fills a critical knowledge gap and establishes a baseline for foreshore condition where no previous data exists. Due for completion in June 2007, enough information will be available to allow for the setting of Resource Condition Targets by December 2006. - The indicators for this project may also be altered to more accurately reflect the new RCT. For example, 'hydrology' is not a specific indicator and may be replaced.			
WR2	RCT	Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites, by 2020 (with quantified targets for priority wetlands in the Region set by 2005)	- Extent of regionally significant wetlands - Nutrients - Vegetation - Macroinvertebrate indicator species - Macroinvertebrate diversity and community composition
Target to be set for representative sites by September 2006 The relevant baseline data to set this RCT exists but to date, available staff time in collating and interpreting the information has been limited. The Swan Catchment Council in conjunction with the Department of Environment and CALM will be working collaboratively to set this RCT.			

REF	TYPE	TARGET	INDICATOR
		MATTER FOR TARGET- NUTRIENTS IN AQUATIC ENVIRONMENTS	
WR3	RCT	Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen, by 2020	TN, TP + flow leaving sub-catchments
Target already set			
		MATTER FOR TARGET - TURBIDITY/SUSPENDED PARTICULATE MATTER IN AQUATIC ENVIRONMENTS	
W4	RCT	Maintain and improve condition of aquatic environments in the Region, as measured at representative sites, by 2020 (with quantified targets for turbidity / suspended particulate matter set by 2005)	Total Suspended Solids (TSS) + Flow
Target to be set by December2006 - There is currently insufficient data to allow informed target setting for the Swan-Canning river system to occur. A regional Water Quality Monitoring and Evaluation Framework program has been established in partnership with the Department of Environment's Aquatic Sciences Branch. This project includes the development of water quality monitoring programs to be implemented in winter 2006 with the results being used to set targets for the Swan-Canning river by December 2006. - The Swan River Trusts Swan Canning Foreshore Assessment project is currently collecting data on the condition of the foreshore along the Swan and Canning river systems. This project fills a critical knowledge gap and establishes a baseline for foreshore condition where no previous data exists. Due for completion in June 2007, enough information will be available to allow for the setting of Resource Condition Targets by December 2006.			
		MATTER FOR TARGET- SURFACE WATER SALINITY IN FRESH WATER AQUATIC ENVIRONMENTS	
W5	RCT	Maintain and improve condition of surface waters in priority catchments in the Avon Upper Swan Region, as measured at representative sites, by 2020 (with quantified targets to reduce salinity set by 2005)	Electrical conductivity (EC) + flow
Target to be set by December 2006 - There is currently insufficient data to allow informed target setting for the Swan-Canning river system to occur. A regional Water Quality Monitoring and Evaluation Framework program has been established in partnership with the Department of Environment's Aquatic Sciences Branch. This project includes the development of water quality monitoring programs to be implemented in winter 2006 with the results being used to set targets for the Swan-Canning river by December 2006. - The Swan River Trusts Swan Canning Foreshore Assessment project is currently collecting data on the condition of the foreshore along the Swan and Canning river systems. This project fills a critical knowledge gap and establishes a baseline for foreshore condition where no previous data exists. Due for completion in June 2007, enough information will be available to allow for the setting of Resource Condition Targets by December 2006.			
		MATTER FOR TARGET - NATIVE VEGETATION COMMUNITIES INTEGRITY	
BR1a	RCT	The comprehensiveness, adequateness and representativeness (CAR) of the protected area system (including formal reserves and off-reserves) is improved by 50% by 2015, based on 2005 baseline data	- Extent of priority vegetation complex in each IBRA sub-region identified - Reserve areas for inclusion identified - No of areas acquired
BR1b	RCT	Maintain and improve the condition of high priority native vegetation (including formal reserves and off-reserves) by 2020, based on 2005 baseline data	
Target already set			
		MATTER FOR TARGET – SIGNIFICANT SPECIES AND ECOLOGICAL COMMUNITIES	
BR2	RCT	50% of critical habitat for identified significant species and ecological communities protected by 2014	Area of habitat protected
Target already set			
		MATTER FOR TARGET – ECOLOGICALLY SIGNIFICANT INVASIVE SPECIES	
BR3	RCT	Reduction in impact of regionally significant invasive species by 2020 (with a quantified target set by December 2005)	Impact of invasive species
Target to be set by December 2006 At present, insufficient data exists to set this Resource Condition Target. The Swan Catchment Council has funded a new project in its 2006-2008 Investment Plan focusing on Invasive Species. The project will identify major target species and their distribution. This information will form the basis for target setting.			

REF	TYPE	TARGET	INDICATOR
		MATTER FOR TARGET: ESTUARINE, COASTAL AND MARINE HABITAT INTEGRITY	
CMR1	RCT	Maintain and improve the condition of terrestrial coastal habitats in the Region, as measured at representative sites, by 2020 (with a quantified target set by 2005)	- Coastal habitat extent and distribution - Coastal habitat condition
Target to be set by December 2006 Existing data on coastal condition was not collected using standardised methods with little or no comparison between datasets possible. To address this issue, the Swan Catchment Council funds a Coastal Evaluation Project hosted by Greening WA. The aim of the project is to identify key representative sites and develop quantified resource condition targets through assessing all coastal sites using a standardised template. This project is expected to be complete by December 2006.			
CMR2	RCT	Maintain and improve the condition of marine habitats in the Region, as measured at representative sites, by 2020 (with a quantified target set by 2005)	- Marine habitat extent and distribution - Marine habitat condition
The setting of this target is dependent on progress of Strategic Reserve Marine Project. The project, Securing WA Marine Futures is being undertaken by the University of Western Australia and has a current Strategic Reserve investment of \$4.2 M. The aim of the project is to directly undertake marine habitat assessment, identification of representative sites and developing marine resource condition targets as a result. This project is currently occurring statewide with the Swan Region being completed by the end of 2007.			
CMR3	RCT	Maintain and improve the condition of marine fauna in the Region, as measured at representative sites, by 2020 (with a quantified target for key indicator species set by 2005).	- An interim approach to monitoring key indicator species and ecological communities - Marine fauna extent and distribution - Marine fauna population viability
The setting of this target is dependent on progress of Strategic Reserve Marine Project. The project, Securing WA Marine Futures is being undertaken by the University of Western Australia and has a current Strategic Reserve investment of \$4.2 M. One of the outcomes of the project will be to identify key species to be used at indicators at representative sites for monitoring of marine fauna population viability, extent and distribution. This project is currently occurring statewide with the Swan Region being completed by the end of 2007.			
AR1	RCT	Continue to progress towards improved air quality, with Resource Condition Target(s) to be set for air quality by 2005	Target set
Target to be set by September 2006 The relevant baseline data to set this RCT exists but to date, available staff time in collating and interpreting the information has been limited. The Swan Catchment Council and the Department of Environment will be working collaboratively to set this RCT.			
AR2	RCT	Set Resource Condition Targets to manage climate risk and reduce risk of major environmental, economic or social outcomes from drought or coastal land impacts	Target set
Target to be set by September 2006 The relevant baseline data to set this RCT exists but to date, available staff time in collating and interpreting the information has been limited. The Swan Catchment Council and the Department of Environment will be working collaboratively to set this RCT.			
			Risk assessment performed

14. SUMMARY OF RESOURCE CONDITION TARGETS BY CONTRIBUTING ACTIVITIES

Table 11 provides a summary of RCTs by contributing activities.

Contribution to Resource Condition Target (RCT) and Management Action Targets (MAT): The number beside each RCT and MAT is an indication on the progress towards achieving the RCT and MAT.

- | | |
|---|--|
| 4 | Target/s achieved or exceeded |
| 3 | Substantial evidence of progress |
| 2 | Some evidence of progress |
| 1 | No evidence of progress, or possible regress |

15. SUMMARY OF PROPOSED ACTIVITIES FOR NHT FUNDING, BY THEIR PRINCIPLE RESOURCE CONDITION TARGETS AND MATTERS FOR ACTION

Table 12 gives of a list of projects with their relevant RCTs, MATs and funding budgets.

Table 11: Summary of Resource Condition Targets by Contributing Activities

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
LR1 - Reduction in the area of land affected by salinity, within the Avon Upper Swan National Action Plan Region, by 2020 (with a quantified target set by September 2006)	LM1.1 LM1.2 LM1.3 LM1.4	Sustainable Production RDP: - Wooroloo Salinity Management Project Integrated Water Management RDP: - Water Quality Monitoring and Evaluation Framework - Ribbons of Blue - Avon Upper Swan Salinity Management Project	<u>Contribution to Resource Condition Target:</u> Area of land affected by salinity is identified and prioritisation of remediation activities undertaken, with a quantified target set by September 2006 - 2 <u>Contribution to Management Action Targets:</u> LM 1.1 - 3 LM 1.2 - 3 LM 1.3 - 2 LM 1.4 - 3 <u>Outputs:</u> CB 1.1 4 field days conducted with 80 participants OG 5.3 5ha of exotic perennial pastures established OG 3.4 20ha of terrestrial native vegetation enhanced/rehabilitated P3.2 6 property or reserve management plans completed CB1.4 10 media events about on-ground works CB1.1 4 community awareness raising events for biodiversity protection OG3.4 10ha terrestrial vegetation rehabilitated RA2.3 1 state of the Environment report for Chittering completed OG4.3 10ha wetland vegetation replanted with 5ha local species OG10.1 10ha land treated with surface drainage with 10km drains CB4.4 1 x review and update of Salinity Decision Support Tool CB2.1 11 x workshops on perennial pastures, saline site recovery and alternative deep rooted crops for 130 people days. OG4.3 20ha wetland vegetation revegetated all locally occurring OG9.1 4ha land treated for salinity through engineering works
LR2 - Maintain and improve soil condition, as measured at representative sites, including extent of water erosion, waterlogging and acid sulfate soils, by 2020 (with a quantified targets set by September 2006)	LM2.1 LM2.2 LM2.3 LM2.4 LM2.5	Sustainable Production Delivery Program: - Wooroloo Salinity Management Project - Linking BMPs with grape growers and orchardists Integrated Water Management Delivery Program: - Water Quality Monitoring and Evaluation Framework - Ribbons of Blue - Avon Upper Swan Salinity Management Project	<u>Contribution to Resource Condition Target:</u> Soil condition maintained or improved, as measured at representative sites, including extent of water erosion, waterlogging and acid sulphate soils, with a quantified target set by September 2006.- 2 <u>Contribution to Management Action Targets:</u> LM2.1- 3 LM 2.2 - 2 LM 2.3 - 2 LM 2.4 - 32 LM 2.5 - 2 <u>Outputs:</u> CB2.1 11 x workshops on perennial pastures, saline site recovery and alternative deep rooted crops for 130 people days. OG4.3 20ha wetland vegetation revegetated all locally occurring OG9.1 4ha land treated for salinity through engineering works

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
WR1 - Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 with quantified targets for major rivers and waterways in the Region set by December 2006)	WM1.1 WM1.2 WM1.3 WM1.4 WM1.5	Integrated Water Management Delivery Program: • Canning Environmental Flows • Swan-Canning Foreshore Assessment • Swan-Canning Tributary Foreshore Assessment • Water Quality Monitoring & Evaluation Framework • Ribbons of Blue • Avon-Upper Swan Salinity and Nutrient Management Project Sustainable Production Delivery Program: • SME Sustainability Project Natural Diversity Delivery Program: • Skills for Nature Conservation • Swan Alcoa Landcare Program	<u>Contribution to Resource Condition Target:</u> Condition of major rivers and waterways is documented, as measured at representative sites, and is maintained or improved, with a quantified target set by December 2006. - 2 <u>Contribution to Management Action Targets:</u> WM1.1 – 3 WM1.2 - 2 WM1.3 - 2 WM1.4 - 2 WM1.5 - 2 <u>Outputs:</u> CB1.4 1 media opportunity resulting in articles in newspapers or on radio or television created P1.1 1 set of best management practice codes or guidelines completed RA3.1 1 model developed RA2.2 1 social /economic study completed P5.1 1 report on project outcomes complete RA3.3 1 decision support tool for LGs to use in tender documents for green procurement. RA2.3 1 report on green procurement of services. CB1.2 12 sets of industry fact sheets prepared and 3000 sets distributed. RA2.3 1 report on model design for eco-industrial park. CB4.4 1 trial of SME database with Local Chamber. RA2.3 1 report on feasibility of SME database CB3.3 10 arrangements for effective collaboration negotiated with LGs to audit industry. RA3.3 2 new industrial audits developed. CB2.1 4 training sessions, workshops, seminars or other skills and training events conducted CB2.2 2 training courses developed P1.1 1 BMP manual completed P 3.2 8 property or reserve management plans completed CB 2.1 8 training sessions, workshops, seminars or other skills and training events conducted P1.1 1 BMP codes or guidelines completed CB2.1 36 workshops for community held on natural diversity issues for 500 participants CB1.2 Calendar of training events produced CB1.4 10 media events about on-ground works CB1.1 4 community awareness raising events for biodiversity protection CB1.1 2 Macroinvertebrate Snapshot Events held CB1.1 8 Presentations given at community environment events CB1.2 8 newsletters distributed

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
			CB2.1 7 Professional Development events held for 120 teachers on water issues CB2.1 11 x workshops on perennial pastures, saline site recovery and alternative deep rooted crops for 130 people days. CB2.2 1 Stormwater Education Pilot Program developed for trial in 5 schools CB2.2 2 new education resources about water issues developed for teachers RA2.3 1 x review of the foreshore assessment of the Brockman River OG4.3 20ha wetland vegetation revegetated all locally occurring OG9.1 4ha land treated for salinity through engineering works RA2.3 4 x water quality reports. RA 2.1 5 x Summary reports of site assessment and historical data produced for Sections 4-8 RA2.3 1 x report completed (Statistical assessment and map production for MS6). CB4.1 1 x Complete baseline data set for project area entered into data management system RA3.1 1 x Conceptual model of foreshore function and structure for key biophysical sections of the system. RA3.3 Multi-criteria decision support tool for river management complete P3.1 1 x Development of a DRAFT foreshore management strategy (including objectives hierarchy with resource condition and management action targets and practices guidelines) P4.2 1 x development of a DRAFT monitoring and evaluation plan (including identification of pressure, state and response indicators) initiated RA2.3 3 x reports detailing tributary condition and identifying knowledge gaps RA2.1 5 studies completed RA3.3 1 x decision support matrix developed RA2.3 3 x reports prioritising reaches for on-ground action CB5.1 5 landowners assisted CB3.2 25 x collaborative partnerships established for water quality monitoring. RA1.2 15 x water quality monitoring programs established. RA1.3 5 x existing water quality monitoring programs enhanced RA4.1 x Research study completed RA4.1 1 x Research study completed P5.1 1 report on the Ecological Water Requirements for the Canning River System (Recommendations)

Summary of Natural Heritage Trust Investments by Targets

Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
WR2 - Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites, by 2020 (with quantified targets for priority wetlands in the Region set by September 2006)	WM2.1 WM2.4 WM2.5	Integrated Water Management RDP: - Water Quality Monitoring & Evaluation Framework - Ribbons of Blue - Avon-Upper Swan Nutrient and Salinity Management Project - Indigenous Wetlands Project - Wetland Watch - Superficial Aquifer Health Project Natural Diversity RDP: - Perth Biodiversity Project - Landholder Incentives package - Swan Alcoa Landcare Program Sustainable Production RDP - Waterwise on the Farm Project	<u>Contribution to Resource Condition Target:</u> Condition of priority wetlands is documented, as measured at representative sites, and maintained or improved, with a quantified target set by September 2006. - 2 <u>Contribution to Management Action Targets:</u> WM2.1 – 2 WM2.2 - 2 WM2.3 - 2 WM2.4 - 2 WM2.5 - 3 <u>Outputs:</u> CB1.4 5 media opportunity resulting in articles in newspapers or on radio or television created. P5.1 1 report on project outcomes complete RA3.3 1 decision support tool for LGs to use in tender documents for green procurement. RA2.3 1 report on green procurement of services. CB1.2 12 sets of industry fact sheets prepared and 3000 sets distributed. RA2.3 1 report on model design for eco-industrial park. CB4.4 1 trial of SME database with Local Chamber. RA2.3 1 report on feasibility of SME database CB3.3 10 arrangements for effective collaboration negotiated with LGs to audit industry. RA3.3 2 new industrial audits developed. P 3.2 8 property or reserve management plans completed CB 2.1 8 training sessions, workshops, seminars or other skills and training events conducted P1.1 1 BMP codes or guidelines completed CB2.2 1 workbook set and course notes developed for BMP irrigation. CB2.1 4 training sessions, on BMP irrigation. OG13.1 100(ha) of land where improved irrigation practices have been adopted and 6 land managers using improved irrigation practices. P3.2 6 irrigation management plans completed. RA1.2 1 new monitoring program established for current water use. P1.1 1 set of best management practice codes or guidelines completed CB1.1 16 awareness raising events; about endangered species OG8.1 20ha of pest plant control OG3.2 2 ha wetland vegetation enhanced. OG3.4: 800 ha terrestrial vegetation with various management and enhancement activities carried out RA2.3 1 Re-assessment report on conservation status of critical endangered TECs completed RA2.1 Annual monitoring and review of populations and occurrences completed

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
			P5.1 4 annual works plans completed RA2.2 1 survey of LG capacity to manage natural areas completed CB4.4 1 regional database for vegetation assessments developed CB1.2 20 electronic newsletters sent to 30 members of the NAMN CB2.1 14 workshops on assessment techniques and use of reference sites held for 300 people days P4.2 7 natural resource assessment studies funded P3.1 5 Local Natural Diversity Discussion papers produced CB2.1 36 workshops for community held on natural diversity issues for 500 participants CB1.2 Calendar of training events produced CB1.4 10 media events about on-ground works CB1.1 4 community awareness raising events for biodiversity protection CB1.1 2 field days held CB1.1 2 Macroinvertebrate Snapshot Events held CB1.1 8 Presentations given at community environment events CB1.2 8 newsletters distributed OG 3.2 5ha wetland vegetation rehabilitated OG3.3 10ha riparian vegetation rehabilitated and 10km of streambank CB2.1 7 Professional Development events for 120 teachers on water issues CB2.2 2 new education resources about water issues developed for teachers CB1.4 8 media opportunities (radio/ newspaper articles) CB1.2 2 newsletters/ brochures produced CB2.1: 4 training events or workshops held OG1.2 10 wetland voluntary conservation agreements negotiated OG3.4: 20 ha of terrestrial vegetation rehabilitated OG3.2: 10 ha of wetland vegetation rehabilitated CB5.1 5 Community groups assisted. CB1.1 2 x Community Education/Land Manager Training events held. P5.1 5 x Heritage Management Plans for selected wetlands completed. RA2.3 10 x reports on the historical significance of selected wetlands RA2.3 1 x Report Prioritising wetlands for activity RA2.3 1 x Report Prioritising wetlands for activity RA1.3 5 new monitoring programs established RA2.3 1 x report detailing trends in the water level in Superficial Aquifers RA2.3 1 x report detailing results of groundwater monitoring audit CB2.1 11 x workshops on perennial pastures, saline site recovery and alternative deep rooted crops for 130 people days.

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
			OG4.3 20ha wetland vegetation revegetated all locally occurring OG9.1 4ha land treated for salinity through engineering works CB3.2 25 x collaborative partnerships established for water quality monitoring. CB2.2 1 Stormwater Education Pilot Program developed for trial in 5 schools RA1.2 15 x water quality monitoring programs established. RA1.3 5 x existing water quality monitoring programs enhanced RA2.3 4 x water quality reports.
WR3 -Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen, by 2020	WM3.1 WM3.2 WM3.3 WM3.4	Integrated Water Management RDP: - Water Quality Monitoring & Evaluation Framework - Ribbons of Blue - Sustainable Landscaping - Avon Upper Swan Salinity and Nutrient Management Project - Wetland Watch - Superficial Aquifer Health Sustainable Production RDP: - SME Sustainability Project - Linking Best Management Practices with Vegetable Growers - Linking Best Management Practices with Grape Growers and Orchardists - Wooroloo Salinity Management Project - Waterwise on the Farm Project - Bellevue Sustainable Industry Project	<u>Contribution to Resource Condition Target:</u> Monitoring systems for concentrations of total nitrogen and phosphorus are established and concentrations do not increase in priority waterways, with substantial progress towards decreasing levels at nutrient hotspots. - 2 <u>Contribution to Management Action Targets:</u> WM3.1- 2 WM3.2 - 2 WM3.3 - 2 WM3.4 - 2 <u>Outputs:</u> CB1.4 1 media opportunity resulting in articles in newspapers or on radio or television created P1.1 1 set of best management practice codes or guidelines completed CB2.1 4 training sessions, workshops, seminars or other skills and training events conducted CB2.2 2 training courses developed P1.1 1 BMP manual completed P 3.2 8 property or reserve management plans completed CB 2.1 8 training sessions, workshops, seminars or other skills and training events conducted P1.1 1 BMP codes or guidelines completed CB2.2 1 workbook set and course notes developed for BMP irrigation. CB2.1 4 training sessions, on BMP irrigation. OG13.1 100(ha) of land where improved irrigation practices have been adopted and 6 land managers using improved irrigation practices. P3.2 6 irrigation management plans completed. RA1.2 1 new monitoring program established for current water use. CB2.1 36 workshops for community held on natural diversity issues for 500 participants CB1.2 Calendar of training events produced CB1.4 10 media events about on-ground works CB1.1 4 community awareness raising events for biodiversity protection CB1.3 30 demonstration Sustainable landscaping gardens established

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
			CB3.3 20 .partnerships established to promote the Sustainable Landscaping Project program CB1.1 3 training events held for LG staff in Sustainable Landscaping CB2.1 7 Professional Development events held for 120 teachers on water issues CB2.2 1 Stormwater Education Pilot Program developed for trial in 5 schools OG3.3 10ha riparian vegetation rehabilitated and 10km of streambank CB1.1 2 Macroinvertebrate Snapshot Events held CB1.1 8 Presentations given at community environment events CB2.2 2 new education resources about water issues developed for teachers CB1.2 8 newsletters distributed OG3.3 10ha riparian vegetation rehabilitated and 10km of streambank CB1.1 4 community awareness raising events for biodiversity protection CB1.4 10 media events about on-ground works CB1.2 Calendar of training events produced CB2.1 36 workshops for community held on natural diversity issues for 500 participants CB1.2 2 Fact Sheets produced P3.2 6 irrigation management plans completed. OG13.1 100(ha) of land where improved irrigation practices have been adopted and 6 land managers using improved irrigation practices. CB2.1 4 training sessions, on BMP irrigation. CB2.2 1 workbook set and course notes developed for BMP irrigation. P1.1 1 BMP codes or guidelines completed CB 2.1 8 training sessions, workshops, seminars or other skills and training events conducted P 3.2 8 property or reserve management plans completed P1.1 1 BMP manual completed CB2.2 2 training courses developed CB2.1 4 training sessions, workshops, seminars or other skills and training events conducted RA3.3 2 new industrial audits developed. CB2.2 1 Stormwater Education Pilot Program developed for trial in 5 schools CB3.3 10 arrangements for effective collaboration negotiated with LGs to audit industry. RA2.3 1 report on feasibility of SME database CB4.4 1 trial of SME database with Local Chamber. RA2.3 1 report on model design for eco-industrial park.

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
			CB1.2 12 sets of industry fact sheets prepared and 3000 sets distributed RA2.3 1 report on green procurement of services. RA3.3 1 decision support tool for LGs to use in tender documents for green procurement. P5.1 1 report on project outcomes complete RA2.2 1 social /economic study completed RA3.1 1 model developed P1.1 1 set of best management practice codes or guidelines completed CB2.1 11 x workshops on perennial pastures, saline site recovery and alternative deep rooted crops for 130 people days. RA2.1 1 study on nutrient intervention structures in the Ellen Brook catchment RA2.3 4 x water quality reports. RA2.1 5 studies completed RA2.3 3 x reports detailing tributary condition and identifying knowledge gaps RA3.1 1 x Conceptual model of foreshore function and structure for key biophysical sections of the system. RA3.3 Multi-criteria decision support tool for river management complete P3.1 1 x Development of a DRAFT foreshore management strategy (including objectives hierarchy with resource condition and management action targets and practices guidelines) P4.2 1 x development of a DRAFT monitoring and evaluation plan (including identification of pressure, state and response indicators) initiated RA3.3 1 x decision support matrix developed RA2.3 3 x reports prioritising reaches for on-ground action CB5.1 5 landowners assisted CB3.2 25 x collaborative partnerships established for water quality monitoring. RA1.2 15 x water quality monitoring programs established. RA1.3 5 x existing water quality monitoring programs enhanced

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
WR4 -Maintain and improve condition of aquatic environments in the Region, as measured at representative sites, by 2020 (with quantified targets for turbidity / suspended particulate matter set by September 2006)	WM4.1 WM4.2 WM4.3 WM4.4	Integrated Water Management RDP: • Canning Environmental Flows • Swan-Canning Foreshore Assessment • Swan-Canning Tributary Foreshore Assessment • Water Quality Monitoring & Evaluation Framework • Ribbons of Blue • Avon Upper Swan Salinity and Nutrient Management Project	<u>Contribution to Resource Condition Target:</u> Monitoring systems for turbidity are established and impacts on aquatic environments, as measured at representative sites, reduce or show no increase, with a quantified target set by September 2006. - 2 <u>Contribution to Management Action Targets:</u> WM4.1 - 3 WM4.2 - 2 WM4.3 - 2 WM4.4 - 2 <u>Outputs:</u> CB2.1 4 training sessions, workshops, seminars or other skills and training events conducted CB2.2 2 training courses developed P1.1 1 BMP manual completed CB2.1 36 workshops for community held on natural diversity issues for 500 participants CB1.2 Calendar of training events produced CB1.4 10 media events about on-ground works CB1.1 4 community awareness raising events for biodiversity protection CB1.1 8 Presentations given at community environment events CB1.1 2 Macroinvertebrate Snapshot Events held CB2.1 7 Professional Development events held for 120 teachers on water issues CB1.2 8 newsletters distributed CB2.2 1 Stormwater Education Pilot Program developed for trial in 5 schools CB2.2 2 new education resources about water issues developed for teachers OG3.3 10ha riparian vegetation rehabilitated and 10km of streambank RA2.3 4 x water quality reports. RA3.3 1 x decision support matrix developed RA2.1 5 studies completed RA 2.1 5 x Summary reports of site assessment and historical data produced for Sections 4-8 RA2.3 1 x report completed (Statistical assessment and map production for MS6). CB4.1 1 x Complete baseline data set for project area entered into data management system RA3.1 1 x Conceptual model of foreshore function and structure for key biophysical sections of the system. RA3.3 Multi-criteria decision support tool for river management complete

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
			P3.1 1 x Development of a DRAFT foreshore management strategy (including objectives hierarchy with resource condition and management action targets and practices guidelines) P4.2 1 x development of a DRAFT monitoring and evaluation plan (including identification of pressure, state and response indicators) initiated RA2.3 3 x reports detailing tributary condition and identifying knowledge gaps RA2.3 3 x reports prioritising reaches for on-ground action CB5.1 5 landowners assisted CB3.2 25 x collaborative partnerships established for water quality monitoring. RA1.2 15 x water quality monitoring programs established. RA1.3 5 x existing water quality monitoring programs enhanced
WR5 - Maintain and improve condition of surface waters in priority catchments in the Avon Upper Swan Region, as measured at representative sites, by 2020 (with quantified targets to reduce salinity set by September 2006)	WM5.1 WM5.2 WM5.3 WM5.4	Integrated Water Management RDP: - WQ Monitoring and Evaluation Framework - Ribbons of Blue - Avon Upper Swan salinity and Nutrient Management Project Sustainable Production RDP: - Wooroloo Salinity Management Project	<u>Contribution to Resource Condition Target:</u> Extent of surface water salinity is identified and prioritisation of remediation activities undertaken, with substantial progress towards setting a quantified target by September 2006.- 2 <u>Contribution to Management Action Targets:</u> WM5.1 - 3 WM5.2 - 3 WM5.3 - 2 WM5.4 - 2 <u>Outputs:</u> CB 1.1 4 field days conducted with 80 participants OG 5.3 5ha of exotic perennial pastures established OG 3.4 20ha of terrestrial native vegetation enhanced/rehabilitated P3.2 6 property or reserve management plans completed CB1.4 10 media events about on-ground works CB1.1 4 community awareness raising events for biodiversity protection CB1.1 2 Saltwatch Bus Tours conducted and 64 people days attending in each year CB1.1 8 Presentations given at community environment events CB1.1 2 Macroinvertebrate Snapshot Events held CB1.2 8 newsletters distributed CB2.2 1 Stormwater Education Pilot Program developed for trial in 5 schools CB2.2 2 new education resources about water issues developed for teachers OG3.3 10ha riparian vegetation rehabilitated and 10km of streambank OG3.4 10ha terrestrial vegetation rehabilitated RA2.3 1 state of the Environment report for Chittering completed OG4.3 10ha wetland vegetation replanted with 5ha local species OG10.1 10ha land treated with surface drainage with 10km drains CB4.4 1 x review and update of Salinity Decision Support Tool

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
			CB2.1 11 x workshops on perennial pastures, saline site recovery and alternative deep rooted crops for 130 people days. OG4.3 20ha wetland vegetation revegetated all locally occurring OG9.1 4ha land treated for salinity through engineering works RA2.3 4 x water quality reports. CB3.2 25 x collaborative partnerships established for water quality monitoring. RA1.2 15 x water quality monitoring programs established. RA1.3 5 x existing water quality monitoring programs enhanced
BR1a - The comprehensiveness, adequateness and representativeness (CAR) of the protected area system (including formal reserves and off-reserves) is improved by 50% by 2015, based on 2005 baseline data BR1b - Maintain and improve the condition of high priority native vegetation (including formal reserves and off-reserves) by 2020, based on 2005 baseline data	BM1.1 BM1.2 BM1.3 BM1.4 BM1.5 BM1.6	Natural Diversity RDP: - Stop Dieback - The Biological Bulldozer - Corridor Project - Invasive Species - Behaviour Change Project - Biodiversity Action Learning Program - Skills for Nature Conservation - Perth Biodiversity Project Integrated Water Management RDP: - Swan Canning Foreshore Assessment Project - Swan Canning Tributary Foreshore Assessment Project - Avon Upper Swan Salinity and Nutrient Management Project - Wetland Watch - Swan Alcoa Landcare Program	<u>Contribution to Resource Condition Target:</u> BR1a An assessment of the comprehensiveness, adequacy and representativeness of the protected area system will be undertaken to establish 2005 baseline data, which will provide a basis for improving the system. BR1b Condition of high priority vegetation is maintained and improved through training and support to landholders and land managers and development of best management practices -2 <u>Contribution to Management Action Targets:</u> BM1.1 - 2 BM1.2 - 1 BM1.3 - 1 BM1.4 - 1 BM1.5 - 2 BM1.6 - 2 <u>Outputs:</u> CB3.2 4 agreements with LGs to implement incentives scheme RA4.1 Research and development of an incentives scheme CB1.4 5 media opportunity resulting in articles in newspapers or on radio or television created. P1.1 1 set of best management practice codes or guidelines completed CB1.1 16 awareness raising events; about endangered species CB1.1 16 awareness raising events; about endangered species OG8.1 20ha of pest plant control OG3.4: 800 ha terrestrial vegetation with various management and enhancement activities carried out RA2.3 1 Re-assessment report on conservation status of critical endangered TECs completed RA2.1 Annual monitoring and review of populations and occurrences completed P5.1 4 annual works plans completed RA2.2 1 survey of LG capacity to manage natural areas completed CB4.4 1 regional database for vegetation assessments developed CB1.2 20 electronic newsletters sent to 30 members of the NAMN

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
			CB2.1 14 workshops on assessment techniques and use of reference sites held for 300 people days P4.2 7 natural resource assessment studies funded P3.1 5 Local Natural Diversity Discussion papers produced CB1.2 2 Fact Sheets produced CB2.1 36 workshops for community held on natural diversity issues for 500 participants CB1.2 Calendar of training events produced RA1.2 1 New Monitoring Plans established OG3.4 90 ha terrestrial vegetation rehabilitated CB2.1 Deliver 20 action learning events to build capacity of biodiversity managers P3.2 9 Management action plans developed for key biodiversity sites CB4.3 1 review of pilot programs implementing behaviour change techniques RA2.2 1 study on behaviour change techniques for biodiversity protection CB3.3 1 collaborative arrangement with Local government to implement behaviour change study CB1.1 Display information on dieback at 8 public events CB2.1 16 workshops on dieback control held with 320 people days OG8.5 Area in 12 reserves with dieback control measures in place P3.2 10 management plans for dieback completed RA2.1 10 reserves mapped for dieback (and x ha surveyed) CB1.4 10 media events about on-ground works CB1.2 4 brochures produced on natural areas CB1.1 4 community awareness raising events for biodiversity protection OG3.2: 10 ha of wetland vegetation rehabilitated OG3.4: 20 ha of terrestrial vegetation rehabilitated OG1.2 10 wetland voluntary conservation agreements negotiated CB2.1 7 Professional Development events held for 120 teachers on water issues OG3.4 10ha terrestrial vegetation rehabilitated CB2.1: 4 training events or workshops held CB1.2 2 newsletters/ brochures produced CB1.4 8 media opportunities (radio/ newspaper articles) CB1.1 2 field days held P3.2 2 management plans for ecological linkages in Chittering complete OG4.6 12 ha terrestrial vegetation planted all locally occurring RA2.1 2 x native vegetation assessment completed for Chittering POS

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
			P3.2 2 x Management Plans developed for Chittering POS
BR2 - 50% of critical habitat for identified significant species and ecological communities protected by 2014	BM2.1 BM2.2 BM2.3 BM2.4 BM2.5	Natural Diversity RDP: • Stop Dieback – the biological Bulldozer • Corridor Project • Invasive Species • Behaviour Change Project • Landholder Incentive Project • Biodiversity Action Learning Program • Skills for Nature Conservation • Perth Biodiversity Project • Threatened Species Program Integrated Water Management RDP: • Avon Upper Swan Salinity and Nutrient Management Project • Wetland Watch	<u>Contribution to Resource Condition Target:</u> Substantial progress towards having 50% of critical habitat for significant species and ecological communities identified and priority threatened flora, fauna and ecological communities protected. - 2 <u>Contribution to Management Action Targets:</u> BM2.1 - 2 BM2.2 - 2 BM2.3 - 2 BM2.4 - 2 BM2.5 - 2 <u>Outputs:</u> CB1.4 5 media opportunity resulting in articles in newspapers or on radio or television created. P1.1 1 set of best management practice codes or guidelines completed CB1.1 16 awareness raising events; about endangered species OG8.1 20ha of pest plant control OG3.4: 800 ha terrestrial vegetation with various management and enhancement activities carried out OG7.3 Release of at least 40 tortoises per year to nominated sites OG7.2 Captive breeding program producing at least 40 individuals per year RA2.3 1 Re-assessment report on conservation status of critical endangered TECs completed RA2.1 Annual monitoring and review of populations and occurrences completed P5.1 4 annual works plans completed RA2.2 1 survey of LG capacity to manage natural areas completed CB4.4 1 regional database for vegetation assessments developed CB1.2 20 electronic newsletters sent to 30 members of the NAMN CB2.1 14 workshops on assessment techniques and use of reference sites held for 300 people days P4.2 7 natural resource assessment studies funded P3.1 5 Local Natural Diversity Discussion papers produced CB1.2 2 Fact Sheets produced CB2.1 36 workshops for community held on natural diversity issues for 500 participants CB1.2 Calendar of training events produced

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
			CB4.3 1 review of pilot programs implementing behaviour change techniques RA2.2 1 study on behaviour change techniques for biodiversity protection CB3.3 1 collaborative arrangement with Local government to implement behaviour change study P4.1 8 Strategies or management plans for the conservation of priority species developed P1.1 8 species specific guidelines for conservation through corridor retention RA2.1 Study to determine key species or genera at threat through natural area fragmentation CB1.1 Display information on dieback at 8 public events CB2.1 16 workshops on dieback control held with 320 people days OG8.5 Area in 12 reserves with dieback control measures in place P3.2 10 management plans for dieback completed RA2.1 10 reserves mapped for dieback (and x ha surveyed)
BR3 - Reduction in impact of regionally significant invasive species by 2020 (with a quantified target set by September 2006)	BM3.1 BM3.2 BM3.3 BM3.4	Natural Diversity RDP: • Stop Dieback - The Biological Bulldozer • Invasive species • Behaviour Change Project • Landholder Incentive Project • Biodiversity Action Learning Program • Skills for Nature Conservation	<u>Contribution to Resource Condition Target:</u> A reduction in the impact of regionally significant invasive species, with a quantified target set by September 2006 -2 <u>Contribution to Management Action Targets:</u> BM3.1 - 2 BM3.2 - 1 BM3.3 - 2 BM3.4 - 2 <u>Outputs:</u> CB1.4 5 media opportunity resulting in articles in newspapers or on radio or television created. P1.1 1 set of best management practice codes or guidelines completed CB1.1 16 awareness raising events; about endangered species OG8.1 20ha of pest plant control OG3.4: 800 ha terrestrial vegetation with various management and enhancement activities carried out RA2.3 1 Re-assessment report on conservation status of critical endangered TECs completed RA2.1 Annual monitoring and review of populations and occurrences completed P5.1 4 annual works plans completed RA2.2 1 survey of LG capacity to manage natural areas completed CB4.4 1 regional database for vegetation assessments developed CB1.2 20 electronic newsletters sent to 30 members of the NAMN CB2.1 14 workshops on assessment techniques and use of reference sites held for 300 people days P4.2 7 natural resource assessment studies funded

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
			P3.1 5 Local Natural Diversity Discussion papers produced CB1.2 2 Fact Sheets produced CB2.1 36 workshops for community held on natural diversity issues for 500 participants CB1.2 Calendar of training events produced RA1.2 1 New Monitoring Plans established OG3.4 90 ha terrestrial vegetation rehabilitated CB2.1 Deliver 20 action learning events to build capacity of biodiversity managers P3.2 9 Management action plans developed for key biodiversity sites CB4.3 1 review of pilot programs implementing behaviour change techniques RA2.2 1 study on behaviour change techniques for biodiversity protection CB3.3 1 collaborative arrangement with Local government to implement behaviour change study OG8.1 200ha pest plants controlled RA3.2 Database for environmental weeds developed P4.2 6 Plans for the management of individual key invasive species RA1.1 Report on the current extent, impact and management of key invasive species CB1.1 Display information on dieback at 8 public events CB2.1 16 workshops on dieback control held with 320 people days OG8.5 Area in 12 reserves with dieback control measures in place P3.2 10 management plans for dieback completed RA2.1 10 reserves mapped for dieback (and x ha surveyed) OG8.1 30ha pest plant control carried out OG8.1 100 ha of weed control completed RA2.1 2 x native vegetation assessment completed for Chittering POS P3.2 2 x Management Plans developed for Chittering POS
CMR1 - Maintain and improve the condition of terrestrial coastal habitats in the Region, as measured at representative sites, by 2020 (with a quantified target set by September 2006)	CMM 1.1 CMM 1.2 CMM 1.3 CMM 1.4 CMM 1.5	Coastal and Marine RDP: - Coastal Managers Devolved Grant project - Coastcare Project Natural Diversity RDP: - Invasive Species - Biodiversity Action Learning Program - Skills for Nature Conservation - Perth Biodiversity Project	<u>Contribution to Resource Condition Target:</u> Condition of coastal habitat is documented and priority restoration works undertaken, with a quantified target set by September 2006.-3 <u>Contribution to Management Action Targets:</u> CMM1.1 - 4 CMM1.2 - 2 CMM1.3 - 3 CMM1.4 - 2 CMM1.5 - 3 <u>Outputs:</u> OG3.1 5 ha coastal vegetation rehabilitated Cb1.3 1 Display on coastal Indigenous heritage

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
			RA3.3 2 Decision support tools developed, 1 identifying Indigenous sites and 1 to guide Indigenous consultation CB3.1 document on coastal Indigenous sites produced CB2.1 4 Training sessions, workshops, seminars CB1.1 4 Awareness raising events OG7.4 1 coastal seed bank developed to cover all priority coastal areas CB2.1 4 x Coastal seed accreditation course CB5.1 10 x Community groups or community based project assisted CB5.1 10 Groups or community projects being directed assisted OG8.3 4 ha of pest control programs implemented CB2.1 8 Workshops, training events or study tours for community and LG CB1.4 4 Media opportunities resulting in articles in newspapers or on radio or television created CB1.1 4 Community awareness events/ activities P4.2 4 Strategies or plan developed addressing coastal assets or threats OG4.2 1 ha of revegetated with coastal native species OG3.1 4 ha of coastal vegetation enhanced/rehabilitated P1.1 2 x Best practice management practice guidelines for coastal threats P4.2 4 x Coastal Management plans complete RA2.2 1 survey of LG capacity to manage natural areas completed CB4.4 1 regional database for vegetation assessments developed CB1.2 20 electronic newsletters sent to 30 members of the NAMN CB2.1 14 workshops on assessment techniques and use of reference sites held for 300 people days P4.2 7 natural resource assessment studies funded P3.1 5 Local Natural Diversity Discussion papers produced CB2.1 36 workshops for community held on natural diversity issues for 500 participants CB1.2 Calendar of training events produced RA1.2 1 New Monitoring Plans established OG3.4 90 ha terrestrial vegetation rehabilitated CB2.1 Deliver 20 action learning events to build capacity of biodiversity managers P3.2 9 Management action plans developed for key biodiversity sites CB1.4 10 media events about on-ground works CB1.2 4 brochures produced on natural areas CB1.1 4 community awareness raising events for biodiversity protection

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
CMR2 - Maintain and improve the condition of marine habitats in the Region, as measured at representative sites, by 2020 (with a quantified target set by 2007)	CMM 2.1 CMM 2.2 CMM 2.3 CMM 2.4 CMM 2.5 CMM 2.6	Coastal and Marine RDP: - Marine Indicators Project Integrated Water Management RDP: - Water Quality Monitoring & Evaluation Framework	<u>Contribution to Resource Condition Target:</u> Impacts of stormwater on marine habitat identified and relevant remediation projects identified. Projects implemented to maintain and improve the conditions of marine habitats, with a quantified target set by 2007.-2 <u>Contribution to Management Action Targets:</u> CMM2.1 - 4 CMM2.2 - 2 CMM2.3 - 2 CMM2.4 – 3 CMM2.5 – 2 CMM2.6 - 2 <u>Outputs:</u> CB2.1 2 training sessions, workshops or seminars on marine issues. CB5.1 2 marine groups or projects assisted RA1.3 2 new monitoring programs established through CALM Marine Community Monitoring Program RA1.3 1 existing monitoring programs enhanced CB2.1 8 Workshops, training events or study tours for community and LG 1 x marine study undertaken to enable the setting of resource condition targets.
CMR3 - Maintain and improve the condition of marine fauna in the Region, as measured at representative sites, by 2020 (with a quantified target for key indicator species set by 2005).	CMM 3.1 CMM 3.2 CMM 3.3 CMM 3.4	Coastal and Marine RDP: Marine Indicators Project	<u>Contribution to Resource Condition Target:</u> Key marine fauna indicator species identified and baseline data collected, projects to protect marine fauna at risk implemented with a quantified target for key indicators species set by 2007 - 2 <u>Contribution to Management Action Targets:</u> CMM3.1 – 4 CMM3.2 – 1 CMM3.3 – 1 CMM3.4 - 2 <u>Outputs:</u> 1 x marine study undertaken to enable the setting of resource condition targets.
AR1 - Continue to progress towards improved air quality, with Resource Condition Target(s) to be set for air quality by December 2006	AM1.1 AM1.2	Sustainable Production RDP: SME Air Emissions Study	<u>Contribution to Resource Condition Target:</u> Progress towards improved air quality, with action plans in place for light industry air emissions and a quantified target set by December 2005. - 2 <u>Contribution to Management Action Targets:</u> AM1.1 - 2 AM1.2 - 2 <u>Outputs:</u> RA 2.31 report on SME air emissions completed
Cultural Heritage	CHM 1.1 CHM1.2 CHM1.3 CHM1.4	Coastal and Marine RDP: - Indigenous Coastal Project Integrated Water Management RDP: - Wetlands Indigenous Project	Substantial progress made towards protection, enhancement and incorporation of cultural heritage values within the Region to achieve sustainable natural resource management outcomes. - 2 <u>Contribution to Management Action Targets:</u>

Summary of Natural Heritage Trust Investments by Targets			
Principle RCT	Principle MAT	Identified NHT Investments	Expected Outcomes from NHT Investments
	CHM1.5	- Indigenous Traineeship Program - CD of Nyoongar stories Natural Diversity RDP: - Perth Biodiversity Project - Skills for Nature Conservation	CH1.1 - 2 CH1.2 - 2 CH1.3 - 2 CH1.4 - 2 CH1.5 - 2 <u>Outputs:</u> CB5.1 5 Community groups assisted. CB1.1 2 x Community Education/Land Manager Training events held P5.1 5 x Heritage Management Plans for selected wetlands completed. RA2.3 10 x reports on the historical significance of selected wetlands RA2.3 1 x Report Prioritising wetlands for activity
Regional Capacity	RCM1.1 RCM1.2 RCM1.3 RCM1.4	Coastal and Marine RDP: - Coastcare Project Integrated Water Management RDP: - Ribbons of Blue - Sustainable Landscaping Natural Diversity RDP: - Stop Dieback – The Biological Bulldozer - Behaviour Change Project - Landholder Incentives Project - Biodiversity Action Learning Program - Skills for nature Conservation - Perth Biodiversity Project - Skills for nature Conservation Sustainable Production RDP: - SME Sustainability Project - Salinity Management in Wooroolloo - Linking Best Practice with Grape Growers and Orchardists - Linking Best Practice with Vegetable Growers	Substantial progress towards attitudinal, behavioural and institutional change within community, industry, Local and State Government to achieve sustainable natural resource management outcomes - 2 <u>Contribution to Management Action Targets</u> RCM1.1 - 2 RCM1.2 - 2 RCM1.3 - 3 RCM1.4 - 2 <u>Outputs</u>

Table 12: Summary of Proposed Activities for NHT Funding, by their Principle Resource Condition Targets and Matters for Action

Summary of NHT Investments							
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)		
					Source		
Integrated Water Management Regional Delivery Program						2006/07	2007/08
					NHT	1,585,593	1,556,046
					State	1,745,010	1,667,410
					Other	1,246,800	1,275,000
Swan-Canning Foreshore Assessment	The project will develop a decision support tool for foreshore restoration in the Swan-Canning, enabling LG and community to priotitise foreshore works and use comprehensive data to determine appropriate actions	• Vegetation, engineering and segment surveys of Sections 5 - 8; • Preparation of interim reports for Sections 4 - 6; • Consult with LG regarding their information need • Presentations and tours, development of brochures and banners/display boards, regular update of SRT webpage	WR1 WR3 WR4	WM1.1 WM1.2 WM1.4 WM1.5 WM3.1 WM3.3 WM3.4 WM4.4			
Swan-Canning Tributary Foreshore Assessment	The project will develop a decision support tool for foreshore restoration in the Swan-Canning, enabling LG and community to priotitise foreshore works and use comprehensive data to determine appropriate actions.	• Determine state of the tributaries for Swan-Canning system • Determine risks to condition deterioration • Develop priorities for action • Support remedial actions, restoration and education initiatives	LR2 WR1 WR2 WR3 WR4 WR5	LM2.1 LM2.3 LM2.4 LM2.5 WM1.1 WM1.4 WM1.5 WM2.1 WM2.4 WM2.5 WM3.4 WM4.4 WM5.4			

Summary of NHT Investments					
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)
					Source
Water Quality Monitoring & Evaluation Framework	The project will establish comprehensive sub-catchment monitoring across the Swan Region to determine hotspots and development of action plans to reduce contaminants	• Develop a coherent view of all water related monitoring activity conducted in the region • Negotiate a partnership program to eliminate duplication and focus program on Strategy outcomes • Establish common protocols, standards and methods across Region • Provide training and capacity building as well as guidance documents • Capture all water related data in WIN database • Develop Web based and other reporting tools • Implement resource condition monitoring • Develop an index of stream condition appropriate to Swan Coastal Plain • Conduct workshops and information assessments • Identify hotspots and remedial actions	WR1 WR2 WR3 WR4 WR5	WM1.1 WM2.1 WM3.1 WM3.3 WM4.1 WM5.1	

Summary of NHT Investments					
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)
					Source
Water Quality Partnership Project	This project will develop partnerships with LG and other stakeholders to establish baseline WQ data in the 31 sub-catchments of the Swan-Canning as well as coastal catchments. Officers will assist with interpretation and reporting of WQ results back to LG and other stakeholders. Through identification of water quality hotspots, land managers will work with agencies to undertake remediation actions and establish BMPs for catchment management.	- Form partnerships with LG and stakeholders - Set up monitoring programs - Assist with interpretation and reporting of results - Assist with remedial actions for hotspots	WR1 WR2 WR3 WR4 WR5	WM1.1 WM1.5 WM2.1 WM2.5 WM3.1 WM3.4 WM4.1 WM4.4 WM5.1 WM5.4	
Superficial Aquifer Health	This project seeks to find additional groundwater monitoring data in gap areas identified by Lindsay (2004) and Smith <i>et al.</i> (2005) and add these to the WIN database if of sufficient quality. It would also commission additional monitoring sites using existing boreholes or new drill sites where required.	- Collation of existing groundwater data held externally to the WIN database - Data added to the WIN database. - Comprehensive analysis to establish trends - Identified gaps in groundwater monitoring addressed through recommissioning of existing boreholes or new monitoring bores. - Provide informed input into groundwater and land use management and planning wetland and catchment management plans.	WR2	WM2.1 WM2.5	

Summary of NHT Investments					
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)
					Source
Avon Upper Swan Nutrient and Salinity Management Project	The project will continue to work with landholders in the Ellen/Brockman catchment to implement the catchment strategies to reduce salinity and nutrient export	• WQ Monitoring and analysis of the Ellen Brockman Rivers and major tributaries. • Fencing & revegetation of strategic areas and creation corridors • Implement projects in Ellen Brook catchment for reduction of nutrients.. • Develop a Weed Strategy for Shire of Chittering. • Organise and run workshops. • Implement salinity remediation projects using the NHT funded Decision Support Tool • Develop a State of the Environment and Action Plan for the Shire of Chittering	WR1 WR2 WR3 WR4 WR5 LR1 LR2 BR1 BR3	LM1.1 LM1.2 LM1.3 LM1.4 LM2.1 LM2.2 LM2.3 LM2.4 LM2.5 WM1.1 WM1.3 WM1.4 WM1.5 WM2.1 WM2.5 WM3.1 WM3.2 WM3.3 WM3.4 WM4.1 WM4.2 WM4.4 WM5.1 WM5.2 WM5.3 WM5.4 BM1.4 BM3.4	

Summary of NHT Investments					
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)
					Source
Canning Environmental Flows	The project will determine the required environmental flows for the Canning River, and provide a model for other regulated river systems such as the Helena River	• Trial environmental water release/s in specific river management section/s, • Implementation of an ecological and flow monitoring program • Examination of proposed sites to evaluate whether they meet EWR targets • Investigation of river restoration or soft engineering that would benefit releases and develop trigger levels for flow management.	WR1	WM1.1 WM1.2 WM1.3	
Wetland Watch	The project will improve the sustainable management and conservation of selected wetlands on the Swan Coastal Plain focusing on high value wetlands on private land by offering advice and devolved grants.	• Provision of technical advice and workshops to landowners • Conducting flora and fauna surveys • Securing BMP and conservation of these wetlands through a range of existing incentives to private landowners • Administration of a devolved grants program to encourage on-ground works	WR2 BR1	WM2.4 WM2.5 BM1.4 BM1.6	

Summary of NHT Investments

Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)
					Source
Wetland Indigenous project	This project aims to provide an Indigenous perspective to wetlands management across the Region and raise awareness of Indigenous values. It will initiate additions to the Heritage and Environment Registers,	- Initial study to prioritise wetlands in the Region. - Historical significance of priority wetlands will be researched - Findings communicated to stakeholders through awareness raising events and media - Heritage Management Plans will be developed on the highest priority wetlands. - Involve the Indigenous community in rehabilitation - Collection and dissemination of stories and histories associated with wetlands.	WR2	WM2.1 WM2.5 CHM1.1 CHM1.2 CHM1.3 CHM1.4 CHM1.5	
Sustainable Landscaping Strategy	The project will work with LG to develop appropriate policies and community educational tools to reduce water and fertilizer use in gardens	- Training for LG Officers - Design of landscaping plans.. - Advice and technical resources. - Assistance with community education package implementation).	WR3	WM3.2 WM3.3 WM3.4	
Ribbons of Blue/ Waterwatch WA	The project will raise the awareness of the community about water quality issues and their solutions	- Professional development opportunities for teachers, - Education opportunities to students - Community awareness raising events - Support Waterwise Schools Program and the Children's Groundwater Festival. - RoB newsletter distribution - Stormwater Education package for schools	LR1 WR1 WR2 WR3 WR4 WR5 BR2 CMR1	LM1.4 WM1.4 WM1.5 WM2.5 WM3.4 WM4.4 WM5.4 BM2.5 CMM1.5	

Summary of NHT Investments							
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)		
					Source		
Swan Alcoa Landcare Program (WR1, WR2, BR1)	A partnership with SRT and Alcoa, this program provides funds for on-ground restoration works	• Call for funding applications • Analysis of submissions • Funds delivered to applicants • Evaluation of results	LR1 WR1 WR2 WR3 WR4 WR5 BR1 CMR1	LM1.4 WM1.5 WM2.5 WM3.4 WM4.4 WM5.4 BM1.6 CMM1.5			
15.1.1 Natural Diversity Regional Delivery Program						2006/07	2007/08
					NHT	1,794,709	1,583,201
					State	165,000	165,000
					Other	303,988	323,988
Stop Dieback - the Biological Bulldozer	The project will build the capacity of LGs and the community to manage the impacts of dieback through education. The project will review the success of LGs managing <i>Phytophthora</i> dieback to determine the current level of management and identify areas in need of improvement.	• Assist LGs to use the prioritisation schedule to assess dieback control measures required for their reserves. • Map reserves for presence of dieback. • Mentor the preparation of management plans for dieback control. • Treat high conservation reserves infected with dieback with phosphite. • Develop monitoring methodology for success of phosphite treatment. • Hold workshops on dieback control and monitor effectiveness of training programs. • Raise awareness through displays of impact of dieback	BR1 BR2 BR3	BM1.2 BM1.4 Bm1.5 BM1.6 BM2.3 BM2.5 BM3.1 BM3.2 BM3.4			

Summary of NHT Investments					
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)
					Source
Ecological Corridors Project	This project targets ecological linkages that are necessary to maintain the diversity and long term viability of species at risk through fragmentation of natural areas.	- Identify fauna species dependent on wildlife corridors for long-term survival. - Research where linkages are required for identified species to ensure long term survival, - Create a template for corridors on a species basis that will specify the optimal width, length, structure and flora species that should be used. - Pilot corridors and evaluate	BR2	BM2.3	
Invasive Species	The project will aim to prioritise weed species based on their threat to biodiversity and set targets for the management invasive species throughout the Region. Additionally, the project will establish an environmental weed database for ongoing monitoring and management of priority invasive species.	- Survey current weed control programs across the Region to ascertain current response and resource gaps. - Identify and prioritise key weed species for investment and management. - Set targets for both geographical scale and level of management. - Develop strategies and abatement plans for key individual species. - Establish custodian for weed mapping database. - Implement strategies and abatement plans.	BR3	BM3.1 BM3.2 BM3.4	

Summary of NHT Investments					
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)
					Source
Behaviour Change for Natural Diversity Project	This project will assess the current attitudes of the community towards natural areas they live close to and determine the barriers to behaviour change and potential incentives for change. Once a set of potential strategies for behaviour change have been defined, they will be piloted in a defined set of natural areas	- Assess the major impacts on biodiversity at selected priority sites from adjacent community - Survey on current attitudes to the areas and assessment of barriers to behaviour change and potential mechanisms for change. - Recommendations for implementing a behaviour change project for the community will be developed. - The recommendations will be implemented at a range of key natural areas in partnership with LG.	BR1 BR2 BR3	BM1.6 BM2.5 BM3.4	
Private Landholder Incentive Project	This project aims to protect, maintain and improve high priority natural vegetation on private property through focusing on developing a provision of incentives for delivery by LG. Additionally, the project will work with LG to explore options for the enforcement of non-clearing on Special Rural zoning. Through LG delivery the project will be highly cost effective.	- Identify landholders of priority areas and explore effective incentive packages. - Develop a tailored incentives package specific to the Region. review of identified landholders, current regulation, research into incentive schemes and work currently being undertaken with the Region. - Work with an effective delivery partner such as LG to formalise and implement a private landholders incentive package.	BR1	BM1.6	

Summary of NHT Investments					
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)
					Source
Biodiversity Action Learning Program	The project aims to develop an action-learning process for land managers covering a number of vegetation types in the Region. The managers of these priority areas will then carry out the highest priority on-ground management actions on site as part of the active learning program.	- Establish steering group. - Identify criteria to select suitable action learning sites. - Identify NRM professionals and community members to participate in program. - Assess sites for ecological value and management needs. - Design program to meet Management Action Targets. - Develop and implement individual Site Management Action Plans. - Deliver Action Learning events. - Collect, share and disseminate information. - Evaluate and make recommendations.	BR1 BR2 BR3 CMR1	BM1.4 BM1.5 BM1.6 BM2.5 BM3.4 CMM1.5	
Skills for Nature Conservation	The Skills for Nature Conservation project addresses the capacity of the community to manage, protect and restore natural areas. This is achieved through the delivery of a calendar of training courses that focuses on transferring skills and knowledge	- Produce and disseminate annual calendar of workshops - Provide information packs for all participants - Run workshops for all interested community members	BR1 BR2 BR3 WR1 WR2 WR3 WR4 CMR1	BM1.5 BM2.5 BM3.4 WM1.5 WM2.5 WM3.4 WM4.4 CMM1.5	

Summary of NHT Investments					
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)
					Source
Perth Biodiversity Project	This project enables LGs to identify the highest value natural diversity areas by the consistent use of regional and local significance criteria and by setting targets for the protection and retention of these natural areas.	- Local biodiversity strategy discussion papers assessed and endorsed by State Government. - LG biodiversity projects funded through devolved grants. - Training and support provided for use of reference sites on coastal plain, and reference sites developed for the Jarrah Forest. - LG assisted to assess and manage reserves using the Natural Area Initial Assessment, and a regional database developed from the assessments. - A survey of improvements in LG capacity to manage natural areas carried out and assessed. - LG managers of natural areas facilitated with regular meetings.	BR1 BR2 BR3 WR2 CMR1	BM1.1 BM1.2 BM1.3 BM1.5 BM2.1 BM2.2 BM2.3 BM2.4 BM3.1 WM2.1 WR2.2 CMM1.1 CMM1.3	

Summary of NHT Investments							
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)		
					Source		
Threatened Species Program	This project provides support to an on-going program coordinated by the Department of Conservation and Land Management with other organisations to protect and recover the threatened species and ecological communities of the Swan Region	- Habitat assessment, mapping and monitoring, - Threatening process assessment, mapping and monitoring. - Planning and implementation of habitat management. - Systems and programs of investigation, research and adaptive management of occurrences. - Captive breeding of significant fauna species and propagation of significant flora species. - Production and dissemination of interpretive material. - Increase community awareness through field visits and media events	BR1 BR2 BR3 WM2	BM1.2 BM1.4 BM2.1 BM2.2 BM2.5 BM3.3 WM2.4			
15.1.2 Sustainable Production Regional Delivery Program					NHT	2006/07	2007/08
					State	643,781	595,583
					Other	100,000	20,000
						275,000	217,000
Salinity management in Woorooloo Catchment	Management of increasing salinity through collaborative partnerships with landholders	- Develop and Implement Farm Plans - Strategic revegetation - Field days on salinity management	LR1 WR5	LM1.3 WM5.3 WM5.4			
Waterwise on the Farm (WR2, WR3)	Identification and implementation of BMPs for irrigation and fertiliser use with a range of intensive horticulture sectors.	- Id current water use - Education of horticulturists on efficient irrigation practices - Measure efficiency gains through best practices. 5X demonstration sites - Contribute/support existing associated BMP projects.	WR2 WR3	WM2.3 WM3.3 WM3.4			

Summary of NHT Investments					
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)
					Source
Linking BMPs with Property Planning For vegetable growers	Greater water and fertiliser efficiency in the vegetable industry through identification and adoption of best management practice. Support best practice farms in conjunction with an extension/education program through Waterwise and Enviroveg.	- Update, research & compile BMPs applicable to vegetable industry (water, fertiliser use, etc). - Liaise and coordinate with Enviroveg/Environmental Assurance on BMPs with landholders. - Establish best practice farms in conjunction with extension/education program.	WR2 WR3	WM1.5 WM2.5 WM3.3 WM3.4	
Linking BMPs for grape growers and orchardists	Identification and adoption of best management practices for grape growers and orchardists. Establish best practice farms in conjunction with an extension/education program	- Research & compile BMP's applicable to vegetable industry (water, fertiliser use, etc). - Prepare property management plans with landholders through the industry.associations - Establish best practice farms in conjunction with extension/education program	WR1 WR3 WR4	WM1.3 WM1.5 WM3.3 WM3.4 WM4.3 Wm4.4	
SME Sustainability project	A Region wide program for SMEs implemented through LG with supporting information sheets feeding into a central database. A model for new industrial developments produced. Green procurement of services implemented by LG.	- Research the feasibility of on-line database listing all SMEs and business activity type. - Develop a 'user friendly' SME audit tool for use by LG - Holistic pilot project at Bellevue to engage all stakeholders in better waste management. - Develop series of SME BMP educational materials. - Scope and develop a model for new industrial precincts. - Develop Green procurement model for LG for a range of services	WR1 WR2 WR3	WM1.5 WM2.5 WM3.1 WM3.4 WM3.4	

Summary of NHT Investments							
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)		
					Source		
SME Air Emission Study	Data collection and analysis at targeted SME industrial precincts to provide the data required to develop policy and programs. Validate current information concerning SMEs via an emissions inventory.	• Ongoing site monitoring. • Identifying & analysis of emissions. • Tracing/tracking emission source. • Identify priority SME emission & future management in final report.	AR1	AM1.2			
Bellevue Sustainable Industry Project	A holistic approach to managing waste and implementing BMPs in an industrial precinct. The model can then be used in other industrial areas.	• Consultation with local businesses/Business Associations, LG, ratepayers. • Design survey tool and implement to all businesses in precinct. • Design and implement waste management project. • Ongoing monitoring. • Re-survey all businesses at end of project. • Final report and recommendations.	WR1 WR3	WM1.5 WM3.1 WM3.4			
15.1.3 Coastal and Marine Regional Delivery Program						2006/07	2007/08
					NHT	610,917	448,170
					State	128,650	
					Other	142,750	137,750
Marine Indicators project	The marine targets will be set for the Swan Region in consultation with the Strategic Reserve marine Project Steering Committee and relevant projects funded.	• Awaiting Strategic Reserve Project and finalisation of Estuarine, Coastal and Marine indicators, to define scope of the project. • Undertake a gap analysis • Further develop the Identifying Marine Indicators Project	CMR2 CMR3	CMM2.1 CMM2.2 CMM3.1 CMM3.2			
Coastal Managers Devolved Grants	Coastal LGs will prepare Coastal Management Plans in consultation with community	• Established devolved grants program for land managers • Update or develop local plans • Develop best practice guidelines for addressing key coastal threats	CMR1	CMM1.1 CMM1.2 CMM1.3 CMM1.4 CMM1.5			

Summary of NHT Investments					
Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)
					Source
Coastcare Program	Coastal LGs will be assisted to work with their community to implement Coastal Management Strategies	- Assist community groups develop and implement coastal and marine NRM projects in partnership with LG. - Assist LG in developing coastal projects addressing NRM threats to assets. - Providing technical advice to ensure best practice for managing NRM coastal assets and facilitating community participation in coastal and marine management. - Develop projects across LG boundaries to address NRM threats.	CMR1	CMM1.1 CMM1.2 CMM1.3 CMM1.4 CMM1.5	
Coastal Seed Program	A seedbank of local seed will be established to assist coastal rehabilitation projects	- Incorporate collection of seed through established Coastcare community groups and LG officers on an annual basis. - Process the seed, database and store. - Training provided to key individuals of community groups and LGs to ensure best practice in seed collection practices and use in restoration.	CMR1	CMM1.4 CMM1.5	

Summary of NHT Investments

Program & Activity	Description of Activity	Actions (Key actions being undertaken)	Principal RCTs	Principal MATs	Investment (\$)
					Source
Coastal Indigenous Project	This project will be hosted by Greening WA and will run in conjunction with the Coastal Evaluation Project. The outcomes will be coastal indigenous sites identified, stories recorded and community awareness of indigenous cultural heritage raised. Indigenous communities will be encouraged to become involved with coastal community groups. .	• Documenting the areas of Indigenous significance along the Perth coast through mapping and recording stories. It is important that the Indigenous values of area are documented along with the natural values. • Providing local community groups working along the coast with information to understand more about the Indigenous significance of the areas they are working in. • Liaising with the Indigenous community to encourage their participation in on-ground works being undertaken. • Developing signage for significant areas along the coast to provide information to the general public. • Inclusion of Indigenous heritage in the database for the Coastal Evaluation Project.	CMR1	CMM1.4 CMM1.5 CH1.1 CH1.3 CH1.4 CH1.5	

SECTION 2: PROJECT OUTLINE STATEMENTS

16. INTEGRATED WATER MANAGEMENT REGIONAL DELIVERY PROGRAM

16.1 Program Description

The Integrated Water Management Regional Delivery Program (RDP) has two Sub-programs, Foreshore Assessment and Water Monitoring, and Implementation of Water Projects

16.2 Foreshore Assessment and Water Monitoring Sub-program

The foreshores of the Swan-Canning estuary and its tributaries will have prioritised areas for on-ground works, and with funds from the Swan Alcoa Landcare Program, Envirofunds and Swan River Trust (SRT) Riverbank Program, will be substantially improved.

Water quality monitoring and modelling data will become more complete, allowing for targeted responses to contamination issues across the Region.

16.3 Water Management, Training and Technical Support Sub-program

By 2008 fertiliser reduction techniques will be in place through LG community education programs and through the continued implementation of the Ellen Brockman ICM Plans. Activities in the Sustainable Production RDP will have developed BMP guidelines and auditing programs to reduce off-site pollution.

Salinity issues in the Avon Upper Swan will be addressed through implementation of a salinity reduction strategy, in partnership with the Avon Catchment Council.

Wetlands in private ownership will be protected and restored through an assistance package to private landowners. The Indigenous significance of the wetland systems will be documented and Indigenous groups will be involved in their protection.

Environmental water requirements will have been progressed in several ways. An environmental flow allocation system will have been designed and applied for the Canning River. An understanding of the problems of the superficial aquifer will have been achieved and Waterwise techniques will have been established for the intensive horticulture sector, reducing their use of groundwater, assisting with wetland protection. LG will have education techniques in place for their communities to reduce water use in the home garden.

16.4 Program Budget

There is significant external investment into the Integrated Water Management RDP. As projects develop, there will be an increase in investment by Local Government and community stakeholders through the implementation phase of BMPs.

Table 13: Integrated Water Management RDP Program Budget 2006/08

Funding Source	2006/07	2007/08
NHT	1,585,593	1,556,046
Commonwealth	300,000	300,000
State Government	1,745,010	1,667,410
Local Government	450,000	480,000
Industry	380,000	370,000
Community	116,800	125,000
TOTAL	4,577,403	4,498,456

16.5 Proposed Activities - Foreshore Assessment and Water Monitoring Sub-program

16.5.1 Swan-Canning Foreshore Assessment

16.5.1.1 Project Description

This is an extension of the Swan River Trust's (SRT) Foreshore Assessment project that has received NHT funding since 2003/04. A comprehensive foreshore assessment has been designed based on the pressure-state-response model and is being applied across the SRT management area. The project assesses the biophysical characteristics of the foreshore, including: the vegetation composition and condition; spatial extent and pattern of pressure indicators; extent of current management responses; hydrodynamics; shoreline morphology and vulnerability; erosion features and processes; and location, condition and effect of drainage outlets.

The assessment involves a multi-method approach including literature and existing data review, desktop and field assessments and consultation. Information is geographically referenced and being collected at a range of spatial scales to enable local and regional assessment. Information will enable definition of current landuse management, biophysical assets and threatening processes. Information will be used to increase strategic focus and capacity for foreshore management. Specifically, the project will:

- fill critical gaps in knowledge;
- develop decision support tools;
- inform planning and development decision making/activities;
- inform foreshore management practice;
- establish mechanisms for adaptive management;
- develop information resources;
- establish mechanisms for information dissemination; and,
- identify areas for program development.

The project is focussed at an operational level but will incorporate higher-level strategic objectives and consultation in development of the Foreshore Management Strategy.

16.5.1.2 Project Actions

Project actions for the 2006/07 financial year include:

- Vegetation, engineering and segment surveys of SRT Management Area Sections 5 to 8;
- Preparation of interim reports for SRT Management Area Sections 4 to 6;
- Implementation of Consultation Plan actions: consult with Local Government regarding their information needs and the results of the assessment in their jurisdiction.
- Implementation of Communications Plan actions: presentations and tours, development of brochures and banners/display boards, regular update of SRT webpage with project information.

16.5.1.3 Partnerships

- Swan River Trust
- Local Government
- Community groups
- Other State Government agencies

16.5.1.4 Risk Management

Risks to this project include:

- Availability of data and imagery may limit completion of certain tasks;
- Equipment failure or loss would result in time delays for completion of project milestones (minimised by development of equipment use and maintenance procedures and induction of new staff/team members);
- Staff turnover resulting in project delays due to the need for reappointment and training (delays associated with training needs has been addressed by the development of an induction manual, including project overview, methodology description and equipment use and maintenance procedures, regular team meetings and pairing of new staff with more experienced officers in the field);
- Unfavourable weather conditions may hinder progress;
- Major pollution event/algae bloom or fish kill event as experienced over recent years within Swan-Canning estuary would result in time delays for completion of project milestones due to temporary diversion of staff; and,
- Difficulties with site access may result in delays for completion of project milestones or may result in not all proposed areas being fully assessed.

16.5.1.5 Monitoring and Evaluation

Monitoring and evaluation of the project will be in the form of the following:

- Weekly reports to the SRT Foreshore Restoration Manager
- Weekly reports to the SRT Environmental Programs Manager
- Quarterly reports to the SCC
- Seminars to the SCC as required
- Monthly reports to the SRT Park and Riverplan Committee
- Regular reports to the SRT Board members as required

16.5.1.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 14: Swan-Canning Foreshore Assessment Project Linkages to RCTs and MATs

Resource Condition Target	Management Action Target
WR1 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005)	WM1.1 100% of priority rivers and waterways in the Region identified for protection by 2005 WM1.2 100% of all relevant NRM legislation and policy reviewed and amendments recommended for the protection and management of the Region's major rivers and waterways by 2006 WM1.4 Develop and implement management and restoration programs for the Region's major rivers and waterways by 2007 WM1.5 Develop and implement management and restoration programs for the Region's major rivers and waterways by 2007
WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen, by 2020	WM3.1 100% of the 1-5 year actions of the reviewed Swan-Canning Cleanup Program (SCCP) implemented by 2010 WM3.3 Implement identified remedial actions to address nutrient enrichment by 2007 WM3.4 20% increase in community participation in nutrient intervention education, restoration, protection and management activities by 2009
WR4 Maintain and improve condition of aquatic environments in the Region, as measured at representative sites, by 2020 (with quantified targets for turbidity / suspended particulate matter set by 2005)	WM4.1 Establish monitoring systems to develop Resource Condition Targets for turbidity/ suspended particulate matter by 2005 WM4.3 implement identified remedial actions to address turbidity / particulate matter by 2007 WM4.4 20% increase in community participation in education, restoration, protection and management activities for managing turbidity / particulate matter by 2009

16.5.1.7 Project Achievements

Table 15: Swan-Canning Foreshore Assessment Proposed Project Achievements

Milestone	Outputs	Timelines
MS 5: Site assessment and historic data complete	RA 2.1 5 x Summary reports of site assessment and historical data produced for Sections 4-8	January 2007
MS 6: Desktop assessments complete	RA2.3 1 x report completed (Statistical assessment and map production for MS6).	March 2007
MS 7: Field data digitised	CB4.1 1 x Complete baseline data set for project area entered into data management system	January 2007
MS 8: Conceptual model for foreshore /river health developed	RA3.1 1 x Conceptual model of foreshore function and structure for key biophysical sections of the system.	September 2006
MS10: Data analysis	RA3.3 Multi-criteria decision support tool for river management complete	March 2007
MS11: Foreshore Management Strategy	P3.1 1 x Development of a DRAFT foreshore management strategy (including objectives hierarchy with resource condition and management action targets and practices guidelines)	June 2007
MS12: Establish a monitoring and evaluation framework	P4.2 1 x development of a DRAFT monitoring and evaluation plan (including identification of pressure, state and response indicators) initiated	June 2007

16.5.1.8 Proposed Budget

Table 16: Swan-Canning Foreshore Assessment Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
L4 NRMO		\$38,548 (SRT)
L3 NRMO	\$54,500	\$21,800 (SRT)
GIS Support	\$14,500	
Miscellaneous Costs	\$500	\$500 (SRT)
Consultation	\$1,500	\$1,500 (SRT)
Project Mgmt. Costs	8,910	
TOTAL	\$79,910	\$62,348

16.5.2 Swan-Canning Tributary Foreshore Assessment

16.5.2.1 Project Description

The project addresses threats of incompatible planning and development and inappropriate land and water management practices along the foreshores of the Swan-Canning river system.

The project aims to support the development of river restoration priorities through foreshore assessments and categorisation of risks to riverine values. It involves a multi-method approach including literature and existing data review, desktop and field assessments and consultation.

Management action plans will be developed as a result of identifying priority areas for on-ground action/remediation. Consultation with land managers such as Local Government (LG) and private landholders will also form a substantial part of this project.

Specifically, the project will:

- fill critical gaps in knowledge
- develop decision support tools
- influence planning and development decision making/activities
- influence foreshore management practice
- develop information resources
- assist landowners to undertake on-ground remediation actions

16.5.2.2 Project Actions

Specific actions include:

Determining state of the tributaries

- Literature searches of previous foreshore assessments in the Region and determine gaps in information.
- Ground truth these existing foreshore assessments and conduct extra foreshore assessments in previously unmapped areas.
- Determine condition ranking for individual river reaches.

Determine risks to condition

- Obtain historic information on risks.
- Obtain current relevant turbidity and water quality data.
- Determine and map landuse and any other potential risks to riverine values.
- Map and document these risks.

Develop priorities for action

- Through consultation with stakeholders develop a matrix of condition, risk and capacity to resolve that provides a ranking of priorities.

Support remedial actions, restoration and education initiatives

- Liaise with LG, community, and catchment groups to facilitate education regarding priority areas.
- Support on-ground activities with technical and other assistance.

The schedule of events logically unfolds in the order shown. But it is understood that, in a well-run project, initiatives in areas of on-ground action, education, developing priorities and data collection are all occurring simultaneously. In this way, opportunities are not lost and momentum is maintained.

16.5.2.3 Partnerships

- Local Government
- Private Landowners
- Department of Environment
- Swan River Trust
- Community and “friends of” groups
- Sub-regional NRM groups

16.5.2.4 Risk Management

One of the risks associated with this project is staff changeover and subsequent loss of knowledge on the project. This is being addressed by developing standardised data collection protocols and training other team members to carry out the project tasks. Wet weather may also hamper the project making access to certain sites difficult. By keeping scheduled works up to date, it is hoped that access problems will largely be avoided.

16.5.2.5 Monitoring and Evaluation

The project will be evaluated against the tasks and milestones.

16.5.2.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 17: Swan-Canning Tributary Foreshore Assessment Project Linkages to RCTs and MATs

RCTs	MATs
LR2 Maintain and improve soil condition, as measured at representative sites, including extent of water erosion, waterlogging and acid sulfate soils, by 2020 (with a quantified targets set by December 2005).	LM2.1 Establish benchmarks and monitoring at representative sites for water erosion, waterlogging and acid sulfate soils by 2005 LM2.3 Regional soil health program developed, with implementation of identified remedial and preventative actions in identified priority areas by 2009

RCTs	MATs
	LM2.4 Industry Best Management Practices (BMP's) defined with benchmarks for implementation established by 2009 for eight land use / industry sectors LM2.5 30% increase in land managers, planners and community participation in soil condition education, mitigation and remediation activities by 2009
WR1 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005)	WM1.1 100% of priority rivers and waterways in the Region identified for protection by 2005 WM1.4 Develop and implement management and restoration programs for the Region's major rivers and waterways by 2007 WM1.5 30% increase in community participation in education, restoration, protection and management activities of the major rivers and waterways in the Region by 2009
WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen, by 2020	WM3.4 20% increase in community participation in nutrient intervention education, restoration, protection and management activities by 2009
W4 Maintain and improve condition of aquatic environments in the Region, as measured at representative sites, by 2020 (with quantified targets for turbidity / suspended particulate matter set by 2005)	WM4.4 20% increase in community participation in education, restoration, protection and management activities for managing turbidity / particulate matter by 2009
W5 Maintain and improve condition of surface waters in priority catchments in the Avon Upper Swan Region, as measured at representative sites, by 2020 (with quantified targets to reduce salinity set by 2005)	WM5.4 20% increase in community participation in salinity education, mitigation and remediation activities by 2009

16.5.2.7 Project Achievements

Table 18: Swan-Canning Tributary Foreshore Assessment Proposed Project Achievements

Milestone	Outputs	Timelines
Collate existing information on tributary condition and identify knowledge gaps	RA2.3 3 x reports detailing tributary condition and identifying knowledge gaps	1 report June 2007 2 reports June 2008
Collection of field data	RA2.1 5 studies completed	2 datasets June 2007 2 datasets June 2008
Development of a decision support matrix to prioritise river reaches for on-ground action	RA3.3 1 x decision support matrix developed	1 matrix June 2007

Milestone	Outputs	Timelines
Report detailing condition of each reach and setting priorities	RA2.3 3 x reports prioritising reaches for on-ground action	1 report June 2007 2 reports June 2008
Assist landowners to implement restoration priorities	CB5.1 5 landowners assisted	3 landowners June 2007 3 landowners June 2007

16.5.2.8 Proposed Budget

Table 19: Swan-Canning Tributary Foreshore Assessment Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
1 FTE & operating	\$93,200	
Project Support		\$5,000 (LG) \$10,000 (community)
Project Mgmt. Costs	11,696	
TOTAL	\$104,896	\$15,000
2007/08		
Budget Item	NHT	Other Funds
1 FTE & operating	\$93,200	
Project Support		\$5,000 (LG) \$10,000 (community)
Project Mgmt. Costs	13,138	
TOTAL	\$106,338	\$15,000

16.5.3 Water Quality Monitoring and Evaluation Framework

16.5.3.1 Project Description

The objective of this project is to continue to implement a coherent water quality monitoring and evaluation program across the Region encompassing catchments, the Swan River estuary and the near-shore coastal zone. A current impediment to the setting of RCTs for water and marine as outlined in the Strategy is the lack of baseline water quality data collected in a coordinated and focused manner. An audit of the non-Swan-Canning Cleanup Program (SCCP) water quality monitoring activities has revealed there are considerable gaps, overlaps, considerable variation in data quality and usefulness as well as inconsistency in data storage and reporting methods.

This project builds on work initiated in 2005/06 and aims to establish baseline water quality monitoring programs as a precursor to setting RCTs for water and marine. This will be achieved by coordinating a re-focusing of existing monitoring programs, establishment of new catchment monitoring investigations and the standardisation of all data collection, storage and reporting methods. In addition, biotic indicators of river health will continue to be investigated with additional sampling sites established.

16.5.3.2 Project Actions

The first year of the project focused on negotiating partnerships, setting up the framework, identifying gaps and initiating sampling programs. In 2006/08, the focus will shift to running the programs and reporting and include the following project task/outcomes taking into account the guidance provided by the joint WA and Federal Monitoring and Evaluation Framework.

- Continue to negotiate a partnership program to eliminate duplication in water quality monitoring activities and focus program on NAP/NHT regional strategy outcomes, State of the Environment and National Land and Water Audit Reporting.
- Communicate and promote the use of common protocols, standards and methods across the region taking into account differing information needs of the partnership participants.
- Continue to provide training and capacity building using a partnership model along with guidance documents.
- Ensure all water related data are captured in the generalised WIN database.
- Develop Web based and other reporting tools.
- Implement resource condition monitoring program in selected rivers and streams to identify biotic indicators of river condition with a view to develop resource condition targets.
- Continue to develop an index of stream condition appropriate to the Swan Coastal Plain.
- Conduct workshops and information assessments.
- Identify coastal and marine resource condition indicators and assess data needs and gaps.
- Continue to implement the User's guide to Estuarine, Coastal, and Marine Indicators for Regional NRM Monitoring.
- Continue to develop appropriate monitoring programs for the nearshore marine zone for the identified indicators with a view to establishing existing condition and setting resource condition targets.

16.5.3.3 Partnerships

- Swan River Trust
- Water Corporation
- Local Government Authorities
- Sub-regional, community and "friends of" groups
- Swan Catchment Council

16.5.3.4 Risk Management

This project is dependant on continuing Swan River Trust funding for SCCP which is considered a low risk given plans to add additional funds to monitoring drainage, especially non-nutrient contaminants.

The full scale of the project is dependent on a number of influential partners that come on board. These partnerships are still being developed. The risk in involving sub-regional groups and LG is low. The risks of involving the Water Corporation fully are higher, although some involvement will occur. The project will proceed and meet almost all of the outcomes even if the Water Corporation does not fully participate.

Attracting and retaining a sufficient number of skilled staff in the Department of Environment's Aquatic Science Branch and in the partner community groups given the high turn over and potential for burnout is also a challenge associated with this project.

16.5.3.5 Monitoring and Evaluation

The project is a monitoring project with the results to be used for identification of water quality hotspots for further investment. This project will be evaluated by achievement of the milestones and outputs.

16.5.3.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 20: Water Quality Monitoring and Evaluation Framework Linkages to RCTs and MATs

RCTs	MATs
WR1 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005)	WM1.1 100% of priority rivers and waterways in the Region identified for protection by 2005 WM1.5 30% increase in community participation in education, restoration, protection and management activities of the major rivers and waterways in the Region by 2009
WR2 Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites, by 2020 (with quantified targets for priority wetlands in the Region set by 2005)	WM2.1 100% of priority wetlands in the Region identified for protection by 2005 WM2.5 20% increase in community participation in wetlands education, restoration, protection and management activities by 2009
WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen, by 2020	WM3.1 100% of the 1-5 year actions of the reviewed Swan-Canning Cleanup Program (SCCP) implemented by 2010 WM3.4 20% increase in community participation in nutrient intervention education, restoration, protection and management activities by 2009
WR4 Maintain and improve condition of aquatic environments in the Region, as measured at representative sites, by 2020 (with quantified targets for turbidity / suspended particulate matter set by 2005)	WM4.1 Establish monitoring systems to develop Resource Condition Targets for turbidity/ suspended particulate matter by 2005 WM4.4 20% increase in community participation in education, restoration, protection and management activities for managing turbidity / particulate matter by 2009

RCTs	MATs
WR5 Maintain and improve condition of surface waters in priority catchments in the Avon Upper Swan Region, as measured at representative sites, by 2020 (with quantified targets to reduce salinity set by 2005)	WM5.1 Establish monitoring systems to develop Resource Condition Targets for surface water salinity in the Avon Upper Swan Region by 2005 WM5.4 20% increase in community participation in salinity education, mitigation and remediation activities by 2009

16.5.3.7 Project Achievements

Table 21: Water Quality Monitoring and Evaluation Framework Proposed Project Achievements

Milestone	Outputs	Timelines
Continue to negotiate a partnership program	CB3.3 8 x new arrangements for effective collaboration negotiated where a formal agreement does not exist	December 2006
Implement full M & E framework for rivers including establishment of reference sites	RA1.1 5 x new water quality monitoring programs established for the setting of RCT's RA1.2 5 x new water quality monitoring programs established to guide catchment management activities RA1.3 5 x existing monitoring programs enhanced	December 2006 April 2007 December 2007 April 2008
Implement antifouling biocide surveys in coastal areas.	Establish hazard and risk level to determine app action	July 2007
Implement environmental health program with trial indicators in river and estuary	RA1.1 3 x trial indicator studies completed RA2.1 2 x biophysical studies completed	September 2007 December 2006
Report on results via web and written documentation	CB1.5 1 x web based score card reporting, written reports and recommendations developed	December 2006
Continue web reporting	CB1.5 web based reporting tools enhanced	December 2007
Continue to support community based organisations establish monitoring programs	CB5.1 8 x community groups/projects assisted	December 2006 April 2007 December 2007 June 2008
Conference focusing on Swan-Canning Estuary Science	CB4.2 1 x conference on Estuarine Science and Management links	May 2006
Evaluate and assess program performance	CB4.3 1 x evaluation of the M & E Framework project including report with recommendation for	June 2008

	change	
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16.5.3.8 Proposed Budget

Table 22: Water Quality Monitoring and Evaluation Framework Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
0.6 FTE Program management, project design and technical oversight, training, coordination; reporting, communication	63,966	
PARTNERSHIP M AND E		
0.6 FTE Project coordination, training, QA, community technical support communication, reporting	50,756	
0.4 FTE Data Analysis, interpretation and reporting	33,837	
Field costs, analysis, consumables, maintenance	46,167	
SRT –SCCP partner; salary, equipment, boats, analysis and reporting		1,000,000
Other partner contribution		100,000
RIVER HEALTH PROGRAM		
0.5 FTE Establish sites and indicators	42,297	
Field and lab measurements	30,000	
SRT flow measurement and sampling		74,000
COASTAL AND MARINE INDICATORS		
0.5 FTE Program Implementation	48,305	
ESTUARINE BIOTIC INDICATORS TOTAL		
Survey costs	34,672	\$50,000 (DOE)
PROJECT MGMT. COSTS	43,922	
TOTAL	\$393,922	\$1,224,000

2007/08		
Budget Item	NHT	Other Funds
0.3 FTE Program management, project design and technical oversight, training, coordination; reporting, communication	32,000	
PARTNERSHIP M AND E		
0.6 FTE Project coordination, training, QA, community technical support communication, reporting	50,756	
0.1 FTE Data Management	6,438	
0.4 FTE Data Analysis, interpretation and reporting	33,837	
Field costs, analysis, consumables, maintenance	20,000	
SRT –SCCP partner; salary, equipment, boats, analysis and reporting		1,000,000
Other partner contribution		100,000
RIVER HEALTH PROGRAM		
Data analysis, reporting, targets	42,297	
Field and lab measurements	30,000	
SRT flow measurement and sampling		74,000
COASTAL AND MARINE INDICATORS		
ESTUARINE BIOTIC INDICATORS TOTAL		
Survey costs	34,672	\$50,000 (DOE)
PROJECT MGMT. COSTS	35,241	
TOTAL	\$285,241	\$1,224,000

- Only LG and community included. Expected amount to be much higher as other partners contributions are identified.
- Does not yet take into account related activity such as the SCC funded Beach Health
- Includes SRT funded and supported activity but does not yet include Fisheries and related university studies which are not yet quantified but which may be substantial Leverage through ARC linkage projects yet to negotiated
- All FTE estimates are fully loaded costs which include provision for accommodation, computing, vehicles, accounting and auditing services etc following the Dept requirements and provisions in the bilateral agreements. Basis is \$10,000 for existing staff and \$30,000 for new staff irrespective of level

16.5.4 Water Quality Partnership Project

16.5.4.1 Project Description

There is currently a wide range of water quality monitoring activities occurring across the Swan Region. To address this issue and provide a coordinated and coherent approach to water quality monitoring, the SCC funds a project based with the Aquatic Sciences Branch of the Department of Environment. This project, aims to establish the use of standardised protocols in the collection, analysis and reporting for all water quality monitoring activities occurring across the Swan Coastal Plain.

Currently, the Department of Environment, with it's current resources, has limited capacity to form partnerships with a multiple of Local Governments (LGs), community organisations and other stakeholders to re-focus existing water monitoring programs and to establish programs where gaps exist. Without addressing this issue, water quality data will continue to be collected in an adhoc manner with little or no quality assurance, inadequate data storage and retrieval systems and little actual use of the data generated.

The aim of this project is to promote a cooperative approach to water quality monitoring activities across the Swan Region and take advantage of partnerships already established in the 2005/06 period. More specifically, this project will have a role in assisting stakeholders to assess their water quality data requirements and provide assistance to prepare sampling and analysis plans, undertake actual sampling activities and in the preparation of reports in conjunction with the Department of Environment.

The results expected are the development of partnerships with LG and other stakeholders to establish baseline water quality data in all of the 31 sub-catchments of the Swan-Canning river system as well as coastal draining catchments.

16.5.4.2 Project Actions

This project will develop partnerships with LG and other stakeholders to establish baseline water quality data in all of the 31 sub-catchments of the Swan-Canning river system as well as coastal draining catchments. Project officers will also assist with the interpretation and reporting of water quality results back to LG and other stakeholders. Through identification of water quality hotspots, land managers are also encouraged to work with relevant agencies to undertake remediation actions and to establish BMPs for improved catchment management.

16.5.4.3 Partnerships

- Department of Environment
- Department for Planning and Infrastructure
- Local Government
- Community organisations such as catchment groups and "friends of" groups
- Department of Conservation and Land Management
- Swan River Trust

16.5.4.4 Risk Management

The success of this project depends significantly on having appropriately skilled officers with extensive experience in designing and implementing water quality monitoring programs, interpreting and reporting the results and a strong ability to communicate clearly with a range of stakeholders. A poorly skilled project proponent could undermine the confidence of LG and other stakeholders in the project's value.

Another risk to the project is the willingness of LG and other stakeholders to contribute their knowledge, data and funds to establishing valuable water quality monitoring programs. Timing of the implementation of monitoring programs also need to be in line with LG budgeting timelines.

16.5.4.5 Monitoring and Evaluation

The aim of the project is to liaise with stakeholders to establish new water quality monitoring programs and re-focus existing water quality monitoring programs to fill gaps in knowledge and guide future catchment management activities. The number of new and re-focused monitoring programs will be used to evaluate the success of this project as well as the number of new catchment management initiatives established as a result of identification of water quality "hotspots".

16.5.4.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 23: Water Quality Partnership Project Linkages to RCTs and MATs

RCTs	MATs
WR1 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005).	WM1.1 100% of priority rivers and waterways in the Region identified for protection by 2005 WM1.5 30% increase in community participation in education, restoration, protection and management activities of the major rivers and waterways in the Region by 2009
WR2 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for wetlands in the Region set by 2005).	WM2.1 100% of priority wetlands in the Region identified for protection by 2005 WM2.5 20% increase in community participation in wetlands education, restoration, protection and management activities by 2009
WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus (TP) and 1.0mg/L for total nitrogen (TN), by 2020.	WM3.1 100% of the 1-5 year actions of the reviewed Swan-Canning Cleanup Program (SCCP) implemented by 2010

RCTs	MATs
	WM3.4 20% increase in community participation in nutrient intervention education, restoration, protection and management activities by 2009
WR4 Maintain and improve condition of aquatic environments in the Region, as measured at representative sites, by 2020 (with quantified targets for turbidity/suspended particulate matter set by 2005).	WM4.1 Establish monitoring systems to develop Resource Condition Targets for turbidity/ suspended particulate matter by 2005 WM4.4 20% increase in community participation in education, restoration, protection and management activities for managing turbidity / particulate matter by 2009
WR5 Maintain and improve condition of surface waters in priority catchments in the Avon Upper Swan Region, as measured at representative sites, by 2020 (with quantified targets to reduce salinity set by 2005).	WM5.1 Establish monitoring systems to develop Resource Condition Targets for surface water salinity in the Avon Upper Swan Region by 2005 WM5.4 20% increase in community participation in salinity education, mitigation and remediation activities by 2009

16.5.4.7 Project Achievements

Table 24: Water Quality Partnership Project Proposed Achievements

Milestone	Outputs	Timelines
Establish partnerships with LG, State Government Agencies and community organisations.	CB3.2 25 x collaborative partnerships established for water quality monitoring.	25 partnerships June 2007
Establishment of high quality baseline water quality data.	RA1.2 15 x water quality monitoring programs established.	10 programs June 2007 5 programs June 2008
Enhancement of existing water quality monitoring programs to include standardised procedures, sample collection methods, analysis and reporting.	RA1.3 5 x existing water quality monitoring programs enhanced.	June 2007

16.5.4.8 Proposed Budget

Table 25: Water Quality Partnership Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
2 FTE	\$137,800	
Management Fee	\$50,000	
Other partner contributions to WQ programs		\$50,000
Project Mgmt. Costs	23,567	
TOTAL	\$211,367	\$50 000
2007/08		
Budget Item	NHT	Other Funds
2 FTE	\$137,800	
Management Fee	\$50,000	
Other partner contributions to WQ programs		\$50,000
Project Mgmt. Costs	26,473	
TOTAL	\$214,273	\$50,000

16.5.5 Superficial Aquifer Health Project

16.5.5.1 Project Description

The Superficial Aquifer under Perth supports the irrigation of public open space by Local Government (LG) and schools (38 GL/yr); home garden irrigation (112 GL/yr); industry (31 GL/yr); households not on scheme supplies (26 GL/yr) and horticulture (90 GL/yr). Some of the 63 GL/yr of scheme supplies from the Superficial Aquifer also comes from under urban areas (Gwelup, West Mirrabooka, Whitfords, Quinns and Neerabup Wellfields). Recharge from the Superficial Aquifer to underlying confined aquifers also supplies over 100 GL/yr of water to all of the above users.

The capital value of bores and irrigation equipment that is reliant on the Superficial Aquifer has been estimated to exceed \$2 billion. In addition, urban lakes rely on groundwater levels in the aquifer. Low groundwater and lake levels in the 2003/04 summer caused a significant loss of aesthetics and the failure of waterfowl to breed successfully. Some lakes also produce acid sulphate soils and release arsenic once they dry. These problems may increase as the climate dries and becomes hotter.

A Department of Environment report has indicted that the current monitoring of groundwater levels in the Aquifer is poorly known, but falling trends have been detected in several areas (R. Lindsay, Hydrogeology Report No, 225, 2004). An unpublished report of a larger urban area has indicated that groundwater trends cannot be estimated for almost half of the metropolitan area due to a lack of readily available monitoring data (Smith *et al.* 2005).

Lindsay (2004) recommended collecting additional groundwater data from between High Wycombe and Armadale, East Fremantle and the Scarborough - Wembley Downs area. Smith *et al.* (2005) have identified further areas, particularly coastal and riverine aquifers which may be subject to salt water intrusion.

It is possible that good quality groundwater data exist for some of these areas, especially where they have been collected by LG. In a PhD study of groundwater levels affecting Perry Lakes, John Rich (2003), showed that a long slow decline in levels could have significant consequences for shallow lakes. Groundwater levels around the lakes are now only 3 metres above sea level, having fallen from 4 to 5 metres above sea level in the 1960s. Rich attributed the decline to reduced rainfall and increased extraction. Only one of the four lakes now contains free water over summer, and this requires augmentation in most years.

This project seeks to find additional groundwater monitoring data in gap areas identified by Lindsay (2004) and Smith *et al.* (2005) and add these to the WIN database if of sufficient quality. It would also commission additional monitoring sites using existing boreholes or new drill sites where required. Lindsay estimated the cost of an additional 28 bore holes at \$110,000, some of which may be funded by the increased investigation program being developed by the Department of Environment (DOE)/Department of Water (DOW).

16.5.5.2 Project Actions

The first stage of this project is collating existing groundwater monitoring data held externally to the DOE's WIN database by LG, consultants and other organisations. If of sufficient quality, the data will be added to the WIN database. The data will then undergo comprehensive analysis to establish trends in urban areas with the reasons for these trends being communicated to interested parties.

Identified gaps in groundwater monitoring activities will be addressed through recommissioning of existing boreholes or through establishing new monitoring bores.

The project will also include providing informed input into groundwater and land use management and planning as well as contributing to wetland management plans and catchment management plans. Raising awareness of the value of the Superficial Aquifer is also an aim of this project.

16.5.5.3 Partnerships

- Local Government
- Premiers Water Foundation
- ICLEI's Water Campaign
- Department of Agriculture
- Department of Water
- WWF (Wetland Watch)
- Department of Environment
- Sub-regional groups
- Water Corporation
- Catchment and "friends of" groups
- CSIRO Water for a Healthy Country Flagship

16.5.5.4 Risk Management

The risks associated with this project could include resistance from LG, consultants and other stakeholders to provide their groundwater monitoring data at no cost. This project is reliant on free provision of data. As the data may have been collected for a variety of purposes, suitability and quality of data could also be a risk to this project.

16.5.5.5 Monitoring and Evaluation

The aim of this project is to collate and analyse the non-DOE groundwater monitoring data to ascertain and fill the gaps in knowledge. The success of this project will be gauged by its ability to usefully guide groundwater related management actions as a result of an improved knowledge of the Superficial Aquifer.

16.5.5.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 26: Superficial Aquifer Health Project Linkages to RCTs and MATs

RCTs	MATs
WR2 Maintain and improve condition or inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for wetlands in the Region set by 2005).	WM2.1 100% of priority wetlands in the Region identified for protection by 2005. WM2.5 20% increase in community participation in wetlands. education, restoration, protection and management activities by 2009.

16.5.5.7 Project Achievements

Table 27: Superficial Aquifer Health Proposed Project Achievements

Milestone	Outputs	Timelines
Collation of existing groundwater data held by LGs, consultants etc	RA2.3 1 x report detailing results of groundwater monitoring audit	December 2006
Analysis of groundwater monitoring data to establish trends in the Superficial Aquifer	RA2.3 1 x report detailing trends in the water level in Superficial Aquifers	June 2007
Initiate new monitoring programs where gaps in knowledge exist	RA1.3 5 new monitoring programs established	December 2007

16.5.5.8 Proposed Budget

Table 28: Superficial Aquifer Health Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
1 FTE	85,000	
Operating costs	25,000	
Reporting	4,000	
Project Mgmt. Costs	14,306	
TOTAL	\$128,306	
2007/08		
Budget Item	NHT	Other Funds
1 FTE	86,000	
Operating costs	25,000	
Reporting	5,000	
Project Mgmt. Costs	16,352	
TOTAL	\$132,352	

16.6 Proposed Activities - Water Management, Training and Technical Support Sub-program

16.6.1 Avon Upper Swan Nutrient Intervention and Salinity Amelioration Project

16.6.1.1 Project Description

The Avon Upper Swan Nutrient Intervention and Salinity Amelioration Project (AUS-NISAP) is an extension of the work that has been initiated through the Ellen Brockman Integrated Catchment Management Group (EBICG), in conjunction with a multiple of stakeholders. Activities have focused on addressing the salinity, land management, biodiversity and water quality issues in the north and north east of the Swan Region.

The Ellen Brook is a priority catchment in the Swan-Canning river system, contributing more phosphorus by load than any of the other 30 sub-catchments. Catchment management activities including fencing of streamlines has contributed to the stabilisation of the nutrient load over the past six years. Strategic catchment management activities have also been successful in the Brockman River, which has experienced salinisation and other problems associated with a rising water table in the upper catchment. The project will continue this important work which has seen a reduction in the area of land under threat by surface expression of salinity.

The Ellen Brook catchment includes Twin Swamps and Ellen Brook Nature Reserve, which are the last remaining natural habitats of the Western Swamp Tortoise, Australia's most endangered reptile. A focus of this project will be on the protection of the water source for these wetlands which is a vital step in ensuring the success of the NHT funded Threatened Species Program.

The project will be a two-year project delivered in stages. It will be managed by the EBICG. By working with landholders, Local Government, State agencies and community, behavioural change to effect reduction in transport of nutrient to waterways and to reduce the amount of land affected

by salinity will be achieved. This project will be further assisted by the Avon Catchment Council's NAP funded projects.

16.6.1.2 Project Actions

- Regional Water Quality Monitoring and data analysis of the Ellen Brook and Brockman River and major tributaries.
- Implementation of projects to fence and revegetate riparian areas and protection of remnant vegetation in strategic areas within the sub-region.
- Review foreshore assessment of the Brockman River and major tributaries.
- Implement projects in Ellen Brook catchment for reduction of nutrients.
- Develop and implement projects to revegetate cleared areas designated as ecological linkages across the landscape.
- Develop a Weed Strategy for road reserves and priority public open space reserves in the Shire of Chittering.
- Organise and run workshops on perennial pasture, native grass pastures and alternative deep rooted perennials to address land salinity and waterlogging.
- Continue to implement the Brockman River Catchment Management Plan and the Ellen Brook Management Plan that address the Strategy's Management Action Targets.
- Implement salinity remediation projects using the NHT funded Decision Support Tool to identify high priority areas in the Ellen Brook, Brockman River and Wooroloo Brook catchments.
- Organise and run workshops on use of the Decision Support Tool, fencing techniques, groundwater protection, weed identification and eradication, acid sulphate soils, dieback identification and remediation, and chemical handling.
- Develop a State of the Environment and Action Plan for the Shire of Chittering to identify and implement actions to management and protect natural resources.

16.6.1.3 Partnerships

- Swan River Trust
- Department of Environment
- Department of Agriculture
- Department of Conservation and Land Management
- Forest Products Commission
- Water Corporation
- Shire of Chittering
- City of Swan
- Shire of Gingin
- Tiwest
- Wooroloo LCDC
- Lotterywest
- Ellen Brockman ICG
- Avon Catchment Council

16.6.1.4 Risk Management

- Staff changes and loss of intellectual property.

- Weather conditions that interfere with tree planting and survival, pasture establishment and fencing programs.
- Security of funding for on-ground works.
- Seasonal aberrations in sample results due to late seasonal rains, low rainfall or heavy summer storms that can produce spikes in nutrient and salinity levels and additional scouring of waterways.
- Loss of collaborative funding from established partnerships.

16.6.1.5 Monitoring and Evaluation

- Water quality monitoring at designated sites on the Ellen Brook and Brockman River and major tributaries.
- Analysis of water quality data to measure if quality has been maintained or improved.
- Measure the success of workshops by participants and evaluation responses.
- Number of completed on-ground projects and hectares of revegetation and kilometres of fencing.
- Photographic evidence of present and past project sites.
- Community and Local Government acceptance of Weed Strategy and State of the Environment Report.

16.6.1.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 29: Avon Upper Swan Nutrient Intervention and Salinity Amelioration Project Linkages to RCTs and MATs

RCTs	MATs
LR1 Reduction in the area of land affected by salinity, within the Avon Upper Swan National Action Plan Region, by 2020 (with a quantified target set by December 2005)	LM 1.1 Priority areas for salinity risk management established in the Avon Upper Swan Region by 2005 LM 1.2 All Local and State Government planning agencies using local area land capability and suitability information by 2009 LM1.3 Implementation of actions to address land salinity in priority areas of the Avon Upper Swan NAP Region by 2009 LM1.4 30% increase in community participation in land salinity education, mitigation and remediation actions by 2009
LR2 Maintain and improve soil condition, as measured at representative sites, including extent of water erosion, waterlogging and acid sulfate soils, by 2020 (with quantified targets set by December 2005)	LM 2.1 Establish benchmarks and monitoring at representative sites for water erosion, waterlogging and acid sulfate soils by 2005

RCTs	MATs
	LM 2.2 100% of all relevant current NRM policy and legislation reviewed and recommended amendments to minimise risk of water erosion, waterlogging and acid sulfate soils made by 2006 LM 2.3 Regional soil health program developed, with implementation of identified remedial and preventative actions in identified priority areas by 2009 LM 2.4 Industry Best Management Practices (BMP's) defined with benchmarks for implementation established by 2009 for eight land use / industry sectors LM2.5 30% increase in land managers, planners and community participation in soil condition education, mitigation and remediation activities by 2009
BR1b Maintain and improve the condition of high priority native vegetation (including formal reserves and off-reserves) by 2020, based on 2005 baseline data	
BR3 Reduction in impact of regionally significant invasive species by 2020 (with a quantified target set by December 2005)	
WR1 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005).	WM1.1 100% of priority rivers and waterways in the Region identified for protection by 2005 WM1.3 Implementation of Environmental Water Provision (EWP) projects in the Canning, Helena and Brockman River catchments by 2007 WM1.4 Develop and implement management and restoration programs for the Region's major rivers and waterways by 2007 WM1.5 30% increase in community participation in education, restoration, protection and management activities of the major rivers and waterways in the Region by 2009
WR2 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for wetlands in the Region set by 2005).	WM2.1 100% of priority wetlands in the Region identified for protection by 2005 WM2.5 20% increase in community participation in wetlands education, restoration, protection and management activities by 2009

RCTs	MATs
WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus (TP) and 1.0mg/L for total nitrogen (TN), by 2020.	WM3.1 100% of the 1-5 year actions of the reviewed Swan-Canning Cleanup Program (SCCP) implemented by 2010 WM3.2 100% of all relevant NRM legislation and policy reviewed and amendments recommended to address nutrient enrichment by 2006 WM3.3 Implement identified remedial actions to address nutrient enrichment by 2007 WM3.4 20% increase in community participation in nutrient intervention education, restoration, protection and management activities by 2009
WR4 Maintain and improve condition of aquatic environments in the Region, as measured at representative sites, by 2020 (with quantified targets for turbidity/suspended particulate matter set by 2005).	WM4.1 Establish monitoring systems to develop Resource Condition Targets for turbidity/ suspended particulate matter by 2005 WM4.2 100% of all relevant NRM legislation and policy reviewed and amendments recommended to address turbidity / suspended particulate matter by 2006 WM4.4 20% increase in community participation in education, restoration, protection and management activities for managing turbidity / particulate matter by 2009
WR5 Maintain and improve condition of surface waters in priority catchments in the Avon Upper Swan Region, as measured at representative sites, by 2020 (with quantified targets to reduce salinity set by 2005).	WM5.1 Establish monitoring systems to develop Resource Condition Targets for surface water salinity in the Avon Upper Swan Region by 2005 WM5.2 100% of all relevant NRM legislation and policy reviewed and amendments recommended to address surface water salinity in the Avon Upper Swan Region by 2006 WM5.3 Implement identified remedial actions to address surface water salinity in the Avon Upper Swan Region by 2009 WM5.4 20% increase in community participation in salinity education, mitigation and remediation activities by 2009

16.6.1.7 Project Achievements

**Table 30: Avon Upper Swan Nutrient Intervention and Salinity Amelioration Project
Proposed Achievements**

Milestone	Outputs	Completion Date
Completion of annual water quality reports for the Ellen Brook and Brockman River.	RA2.3 4 x water quality reports.	December 2006 December 2007
Develop and implement 10 projects to protect waterways, native remnant vegetation and productive land.	OG4.3 20ha wetland vegetation revegetated all locally occurring OG9.1 4ha land treated for salinity through engineering works	10ha wetland Dec 2007 2ha works Dec 2007 10ha wetland Dec 2008 2ha works Dec 2008
Review the foreshore assessment of the Brockman River.	RA2.3 1 x review of the foreshore assessment of the Brockman River	June 2007
Evaluate nutrient intervention structures in the Ellen Brook catchment.	RA2.1 1 x study on nutrient intervention structures in the Ellen Brook catchment	Jan 2006
Assess native vegetation, develop and implement Management Plans for 2 priority POS areas in Shire of Chittering.	RA2.1 2 x native vegetation assessment completed for Chittering POS P3.2 2 x Management Plans developed for Chittering POS	2 assessments Jan 2007 2 plans Jan 2008
Implement two projects to create ecological linkages to connect high priority remnant vegetation areas.	P3.2 2 management plans for ecological linkages in Chittering complete OG4.6 12 ha terrestrial vegetation planted all locally occurring	1 ecological linkage Oct 2007 1 ecological linkage Oct 2008
Implement the weed strategy in the Shire of Chittering for priority weeds on the road reserves in the Shire of Chittering.	OG8.1 100 ha of weed control completed	50ha Sept 2007 50ha Sept 2008
Organise and run workshops on perennial pastures, saline site recovery and alternative deep rooted crops.	CB2.1 11 x workshops on perennial pastures, saline site recovery and alternative deep rooted crops for 130 people days.	3 workshops July 2006 1 workshop may 2007 3 workshops Aug 2007 1 workshop May 2008 3 workshops June 2008
Review the Salinity Decision Support Tool and source additional updated datasets for inclusion in the next generation in the second edition of the tool.	CB4.4 1 x review and update of Salinity Decision Support Tool	March 2008
Implement 4 saline land recovery projects in the Brockman River Catchment.	OG4.3 10ha wetland vegetation replanted with 5ha local species OG10.1 10ha land treated with surface drainage with 10km drains	5ha Sept 2007 5ha Sept 2008 5ha drained June 2007 5ha drained June 2008

Milestone	Outputs	Completion Date
Develop a State of the Environment Report for the Shire of Chittering in cooperation with the Swan Catchment Council and the Shire of Chittering.	RA2.3 1 state of the Environment report for Chittering completed	June 2007

16.6.1.8 Proposed Budget

**Table 31: Avon Upper Swan Nutrient Intervention and Salinity Amelioration Project
Proposed Budget**

2006/07		
Budget Item	NHT	Other Funds
1 FTE (Project Coordinator)	\$80,180	
2 FTE (Project Officers)	\$137,820	\$68,910 Swan River Trust
Project support		\$10,000 Shire Chittering \$10,000 City Swan \$20,000 Tiwest
1 Decision Support Tool implementation	\$65,000	
On ground works		\$20,000 Water Grants \$30,000 Envirofunds \$100,000 SALP \$150,000 Water Corp \$250,000 NAP Avon
Project Mgmt. Costs	35,514	
TOTAL	\$318,514	\$658,910
2007/08		
Budget Item	NHT	Other Funds
1 FTE (Project Coordinator)	\$80,180	\$68,910 Swan River Trust
2 FTE (Project Officers)	\$137,820	\$10,000 Shire Chittering \$10,000 City Swan \$20,000 Tiwest
1 Decision Support Tool	\$65,000	
On ground works		\$20,000 Water Grants \$30,000 Envirofunds \$100,000 SALP \$150,000 Water Corp \$250 000 NAP Avon
Project Mgmt. Costs	39,893	
TOTAL	\$322,893	\$658,910

16.6.2 Canning Environmental Flows

16.6.2.1 Project Description

This project addresses the significantly reduced flow in the Canning, Wungong and Southern Rivers since the construction of drinking water supply dams. It seeks to improve river flows, water quality, habitat diversity and reduce frequency of algal blooms by developing Environmental Water Provisions (EWPs).

Since the 1940's water has been released to maintain summer flows in the Canning and Wungong Rivers from the Water Corporation's scheme water supply pipelines. These releases of water were to provide for irrigation, domestic and stock water requirements. Water releases also occur in Wungong Brook, and commenced when construction of the Wungong Dam was completed in 1979. Whilst these releases have ensured sufficient flows to accommodate for water users, further work is needed to understand the amount of flows required and the timing of releases to ensure ecological needs are satisfied at crucial periods.

The Caring for the Canning Management Plan produced as a result of the Swan River Trust's Swan-Canning Cleanup Program Action Plan identified one of the major issues affecting the Canning River system was significantly reduced flow, contributing to degradation of ecological values of the river. The management plan made a recommendation to "Determine EWPs for the Canning River system".

The development of EWPs is a staged process, taking place over five years. Once EWPs have been established, it is envisaged an Allocation Plan for the Canning River will be developed and will influence the Water Corporation's operations strategy for dams in the Canning catchment. This project is also the first of its kind for regulated rivers in Western Australia and is helping to develop a process that can be used to develop EWPs for other river systems within the Swan Region.

This project will also help to identify areas along the rivers that could benefit from river restoration in order to improve habitat, water quality and flow.

16.6.2.2 Project Actions

This is a five-staged project taking place over five years. As well as establishing a Steering Committee for the project, past activities have included identifying the social, economic and ecological values of the Canning River. This involved raising the profile of issues through preparation of a marketing and communications strategy, establishing a technical working group to select sites, designing an environmental flows strategy/interim EWP and ecological/flow monitoring programme, community consultation workshops and a preliminary Ecological Water Requirements (EWR) study. This was followed by investigations and modelling of flows including site selection, design of a flow investigation strategy, installation of low quality gauging stations, recording of stage height and cross sectional areas of channel, modelling of flow data using HECRAS and baseline ecological monitoring.

This work will be furthered in 2006/07 by the following activities:

- conducting trial environmental water release/s in specific river management section/s,
- implementing an ecological and flow monitoring program (monitor fish passage, habitat, macroinvertebrates),

- examination of proposed sites to evaluate whether they meet EWR targets (eg. fish passage and habitat),
- investigating river restoration/soft engineering that would benefit releases and develop trigger levels for flow management.

16.6.2.3 Partnerships

- Department of Environment
- Local landholders
- Water Corporation
- Araluen Botanic Park
- Swan River Trust
- University of Western Australia
- City of Gosnells
- Armadale Gosnells Landcare Group

16.6.2.4 Risk Management

The continuation of this project relies on external funding. Currently NHT provide funding for a full-time coordinator. Operational costs are provided by the Swan River Trust and the Department of Environment. Should either organisations be unable to continue to provide these funds, the ability of the project to deliver its outcomes would be severely affected.

There is an expectation within the community that action will be taken to improve the health of the Canning River system. If funding was to cease the SCC and Department of Environment risk jeopardising the high level of stakeholder engagement that has already been carried out and may lose the confidence of the community, landholders, Local Government and community groups.

Funding partnerships with the Water Corporation are yet to be finalised. The Water Corporation is involved in all stages of the project in the hope that we can work towards negotiating an appropriate outcome for all involved parties including the environment.

16.6.2.5 Monitoring and Evaluation

The aim of this project is to ensure there is sufficient water flow in the Canning River to accommodate for water uses and ecological needs are satisfied at crucial periods. Continual monitoring and review of the water flow will occur to ensure it is meeting the objectives of the project.

16.6.2.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 32: Canning Environmental Flows project Linkages to RCTs and MATs

RCTs	MATs
WR1 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005)	WM1.1 100% of priority rivers and waterways in the Region identified for protection by 2005 WM1.2 100% of all relevant NRM legislation and policy reviewed and amendments recommended for the protection and management of the Region's major rivers and waterways by 2006 WM1.3 Implementation of Environmental Water Provision (EWP) projects in the Canning, Helena and Brockman River catchments by 2007

16.6.2.7 Project Achievements

Table 33: Canning Environmental Flows Proposed Project Achievements

Milestone	Outputs	Timelines
Conduct trial environmental water release/s in specific river management section/s. Implement ecological and flow monitoring program (monitor fish passage, habitat, macroinvertebrates).	RA4.1 1 x Research study completed	April 2007
Examine proposed sites to evaluate whether meeting EWR targets (eg. fish passage & habitat). Consider river restoration/soft engineering that would benefit releases. Develop trigger levels for flow management.	RA4.1 x Research study completed P5.1 1 report on the Ecological Water Requirements for the Canning River System (Recommendations)	April 2007 June 2007

16.6.2.8 Proposed Budget

Table 34: Canning Environmental Flows Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
Coordinator 1 FTE	\$64,000	
Volunteer Steering Committee		\$1,800
Community Education	\$3,000	
Operating costs		\$57,600 (DOE) \$20,000 (SRT)
Technical expertise	\$6,200	
Trial releases monitoring and report recommendations	\$10,000	\$10,000
Consultation workshops to negotiate EWPs (facilitator costs)	\$800	
Project Mgmt. Costs	10,541	
TOTAL	\$94,541	\$ 69,400

16.6.3 Wetland Watch

16.6.3.1 Project Description

It has been estimated that 70-80 per cent of wetlands on the Swan Coastal Plain have been either lost or seriously degraded due to filling, draining or clearing since European settlement. Of those wetlands that remain, only 15 per cent are considered to retain high conservation values. These remaining wetlands are under significant threat from urban and rural encroachment. Many of these high value wetlands are located on private property and are outside of current protective measures such as Environmental Protection Policies and the Bush Forever scheme.

A significant threat to these wetlands is a lack of awareness, on the part of landowners and the general community, of the presence of many seasonal wetland types and the high biodiversity value of these systems. Another equally significant threat is insufficient capacity of landowners for wetland management. Given many of the remaining wetlands on the Swan Coastal Plain are located on private land, their sustainable management and conservation is in the hands of individual landowners.

The aim of Wetland Watch is to improve the management and secure the conservation of high value wetlands, focusing on those located on private land. This project funds 1.6 FTE of Project Officers hosted by WWF to deliver the project, including liaising with, and assisting wetland landowners with wetland management advice and accessing other wetland management incentives, and in cooperation with the SCC, deliver a Wetland Watch grant scheme to fund on-ground wetland management projects.

16.6.3.2 Project Actions

In order to increase landowner and community capacity for wetland management and to secure the conservation of wetlands, the following activities will be conducted:

- Provision of technical advice and assistance to landowners including conducting workshops on technical management solutions and skills training.
- Conducting flora and fauna surveys on selected high conservation value wetlands, providing valuable ecological data. The provision of these surveys will be used as an incentive to landowners to enter into voluntary management agreements. The information gained from these surveys will be utilised in the preparation of wetland management and restoration plans for the surveyed properties.
- Securing BMP and conservation of these wetlands through the brokering of a range of existing incentives to private landowners including; Local Government devolved grant funding, other funding sources and labour support. Wetland Watch will also develop and administer a devolved grants program targeted specifically to wetland landowners. Landowners will also be strongly encouraged to sign voluntary management agreements and to enter into conservation covenants.

In order to increase community and landowner awareness and appreciation of wetland values and the need for their conservation the following activities will be conducted:

- Wetland field days will be held at locations including the Cockburn Wetlands Education Centre (Beeliar Regional Park) and Forrestdale Lake (Ramsar site).
- Information in regard to wetland values and the need for wetland conservation, including the Wetland Watch brochure and newsletter, will be distributed to individual wetland landowners either through mail or a personal visit.

In 2004/05 Wetland Watch has operated within the southern metropolitan region of Perth including the City of Armadale, City of Cockburn and Town of Kwinana as well as extending into the City of Rockingham. In 2006/07 Wetland Watch will be extended (by the addition of a 0.6 FTE project officer), into the northern metropolitan region, focusing on the Ellen-Brockman Catchment.

16.6.3.3 Partnerships

- WWF
- City of Armadale
- City of Cockburn
- Town of Kwinana
- City of Rockingham
- Department of Environment
- Water Corporation
- WA Museum
- Cockburn Wetlands Education Centre
- Armadale Gosnells Landcare Group
- Friends of Forrestdale Lake
- Birds Australia Western Australia
- City of Armadale's Streamcare Project

16.6.3.4 Risk Management

As this project has a significant component focussed on attitudinal and behaviour change towards wetlands, a short period of funding will not allow this project to fulfil its full potential. As such, securing long-term funding for Wetland Watch is essential to ensure that those landowners and community groups already working to improve the condition of wetlands are supported, and those who are not, are educated and assisted in changing their current practices.

A loss of support for Local Government is another threat to the project. One of the key components of Wetland Watch is the support and in-kind assistance from Local Government and other project partners. The participating Local Governments have not only provided administrative support (including the hosting of the Wetland Watch Project Officer by the Town of Kwinana) but also technical advice and expertise on the local environment (including landowner contact details and aerial photography).

16.6.3.5 Monitoring and Evaluation

Measures used to evaluate the behaviour change of wetland landowners and the subsequent improved management and conservation of wetlands will include the number of landowners applying for the Wetland Watch Grants Program, the number of hectares of native wetland and terrestrial vegetation rehabilitated through wetland restoration projects and the number of voluntary management agreements signed.

As awareness is a precursor to behaviour change, the number of awareness raising and training events held, as well as the number of participants will also be used to assess the success of this project in raising awareness of the value and wetlands and the need for their conservation.

16.6.3.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 35: Wetland Watch Project Linkages to RCTs and MATs

RCTs	MATs
WR2 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for priority wetlands in the Region set by 2005)	WM2.4 Develop and implement management and restoration plans for priority wetlands by 2008. WM2.5 20% increase in community participation in wetlands education, restoration, protection and management activities by 2009
BR1a The comprehensiveness, adequateness and representativeness (CAR) of the protected area system (including formal reserves and off-reserves) is improved by 50% by 2015, based on 2005 baseline data BR1b Maintain and improve the condition of high priority native vegetation (including formal reserves and off-reserves) by 2020, based on 2005 baseline data	BM1.4 100% of priority protected areas have an active conservation management response by 2006 BM 1.6 30% increase in community participation in education, restoration, protection and management activities high priority native vegetation in the Region by 2009.

16.6.3.7 Project Achievements

Table 36: Wetland Watch Proposed Project Achievements

Milestone	Outputs	Timelines
Assist landowners with the development and implementation of wetland restoration projects	OG3.2: 10 ha of wetland vegetation rehabilitated	5 ha 2006/07 5ha 2007/08
	OG3.4: 20 ha of terrestrial vegetation rehabilitated	10ha 2006/07 10ha 2007/08
Encourage the signing of voluntary conservation agreements through the brokering of various incentives	OG1.2 10 wetland voluntary conservation agreements negotiated	5 in 2006/07 5 in 2007/08
Increase landowners capacity for wetland management through training events/ workshops	CB2.1: 4 training events or workshops held	2 events in 2006/07 2 events in 2007/08
Increase landowner and community awareness of wetland values through education events and activities	CB1.2 2 newsletters/ brochures produced	1 newsletter/ brochure 2006/07 1 newsletter/ brochure 2007/08
	CB1.4 8 media opportunities (radio/ newspaper articles)	4 media opportunities 2006/07 4 media opportunities 2007/08
	CB1.1 2 field days held	1 field day 2006/07 1 field day 2007/08

16.6.3.8 Proposed Budget

Table 37: Wetland Watch Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
Carry-over funds will be used for 2006-2007		
TOTAL		
2007/08		
Budget Item	NHT	Other Funds
Project Coordinators (1.6 FTE)	\$71,400	
Stakeholder Workshops	\$5,160	
Operating costs	\$14,860	
Project Management/Admin	\$13,580	\$10,000 (LGs)
Consultants	\$3,000	
Devolved Grant	\$100,000	
Other		\$10,000 (community)
Project Mgmt. Costs	29,320	
TOTAL	\$208,000	\$20,000

16.6.4 Wetlands Indigenous Project

16.6.4.1 Project Description

It has been estimated that 70-80 per cent of wetlands on the Swan Coastal Plain have been either lost or seriously degraded due to filling, draining or clearing since European settlement. The remaining wetlands are under significant threat from urban and rural encroachment. There are currently many activities and initiatives designed to protect the ecological condition of the remaining wetlands but very few addressing and promoting the significance that wetlands have to Indigenous people. This project aims to provide an Indigenous perspective to wetlands management across the Region and raise awareness of the obligation to manage wetlands for Indigenous values.

A further component of this project will be to initiate additions to the Heritage and Environment Registers, thereby increasing protection to wetlands of Indigenous significance.

16.6.4.2 Project Actions

In consultation with relevant stakeholders, an initial study will be conducted to prioritise wetlands for action in the Region. The historical significance of priority wetlands will be researched with the findings communicated to land managers and the community through awareness raising events and media articles. In partnership with land managers and other stakeholders, Heritage Management Plans will be developed on the highest priority wetlands.

A major focus of this project will be to address the ecological condition of priority wetlands by assisting land managers to undertake rehabilitation/restoration activities and site protection, with a focus on involving the Indigenous community. The cultural significance of wetlands will also be promoted, including collating and review of existing educational materials and the collection and dissemination of stories and histories associated with wetlands.

16.6.4.3 Partnerships

- WWF - Wetland Watch
- Aboriginal Lands Trust
- Sub-regional organisations
- Department of Indigenous Affairs
- Local Government
- Community Development and Employment Program
- Catchment and “friends of” groups
- South West Aboriginal Land and Sea Council

16.6.4.4 Risk Management

The implementation of on-ground actions within this project is dependent on funding from Envirofunds and from the Swan Alcoa Landcare Program (SALP). If grant applications are unsuccessful or if Alcoa discontinue support for SALP, alternative funding sources for on-ground works could be limited.

Employment of a suitably qualified and experienced person to manage this project given the current shortage of skills in the NRM field also has the potential to impede the implementation of this project.

As this project is largely focused on encouraging a new focus to the way land managers traditionally manage wetlands, this project is also dependent on the support of land managers. Should land managers not see the value in including Indigenous interests in wetland management, the full potential of this project will not be realised.

16.6.4.5 Monitoring and Evaluation

As this project is largely focused in bringing about a change in the behaviour of land managers to incorporate an Indigenous perspective to wetland management, the number of Heritage Management Plans developed and implemented will be used to provide an indication of the effectiveness of this project.

As awareness is a precursor to behaviour change, the number of awareness raising and training events held, as well as the number of participants will also be used to assess the success of this project in raising awareness of the significance, wetlands has to Indigenous people.

The number of new additions to the Heritage and Environment Registers will also be used to indicate the success of this project.

16.6.4.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 38: Wetlands Indigenous Project Linkages to RCTs and MATs

RCTS	MATs
WR2 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for wetlands in the Region set by 2005).	WM2.1 100% of priority wetlands in the Region identified for protection by 2005 WM2.5 20% increase in community participation in wetlands education, restoration, protection and management activities by 2009
Cultural Heritage	CHM1.1 Research, record, and publish Nyoongar history of the Swan Region by 2009
Cultural Heritage	CHM1.2 Review and identify opportunities in policy and legislation to include Indigenous cultural heritage by 2009
Cultural Heritage	CHM1.3 Increase Indigenous employment and participation in NRM activities locally and regionally by 2009
Cultural Heritage	CHM1.4 Achieve 75% increase in the number of community, Local Governments and State Government agencies involved in NRM incorporating Indigenous cultural heritage included as part of their processes by 2009
Cultural Heritage	CHM1.5 Establish partnerships to further incorporate NRM principles into heritage protection by 2008

16.6.4.7 Project Achievements

Table 39: Wetlands Indigenous Project Proposed Achievements

Milestone	Outputs	Timelines
Prioritising Swan Coastal Plains wetlands for activity.	RA2.3 1 x Report Prioritising wetlands for activity.	December 2006
Historical Significance of Wetlands Researched.	RA2.3 10 x reports on the historical significance of selected wetlands.	2006/07
Development of Heritage Management Plans.	P5.1 5 x Heritage Management Plans for selected wetlands completed.	2007/08
Awareness raising/training events held.	CB1.1 2 x Community Education/Land Manager Training events held.	2007/08
On-ground actions initiated on priority wetlands.	OG3.2 2 ha wetland vegetation enhanced.	2006/07
Assist community groups to incorporate an Indigenous focus into wetlands management.	CB5.1 5 Community groups assisted.	2006/07

16.6.4.8 Proposed Budget

Table 40: Wetlands Indigenous Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
1 FTE	\$82,900	
Consultation	\$5,000	
Training	\$4,000	
Other		\$15,000 (community)
Project Mgmt. Costs	11,533	
TOTAL	\$103,433	\$15,000
2007/08		
Budget Item	NHT	Other Funds
1 FTE	\$82,900	
Consultation	\$5,000	
Training	\$4,000	
Other		\$15000 (community)
Project Mgmt. Costs	12,955	
TOTAL	\$104,855	\$15,000

16.6.5 Sustainable Landscaping – Nutrient Reduction and Water Conservation: An Implementation Strategy for Local Government and their Community

16.6.5.1 Project Description

The increased frequency of algal blooms in the Swan-Canning river system as well as the climate induced water restrictions has highlighted the need for Perth to explore landscaping practices with low nutrient and water requirements. The Sustainable Landscaping Strategy project has been developed by the North Metro Catchment Group in conjunction with the Eastern Metropolitan Regional Council and the Claisebrook Catchment Group.

The project focuses on opportunities for Local Governments (LGs) to promote the use of plants with low water and fertiliser requirements within both the residential and commercial communities. A component of the project includes a series of brochures that have been developed based on soil types and customised to suit a particular LG area. The brochures feature advice on plant selection, care and maintenance as well as garden design tips.

The project has links to a number of other programs for LG, including the Swan River Trust's Swan-Canning Cleanup Program supported projects - Fertilise Wise and Turf Sustain, and the ICLEI Water Campaign. It also links to the Swan River Trust's Great Gardens Project. It complements the Water Corporations Waterwise initiatives, including the promotion of waterwise plants.

16.6.5.2 Project Actions

This project will provide LGs with assistance to uptake and implement the Sustainable Landscaping Strategy including:

- Training for LG Parks and Gardens on-ground and supervisory staff.
- Design of landscaping plans.
- Plant selection assistance.
- On-ground technical assistance.
- Advice and technical resources.
- Community support (currently piloted at Town of Vincent through Catchment Friendly Gardens and community plant sales and distribution).
- Demonstration garden support (currently piloted at Cities of Swan and Gosnells).

16.6.5.3 Partnerships

- Department of Premier and Cabinet – State Water Strategy
- Turf Sustain
- South East Regional Centre for Urban Landcare, North Metro Catchment Group & Claisebrook Catchment Group
- Fertilise Wise Program
- ICLEI – Water Campaign
- Swan River Trust
- Local Government
- Landcare Australia
- Eastern Metropolitan Regional Council
- Department of Agriculture

16.6.5.4 Risk Management

The primary risk associated with this project is the lack of adoption of the Sustainable Landscaping Strategy by LG. This may be for a number of reasons including lack of resources to implement the Strategy and no economic benefit in promoting the use of local plants to residents.

The relatively short time line for this project when compared to the time necessary to bring about community behaviour change will also be a risk factor associated with this project. It is important that the LG fully adopt the Strategy to ensure it is continued beyond the time that the Sustainable Landscaping Project Coordinator is funded.

16.6.5.5 Monitoring and Evaluation

As with any project focusing on behaviour change as the major outcome, evaluation can often be difficult. The number of LGs that adopt the Sustainable Landscaping Strategy and actively promote it within their own LG operations and to the wider community will be used as one measure of the success of the project. Another indication will be the number of demonstration gardens established and the number of training events (including number of participants) held.

16.6.5.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 41: Sustainable Landscaping Strategy Linkages to RCTs and MATs

RCTs	MATs
WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus (TP) and 1.0mg/L for total nitrogen (TN), by 2020.	WM3.2 100% of all relevant NRM legislation and policy reviewed and amendments recommended to address nutrient enrichment by 2006 WM3.3 Implement identified remedial actions to address nutrient enrichment by 2007 WM3.4 20% increase in community participation in nutrient intervention education, restoration, protection and management activities by 2009

16.6.5.7 Project Achievements

Table 42: Sustainable Landscaping Strategy Proposed Project Achievements

Milestone	Outputs	Timelines
Establishment of demonstration gardens.	CB1.3 30 demonstration Sustainable landscaping gardens established	15 demonstrations 2006/07 15 demonstrations 2007/08
Uptake of the Sustainable	CB3.3 20 .partnerships	12 LGs 2006/07

Landscaping Strategy by LGs and partnerships with other organisations.	established to promote the Sustainable Landscaping Project program	8 LGs 2007/08
Training opportunities for LG staff	CB1.1 3 training events held for LG staff in Sustainable Landscaping	1 event 2006/07 2 events 2007/08

16.6.5.8 Proposed Budget

Table 43: Sustainable Landscaping Strategy Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
1 FTE	\$68,900	
Management Fee	\$25,000	
Implementation of sites		\$80,000 (LG)
Project Mgmt. Costs	11,784	
TOTAL	\$105,684	\$80,000
2007/08		
Budget Item	NHT	Other Funds
1 FTE	\$68,900	
Management Fee	\$25,000	
Implementation of sites		\$100,000 (LG)
Project Mgmt. Costs	13,236	
TOTAL	\$107,136	\$100,000

16.6.6 Ribbons of Blue/Waterwatch WA

16.6.6.1 Project Description

Ribbons of Blue/Waterwatch WA (RoB) in the Swan Region is an environmental education and community environmental water monitoring program that raises awareness and understanding, provides educational opportunities, develops skills, and encourages behaviour change in a whole of catchment context.

RoB aims to encourage local communities to be actively involved in learning about and protecting environmental water quality, and to share responsibility for the management of our waterways (rivers and streams), wetlands, groundwater and stormwater systems.

Stakeholders include students and adults from schools, community groups (Friends of groups, Scouts, Adult Learning Associations), catchment and sub-regional groups, NRM professionals, Local Government, metropolitan regional councils, universities and TAFE.

Coordinators train and provide support to stakeholders, providing technical expertise during fieldwork and facilitating awareness through a variety of environmental activities. They assist teachers and other educators (Scout, Guide and CALM Bushranger leaders) to plan on-going education and water quality monitoring programs, connecting fieldwork and other learning experiences to the Curriculum Framework, and linking these groups to the wider community for on-ground remedial action. Community groups are also assisted with the planning and implementation of long term water quality monitoring and evaluation programs.

RoB in the Region addresses regional land, water, biodiversity, coastal and marine, and regional capacity assets. Threatening processes include limited knowledge and awareness.

16.6.6.2 Project Actions

RoB will continue to provide professional development opportunities for teachers, student teachers and scouting organisations, including development of resources for loan. It will also continue to provide education opportunities to students such as the Saltwatch Bus Tour and Macroinvertebrate Snapshot Event as well as giving presentations at community events such as Catchment Coasts Corridors, the Autumn River Festival and the SSS Science Fair. The program will continue to support other environmental education initiatives such as the Waterwise Schools Program and the Children's Groundwater Festival. The RoB newsletter will also be distributed to all stakeholders once each school term.

In 2006/07, a new program will be piloted focusing on Stormwater Education in schools. This will include both an education and a stormwater management component.

16.6.6.3 Partnerships

- Swan River Trust
- Department of Environment
- Department of Education and Training
- Water Corporation
- Phosphorus Action Group
- Rottnest Island's Community Service Program
- Conservation Volunteers Australia
- Scouts Australia
- CALM Bushrangers
- Greening Australia
- CSIRO Education CREST Program

16.6.6.4 Risk Management

Risks to this project include loss of staff who have an in-depth knowledge of the program and have formed strong working relationships with stakeholders. The program also has a reduced number of staff funded than in the previous years. This could result in a reduced ability to be effective in delivering environmental education opportunities across the Region.

A change in stakeholder needs has also occurred over the last few years with a higher level of water quality data required, particularly from traditional stakeholders such as Local Government and sub-regional catchment groups. This will be overcome by focusing more on the provision of educational opportunities rather than the gathering water quality data.

16.6.6.5 Monitoring and Evaluation

RoB is traditionally evaluated through the State Team as part of its ongoing activities. The program is also evaluated through the Swan River Trust's Swan-Canning Cleanup Program's evaluation process, the latter being the major funding source for this project.

16.6.6.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 44: Ribbons of Blue /Waterwatch WA project Linkages to RCTs and MATs

RCTs	MATs
LR1 Reduction in the area of land affected by salinity, within the Avon Upper Swan National Action Plan Region, by 2020 (with a quantified target set by December 2005)	LM1.4 30% increase in community participation in land salinity education, mitigation and remediation actions by 2009
WR1 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005)	WM1.4 Develop and implement management and restoration programs for the Region's major rivers and waterways by 2007 WM1.5 30% increase in community participation in education, restoration, protection and management activities of the major rivers and waterways in the Region by 2009
WR2 Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites, by 2020 (with quantified targets for priority wetlands in the Region set by 2005)	WM2.5 20% increase in community participation in wetlands education, restoration, protection and management activities by 2009
WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen, by 2020	WM3.4 20% increase in community participation in nutrient intervention education, restoration, protection and management activities by 2009
WR4 Maintain and improve condition of aquatic environments in the Region, as measured at representative sites, by 2020 (with quantified targets for turbidity / suspended particulate matter set by 2005)	WM4.4 20% increase in community participation in education, restoration, protection and management activities for managing turbidity / particulate matter by 2009
WR5 Maintain and improve condition of surface waters in priority catchments in the Avon Upper Swan Region, as measured at representative sites, by 2020 (with quantified targets to reduce salinity set by 2005)	WM5.4 20% increase in community participation in salinity education, mitigation and remediation activities by 2009
BR2 50% of critical habitat for identified significant species and ecological communities protected by 2014	BR2.5 30% increase in the participation of the community and stakeholders in education, mitigation and remediation activities to conserve and protect significant species and ecological communities by 2008
CMR1 Maintain and improve the condition of terrestrial coastal habitats in the Region, as measured at representative sites, by 2020 (with a quantified target set by 2005)	CMM1.5 30% increase in community participation in biodiversity education, mitigation and remediation actions by 2009

16.6.6.7 Project Achievements

Table 45: Ribbons of Blue /Waterwatch WA Proposed Project Achievements

Milestone	Outputs	Timelines
7 professional development opportunities – student teachers, current teachers, scouting organisations.	CB2.1 7 Professional Development events held for 120 teachers on water issues	4 events 2006/07 4 events 2007/08
Saltwatch Bus Tour – targeting primary school students in years 6 to 7 (16 schools & 64 kids)	CB1.1 2 Saltwatch Bus Tours conducted and 64 people days attending in each year	1 tour May 2007 1 tour May 2008
Stormwater education in school program – pilot	CB2.2 1 Stormwater Education Pilot Program developed for trial in 5 schools	1 program June 2008
Macro snapshot	CB1.1 2 Macroinvertebrate Snapshot Events held	1 event September 2007 1 event September 2008
Community presentations – CCC, Autumn River Festival, SSS Science Fair Groundwater Festival	CB1.1 8 Presentations given at community environment events	4 presentations June 2007 4 presentations June 2008
Development of educational materials for teacher loan (eg. catchment models)	CB2.2 2 new education resources about water issues developed for teachers	December 2006
Newsletter	CB1.2 8 newsletters distributed	4 newsletters June 2007 4 newsletters June 2008

16.6.6.8 Proposed Budget

Table 46: Ribbons of Blue /Waterwatch WA Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
0.2 FTE	\$20,000	
Salary and Oncosts		\$120,000 (SRT)
Operating costs		\$4,500 (DOE)
Project Mgmt. Costs	2,510	
TOTAL	\$22,510	\$ 124 500
2007/08		
Budget Item	NHT	Other Funds
0.2 FTE	\$20,000	
Salary and Oncosts		\$120,000 (SRT)
Operating costs		\$4,500 (DOE)
Project Mgmt. Costs	2,819	
TOTAL	\$22,819	\$124,500

16.6.7 Swan Alcoa Landcare Program

16.6.7.1 Project Description

The Swan Alcoa Landcare Program (SALP) is jointly funded by Alcoa Australia Limited and the Swan River Trust (SRT), and managed by the SCC and the SRT. The project provides \$550,000 to community groups or Local Governments working together with community groups for on-ground works to protect surface and groundwater and biodiversity in coastal, wetland, riparian and terrestrial vegetation sites. The amount asked for through applications each year has been more than double the available funds.

16.6.7.2 Project Actions

SALP provides a devolved grants scheme to community groups across the Region for on-ground works. An open call for projects is made annually, followed by assessment of applications by sub-regional panels. Successful applicants are notified and presentation of cheques made at a breakfast event in February.

16.6.7.3 Partnerships

The project is a partnership between the SCC, Alcoa Australia Limited and the SRT. Many other partners are involved in the delivery of the on-ground projects. Community contribute large amounts of volunteer resources and many Local Governments provide in-kind support to their community groups to implement projects.

16.6.7.4 Risk Management

Given the limited resources of community groups, some projects may not achieve the objectives stated in their application. Groups are encouraged to seek support from catchment groups and Local Government.

16.6.7.5 Monitoring and Evaluation

Each group reports back on the outputs of their project, and these results are collated to give an overall on-ground outcome for the Region. The contribution these make to the Resource Condition Targets (RCTs) will be evaluated through other projects such as the Perth Biodiversity Project and the Water Quality Monitoring and Evaluation Framework Project.

16.6.7.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following RCTs and Management Action Targets (MATs).

Table 47: Swan Alcoa Landcare Program Linkages to RCTs and MATs

RCTs	MATs
LR1 Reduction in the area of land affected by salinity, within the Avon Upper Swan National Action Plan Region, by 2020 (with a quantified target set by December 2005)	LM1.4 30% increase in community participation in land salinity education, mitigation and remediation actions by 2009

RCTs	MATs
WR1 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005)	WM1.5. 30% increase in community participation in education, restoration, protection and management activities of the major rivers and waterways in the Region by 2009
WR2 Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites, by 2020 (with quantified targets for priority wetlands in the Region set by 2005)	WM2.5 20% increase in community participation in wetlands education, restoration, protection and management activities by 2009
WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen, by 2020	WM3.4 20% increase in community participation in nutrient intervention education, restoration, protection and management activities by 2009
WR4 Maintain and improve condition of aquatic environments in the Region, as measured at representative sites, by 2020 (with quantified targets for turbidity / suspended particulate matter set by 2005)	WM4.4 20% increase in community participation in education, restoration, protection and management activities for managing turbidity / particulate matter by 2009
WR5 Maintain and improve condition of surface waters in priority catchments in the Avon Upper Swan Region, as measured at representative sites, by 2020 (with quantified targets to reduce salinity set by 2005)	WM5.4 20% increase in community participation in salinity education, mitigation and remediation activities by 2009
BR1a Maintain and improve the condition of high priority native vegetation (including formal reserves and off-reserves) by 2020, based on 2005 baseline data	BM1.6 30% increase in community participation in education, restoration, protection and management activities high priority native vegetation in the Region by 2009
CMR1 Maintain and improve the condition of terrestrial coastal habitats in the Region, as measured at representative sites, by 2020 (with a quantified target set by 2005)	CMM1.5 30% increase in community participation in biodiversity education, mitigation and remediation actions by 2009

16.6.7.7 Project Achievements

Table 48: Swan Alcoa Landcare Program Proposed Project Achievements

Milestone	Outputs	Timelines
Devolved grants processed and on-ground projects completed	OG3.1 5 ha coastal vegetation rehabilitated	2.5 ha 2006/07 2.5ha 2007/08
	OG 3.2 5ha wetland vegetatin rehabilitated	2.5 ha 2006/07 2.5ha 2007/08
	OG3.3 10ha riparian vegetation rehabilitated and 10km of streambank	5 ha 2006/07 5ha 2007/08
	OG3.4 10ha terrestrial vegetation rehabilitated	5 ha 2006/07 5ha 2007/08
	OG8.1 30ha pest plant control carried out	15 ha 2006/07 15ha 2007/08

Milestone	Outputs	Timelines
	CB1.1 4 community awareness raising events for biodiversity protection	2 events 2006/07 2 events 2007/08
	CB1.2 4 brochures produced on natural areas	2 brochures 2006/07 2 brochures 2007/08
	CB1.4 10 media events about on-ground works	2 media events 2006/07 2 media events 2007/08

16.6.7.8 Proposed Budget

Table 49: Swan Alcoa Landcare Program Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
Project management	\$20,000	
Devolved Grants		\$550,000
Other		\$200,000 (Stakeholders)
Project Mgmt. Costs	2,510	
TOTAL	\$22,510	\$750,000
2007/08		
Budget Item	NHT	Other Funds
Project management	\$20,000	
Devolved Grants		\$550,000
Other		\$200,000 (Stakeholders)
Project Mgmt. Costs	2,819	
TOTAL	\$22,819	\$750,000

17. NATURAL DIVERSITY REGIONAL DELIVERY PROGRAM

17.1 Program Description

The Natural Diversity Regional Delivery Program (RDP) is delivered through two sub-programs, Local Diversity Management and Training and Biodiversity Planning and Threatened Species/Communities.

17.2 Local Diversity Management and Training Sub-program

The threats to biodiversity will be reduced by 2008, with dieback mapped for all significant natural areas and training for land managers in dieback control. Initial prioritisation of weed pest plants will have been developed, with implementation of several pilot projects.

The requirement for corridors for a number of threatened fauna species will be established, the structure of necessary corridors determined and pilot programs will have begun.

Behaviour change and capacity building necessary for biodiversity conservation will be targeted through a number of programs. A review of the most effective landholder conservation incentives will be followed by intensive work with LG to institute programs. Barriers to behaviour change in the community adjacent to bushland will be assessed, strategies developed and pilot programs run with LG to determine effectiveness.

Capacity to manage natural areas for land managers and community will be developed through the Skills for Nature Conservation Project and the Biodiversity Action Learning Project.

17.3 Biodiversity Planning and Threatened Species and Communities Sub-program

Biodiversity Planning will continue through the Perth Biodiversity Project, targeting the natural areas still intact in the outer metropolitan area. LG will be assisted to survey and prioritise their natural areas for conservation, and will be assisted to develop management strategies for important areas.

Threatened species and communities will be better conserved through on-ground works and breeding programs coordinated by CALM.

17.4 Program Budget

There is significant external investment into the Natural Diversity RDP. As projects develop, there will be an increase in investment by Local Government and community stakeholders through the implementation phase of BMPs.

Table 50: Natural Diversity RDP Program Budget 2006/08

Funding Source	2006/07	2007/08
NHT	1,794,709	1,583,201
Commonwealth	0	0
State Government	165,000	165,000
Local Government	237,988	257,988
Industry	3,000	3,000
Community	63,000	63,000
TOTAL	2,263,697	2,072,189

17.5 Proposed Activities - Local Diversity Management and Training Sub-program

17.5.1 Stop Dieback – The Biological Bulldozer

17.5.1.1 Project Description and Justification

The project aims to further build on four previous NHT projects (973863, 003125, 023186; 0405DB). By working in partnership with the State Government, community groups, Local Governments (LGs) and other relevant organisations, the project will protect high value bushland sites throughout the Swan Region from *Phytophthora* Dieback.

The project will build the capacity of LGs and the community to manage the impacts of dieback through education. The project will review the success of LGs managing *Phytophthora* dieback to determine the current level of management and identify areas in need of improvement.

Over 2006/08, the project will map the presence of the pathogen within high conservation value reserves based on the reserve prioritisation model developed during earlier projects and develop and implement management plans for these high conservation reserves.

Targeted training will enable LGs and the community conservation groups to implement appropriate management practices, including the application of the systemic, environmentally friendly fungicide (phosphite) to protect plants within *Phytophthora* dieback infested bushland.

The success of dieback training will be monitored to assess behavioral change and effectiveness of phosphite treatment to reduce the impact of *Phytophthora* dieback.

The project will develop a communications strategy for communication between organisations that are currently managing *Phytophthora* dieback and their key stakeholders. This will allow for an improved strategic approach and increased consistency in the messages being delivered.

17.5.1.2 Project Actions

- Assist LGs to use the prioritisation schedule to assess dieback control measures required for their reserves.
- Map reserves for presence of dieback.
- Mentor the preparation of management plans for dieback control.
- Treat high conservation reserves infected with dieback with phosphite.
- Develop monitoring methodology for success of phosphite treatment.

- Hold workshops on dieback control and monitor effectiveness of training programs.
- Raise awareness through displays of impact of dieback.

17.5.1.3 Partnerships

The Dieback Working Group has developed strong partnerships in the delivery of this project. Local Government and community are key partners, both in preparing management plans and in delivery of on-ground treatment.

17.5.1.4 Risk Management

Not all Local Governments have the resources to fully implement dieback control measures for key reserves, so additional resources may be needed. Training and treatment programs may not have the desired outcome. Monitoring programs have been designed to verify effectiveness of both phosphite treatment and behaviour change after training.

17.5.1.5 Monitoring and Evaluation

- Number of reserves with dieback management plans.
- Number of reserves and area of mapping for dieback completed.
- Effectiveness of both phosphite treatment and behaviour change after training.
- Spread of dieback in treated reserves.

17.5.1.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 51: Stop Dieback – The Biological Bulldozer Linkages to RCTs and MATs

RCTs	MATs
BR1b Maintain and improve the condition of high priority native vegetation (including formal reserves and off-reserves) by 2020, based on 2005 baseline data	BM1.2 25% of priority areas in each IBRA sub-region have natural diversity conservation plans developed by 2006 BM1.4 100% of priority protected areas have an active conservation management response by 2006 BM 1.5 10 local natural diversity strategies for priority areas outside the CAR reserve system implemented by 2006 BM1.6 30% increase in the capacity of the wider regional community to conserve and protect natural diversity by 2008

RCTs	MATs
BR2 50% of critical habitat for identified significant species and ecological communities protected by 2014	BM2.3 25% of all significant Indigenous species have viable linkages established between populations over their original geographical extent by 2009 BM2.5 30% increase in the participation of the community and stakeholders in education, mitigation and remediation activities to conserve and protect significant species and ecological communities by 2008
BR3 Reduction in impact of regionally significant invasive species by 2020, with a quantified target set by December 2005	BM3.1 Identify, prioritise and set targets for the management of significant threatening species to natural diversity by 2005 BM3.2 100% of all priority feral pests and diseases have threat abatement plans established by 2006 BM3.4 30% increase in the effectiveness of control programs for feral animals, pests and diseases by 2009

17.5.1.7 Project Achievements

Table 52: Stop Dieback – The Biological Bulldozer Proposed Project Achievements

Milestone	Outputs	Timelines
Mapping of reserves for presence of dieback	RA2.1 10 reserves mapped for dieback (and x ha surveyed)	5 reserves mapped June 2007 5 reserves mapped June 2008
Prepare Management Plans for control of Dieback	P3.2 10 management plans for dieback completed	5 plans complete June 2007 5 plans complete June 2008
Control dieback with phosphite in priority reserves	OG8.5 Area in 12 reserves with dieback control measures in place	6 reserves controlled June 2007 6 reserves controlled June 2008
Hold training workshops for community and land managers	CB2.1 16 workshops on dieback control held with 320 people days	8 workshops with 160 people days June 2007 8 workshops with 160 people days June 2008
Display information on dieback at 4 public events	CB1.1 Display information on dieback at 8 public events	Display shown at 4 public events June 2007 Display shown at 4 public events June 2008

17.5.1.8 Proposed Budget

Table 53: Stop Dieback – The Biological Bulldozer Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
Project Coordinator	\$57,500	
Car	\$18,000	
Administration Costs	\$2,000	
Communications	\$10,000	
Mapping	\$11,100	
Phosphite treatment	\$4,000	
Training workshops & displays	\$3,400	
Other		\$35,000
Project Mgmt. Costs	13,302	
TOTAL	\$119,302	\$35,000
2007/08		
Budget Item	NHT	Other Funds
Project Coordinator	\$57,500	
Car	\$18,000	
Administration Costs	\$2,000	
Communications	\$10,000	
Mapping	\$11,100	
Phosphite treatment	\$4,000	
Training workshops & displays	\$3,400	
Other		\$35,000
Project Mgmt. Costs	14,942	
TOTAL	\$120,942	\$35,000

17.5.2 Ecological Corridors

17.5.2.1 Project Description and Justification

This project targets ecological linkages (or vegetation corridors) that are necessary to maintain the diversity and long term viability of species at risk through fragmentation of natural areas. Current fragmentation of ecological communities is recognised as a severe threat to ecological function and transient endangered species, especially in urbanised landscape. With the large and diverse range of land managers over the Region and high value of land for development, all retention of ecological linkages must be justified with sound scientific data and well targeted planning.

17.5.2.2 Project Actions

The project will be developed with the aim of identifying fauna species dependent on wildlife corridors for long-term survival. Research underpinning the project will establish where linkages are required for identified species to ensure long term survival, and design a template for corridors on a species basis that will specify the optimal width, length, structure and flora species that should be used.

17.5.2.3 Partnerships

- Department of Conservation and Land Management
- CSIRO
- Botanic Gardens and Parks Authority
- University of Western Australia
- Australian Research Council
- Local Government
- Western Suburbs Regional Council
- Department for Planning and Infrastructure
- Perth Biodiversity Project
- Biodiversity Action Learning Project participants
- WWF
- Community

17.5.2.4 Risk Management

Implementing the recommended corridors will require additional resources that will need to be sourced from land managers or another funding source. The Swan Alcoa Landcare Program and Envirofunds are two sources of potential funds.

17.5.2.5 Monitoring and Evaluation

The project will identify key species at risk, benchmark existing populations and establish long term population targets, measured through on-going monitoring. Corridors will be monitored to establish effectiveness for the identified fauna species.

17.5.2.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 54: Ecological Corridors Project Linkages to RCTs and MATs

RCTs	MATs
BR2 50% of critical habitat for identified significant species and ecological communities protected by 2014.	BM2.3 25% of all significant Indigenous species have viable linkages established between populations over their original geographical extent by 2009.

17.5.2.7 Project Achievements

Table 55: Ecological Corridors Proposed Project Achievements

Milestone	Outputs	Timelines
Identification of key species at critical threat through natural area fragmentation.	RA2.1 Study to determine key species or genera at threat through natural area fragmentation	December 2007

Milestone	Outputs	Timelines
Develop corridor retention guidelines and targets for key prioritized species.	P1.1 8 species specific guidelines for conservation through corridor retention	4 @ June 2007 4 @ December 2007
Develop and implement strategies with land managers for the protection and retention of key corridors.	P4.1 8 Strategies or management plans for the conservation of priority species developed	June 2008

17.5.2.8 Proposed Budget

Table 56: Ecological Corridors Project Proposed Budget

Budget 2006/07		
Budget Item	NHT Funded	Other Funds
Research and project management.	\$93,900	
Project support		\$10,000
Project Mgmt. Costs	11,784	
TOTAL	\$105,684	\$10,000
Budget 2007/08		
Budget Item	NHT Funded	Other Funds
Research and project management.	\$93,900	
Project support		\$30,000
Project Mgmt. Costs	13,236	
TOTAL	\$107,136	\$30,000

17.5.3 Invasive Species

17.5.3.1 Project Description and Justification

The project will aim to prioritise weed species based on their threat to biodiversity and set targets for the management of key individual invasive species throughout the Region. Additionally, the project will establish an environmental weed database for ongoing monitoring and management of priority invasive species.

The project directly achieves priorities outlined in the Western Australian Environmental Weed Strategy (2001). It will allow future investment by land managers to be directed into priority species on an appropriate scale, therefore maximising current investment through CALM, Local Government and other land managers.

Invasive species pose a significant threat to the remaining areas of biodiversity in the Region. Without a systematic prioritisation of the threats efforts to minimise their impact on biodiversity are likely to remain fragmented and uncoordinated.

17.5.3.2 Project Actions

- Survey current weed control programs across the Region to ascertain current response and resource gaps.
- Identify and prioritise key weed species for investment and management.
- Set targets for both geographical scale and level of management.
- Develop strategies and abatement plans for key individual species.
- Establish custodian for weed mapping database.
- Implement strategies and abatement plans.

17.5.3.3 Partnerships

- Weeds Cooperative Research Centre
- Department of Conservation and Land Management
- Local Government
- Department for Planning and Infrastructure
- Department of Agriculture
- WA State Weeds Committee
- Environmental Weeds Action Network
- Perth Biodiversity Project
- Botanic Gardens and Parks Authority
- Community groups

17.5.3.4 Risk Management

The major risk for the project is in partner commitment to implementation costs. The wide range of stakeholders and potential partners allows this project to be implemented through a range of options, spreading the cost of implementation.

17.5.3.5 Monitoring and Evaluation

The project will be evaluated through the ability to engage land managers in implementing management actions and strategies to achieve threat reduction targets. The custodians of the invasive species database will report to the SCC on the achievement of targets.

Monitoring of weed spread and successful control will be carried out through the implementation phase.

17.5.3.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 57: Invasive Species Project Linkages to RCTs and MATs

RCTs	MATs
BR3 Reduction in the impact of regionally significant invasive species by 2020 (with a quantitative target set by 2005)	BM3.1 Identify, prioritise and set targets for the management of significantly threatening species to natural diversity by 2005. BM3.2 100% of all priority feral pests and diseases have threat abatement plans established by 2006. BM3.4 30% increase in the effectiveness of control programs for feral animals, pests and diseases by 2009.

17.5.3.7 Project Achievements

Table 58: Invasive Species Proposed Project Achievements

Milestone	Outputs	Timelines
Baseline information on invasive species and current level of management	RA1.1 Report on the current extent, impact and management of key invasive species	June 2007
Setting of targets for prioritised weeds	P4.2 6 Plans for the management of individual key invasive species	2 plans June 2007 4 plans June 2008
Establishment of a framework for managing environmental weed database	RA3.2 Database for environmental weeds developed	June 2008
Implementation of threat abatement plans	OG8.1 200ha pest plants controlled	100ha October 2007 100ha June 2008

17.5.3.8 Proposed Budget

Table 59: Invasive Species Project Proposed Budget

Budget 2006/07		
Budget Item	NHT Funded	Other Funds
Desktop analysis, research and project management	\$105,900	
Project Implementation		\$100,000 (LG and State)
Project Mgmt. Costs	13,290	
TOTAL	\$119,190	\$100,000
Budget 2007/08		
Budget Item	NHT Funded	Other Funds
Desktop analysis, research and project management	\$105,900	
Project Implementation		\$100,000 (LG and State)
Project Mgmt. Costs	14,928	
TOTAL	\$120,828	\$100,000

17.5.4 Behaviour Change for Natural Diversity

17.5.4.1 Project Description and Justification

There are many high priority bushland and wetland areas in the Swan Region which have become 'islands' in a sea of houses. Often these areas are the only remnants of particular vegetation types. The community who live adjacent to the bushland have the potential to have a large impact upon the biodiversity values of natural areas. Rubbish dumping, inappropriate recreation activities, inappropriate landscaping and increased fires all contribute to degradation of the area.

There is a need to assess the current attitudes of the community towards natural areas they live close to and to determine the barriers to behaviour change and potential incentives for change. Once a set of potential strategies for behaviour change have been defined, there is a need to pilot these in a defined set of natural areas and evaluate the results. Adaptive management can then be used to refine the techniques and the study can be implemented at a larger number of sites.

17.5.4.2 Project Actions

- Using some high priority natural sites in urban areas, the major impacts on biodiversity from the adjacent community will be assessed.
- An survey will be done on current attitudes to the areas and an assessment made of the barriers to behaviour change and potential mechanisms for change.
- Recommendations for implementing a behaviour change project for the community will be developed.
- The recommendations will be implemented at a range of key natural areas in partnership with Local Government (LG).

17.5.4.3 Partnerships

Major partners will be LG, who will implement the recommendations for behaviour change within their reserves and may also include organisations such as Sub-regional and friends groups, CALM, Greening WA and WWF.

17.5.4.4 Risk Management

This project will attempt to develop a set of strategies to change the behaviour of the adjacent community. The strategies will be piloted in selected areas, however may not prove to be effective. The learnings from the failure of strategies will be used to modify and adapt the project.

17.5.4.5 Monitoring and Evaluation

The effectiveness of the project will be evaluated through monitoring of impacts on the bushland where the pilot projects are developed. Decrease in dumping, inappropriate recreation and number of fires will be monitored. Changes in attitude will also be monitored through surveys.

17.5.4.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 60: Behaviour Change for Natural Diversity Project linkage to RCTs and MATs

RCTs	MATs
BR1b Maintain and improve the condition of high priority native vegetation (including formal reserves and off-reserves) by 2020, based on 2005 baseline data	BM1.6 30% increase in community participation in education, protection and management activities high priority native vegetation in the Region by 2009
BR2 50% of critical habitat for identified significant species and ecological communities protected by 2014.	BM2.5 30% increase in the participation of the community and stakeholders in education, mitigation and remediation activities to conserve and protect significant species and ecological communities by 2008.
BR3 Reduction in impact of regionally significant threatening species by 2020 (with a quantified target set by December 2005)	BM3.4 30% increase in the effectiveness of control programs for feral animals, pests and diseases by 2009.

17.5.4.7 Project Achievements**Table 61: Behaviour Change for Natural Diversity Proposed Project Achievements**

Milestone	Outputs	Timelines
Site selection done, partnerships with LGs formed, initial assessment of key behaviours, attitudes complete and recommendations for strategies complete.	CB3.3 1 collaborative arrangement with Local government to implement behaviour change study	November 2006
	RA2.2 1 study on behaviour change techniques for biodiversity protection	June 2007
Pilot projects initiated and evaluated	CB4.3 I review of pilot programs implementing behaviour change techniques	June 2008

17.5.4.8 Proposed Budget**Table 62: Behaviour Change for Natural Diversity Project Proposed Budget**

Budget 2006/07		
Budget Item	NHT Funded	Other Funds
Project support	\$108,900	\$10,000 (LG)
Project Mgmt. Costs	13,666	
TOTAL	\$122,566	\$10,000
Budget 2007/08		
Budget Item	NHT Funded	Other Funds
Project support	\$93,900	\$10,000 (LG)
Project Mgmt. Costs	13,236	
TOTAL	\$107,136	\$10,000

17.5.5 Private Landholder Incentive Package

17.5.5.1 Project Description and Justification

A major priority for the Region has been identified in addressing landholders needs for off-reserve biodiversity conservation. Additionally it is recognised that initiatives through LG such as Special Rural zoning are having little effect on private land biodiversity conservation. There is an urgent need for landholders with significant vegetation to be provided with incentives to protect and manage native vegetation for its intrinsic values in a complementary way to the regulatory regime that currently exists.

This project aims to protect, maintain and improve high priority natural vegetation on private property through focusing on developing a provision of incentives for delivery by LG. Additionally, the project will work with LG to explore options for the enforcement of non-clearing on Special Rural zoning. Through LG delivery the project will be highly cost effective.

17.5.5.2 Project Actions

Research has to date been undertaken to identify landholders of priority areas and explore effective incentive packages. This project will take the logical step of engaging with LG to develop a tailored incentives package specific to the Region. This will be done through working with regional councils and WALGA.

The first stage will be a review of identified landholders, current regulation, research into incentive schemes and work currently being undertaken with the Region. The second phase of the project will be to work with an effective delivery partner such as LG to formalise and implement a private landholders incentive package.

17.5.5.3 Partnerships

- Local Government
- Western Australian Local Government Association
- Department of Conservation and Land Management
- Perth Biodiversity Project
- Department of Environment
- Private landholders

17.5.5.4 Risk Management

Numerous studies have found that direct incentives such as rates rebates are more effective than traditional privately owned conservation strategies. This project will provide high value through building on current multi-agency work and facilitating an effective delivery program through LG.

17.5.5.5 Monitoring and Evaluation

The value of the project will be evaluated through the number of landholders engaged in the incentive scheme and the on-ground outcomes as assessed through LG, WALGA and/or Perth Biodiversity Project. Additionally, the incentives program will be evaluated through the SCC Natural Diversity Reference Group.

17.5.5.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 63: Private Landholder Incentive Package Linkages to RCTs and MATs

RCTs	MATs
BR1b Maintain and improve the condition of high priority native vegetation (including formal reserves and off-reserves) by 2020, based on 2005 baseline data	BM1.6 30% increase in community participation in education, restoration, protection and management activities high priority native vegetation in the region by 2009.

17.5.5.7 Project Achievements

Table 64: Private Landholder Incentive Package Proposed Project Achievements

Milestone	Outputs	Timelines
Development of a land owners incentives scheme for LG	RA4.1 Research and development of an incentives scheme	June 2007
Implementation of the scheme through LG or WALGA	CB3.2 4 agreements with LGs to implement incentives scheme	4 LG agreements by June 2008

17.5.5.8 Proposed Budget

Table 65: Private Landholder Incentive Package Proposed Budget

Budget 2006/07		
Budget Item	NHT Funded	Other Funds
Project support	\$93,900	
Project Mgmt. Costs	11,784	
TOTAL	\$105,684	
Budget 2007/08		
Budget Item	NHT Funded	Other Funds
Project support	\$93,900	
Project Mgmt. Costs	13,236	
TOTAL	\$107,136	

17.5.6 Biodiversity Action Learning Project

17.5.6.1 Project Description

On-ground management of the Region's bushland and other natural areas requires a high level of skills and knowledge. These skills are held by a limited number of individuals, with few actually employed as bushland managers. The Region, therefore, has a very low capacity to manage significant natural areas. Resources are needed to support the small, but growing network of professional bushland managers to maintain and improve the condition of high priority vegetation in the large areas under their management.

The project aims to develop an action-learning process, which incorporates the management of priority ecological management sites, covering a number of vegetation types in the Region. The managers of these priority areas will then carry out the highest priority on-ground management actions on site as part of the active learning program.

Such “learning by doing” has been shown to be a particularly effective learning technique. Application of skills on a site-specific basis, will allow managers to appreciate the diversity of techniques appropriate to different sites and move away from a potentially counter-productive generic approach.

The sites can be used as learning and demonstration sites for NRM professionals and community. The resultant monitoring and evaluation program will link to regional targets and report on progress.

Training will be provided by selected specialists to address identified knowledge and skills gaps. The learning network will also continue to exchange knowledge and provide mentoring and support to each other leading to continual improvement of bushland management.

17.5.6.2 Project Actions

- Establish steering group.
- Identify criteria to select suitable action learning sites.
- Identify and incite NRM professionals and community members to participate in program.
- Assess sites for ecological value and management needs.
- Design program to meet Management Action Targets.
- Develop and implement individual Site Management Action Plans.
- Deliver Action Learning events.
- Collect, share and disseminate information.
- Evaluate and make recommendations.

17.5.6.3 Partnerships

- CSIRO
- Botanic Gardens and Parks Authority
- Department of Conservation and Land Management
- Department of Environment
- Environmental Consultants
- Perth Biodiversity Project
- Local Government
- Main Roads Department
- Water Corporation;
- Private Landholders

17.5.6.4 Risk Management

Possible risks to achieving project outcomes include:

- a lack of support for the project amongst land managers.
- an inability to recruit network participants because of the time commitment required for both the on-ground work and the more formal learning events.
- participants becoming involved and then withdrawing due to their own time constraints.

17.5.6.5 Monitoring and Evaluation

The project will be evaluated against participant survey results indicating increased capacity to manage natural areas. Effectiveness of techniques developed to control pest plants will be monitored through on-ground measurements.

17.5.6.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 66: Biodiversity Action Learning Project Linkages to RCTs and MATs

RCTs	MATs
BR1: BR1b Maintain and improve the condition of high priority native vegetation (including formal reserves and off reserves) by 2020, based on 2005 baseline data	BM1.4 100% of priority protected areas have an active conservation management response by 2006
BR2 50% of critical habitat for identified significant species and ecological communities protected by 2014	BM1.5 10 local natural diversity strategies for priority areas outside the CAR reserve system implemented by 2006
BR3 - Reduction in impact of regionally significant invasive species by 2020 (with a quantified target set by December 2005)	BM 1.6 30% increase in community participation in education, restoration, protection and management activities high priority native vegetation in the Region by 2009
CMR1 - Maintain and improve the condition of terrestrial coastal habitats in the Region, as measured at representative sites, by 2020 (with a quantified target set by 2005).	BM2.5 30% increase in the participation of the community and stakeholders in education, mitigation and remediation activities to conserve and protect significant species and ecological communities by 2008
	BM3.4 30% increase in the effectiveness of control programs for feral animals, pests and diseases by 2009
	CMM1.5 30% increase in community participation in biodiversity education, mitigation and remediation actions by 2009

17.5.6.7 Project Achievements

Table 67: Biodiversity Action Learning Project Proposed Achievements

Milestone	Outputs	Timelines
Technical work plan for each site and undertake targeted management of threatening processes	P3.2 9 Management action plans developed for key biodiversity sites	4 plans June 2007 5 plans June 2008
Tailor Action Learning Events and on-ground activities to current levels of knowledge and requirements of participants	CB2.1 Deliver 20 action learning events to build capacity of biodiversity managers	10 events June 2007 10 events June 2008
Collect and share information from sites	OG3.4 90 ha terrestrial vegetation rehabilitated	45ha June 2007 45ha June 2008
Evaluate program	RA1.2 1 New Monitoring Plans established	October 2006

17.5.6.8 Proposed Budget

Table 68: Biodiversity Action Learning Project Proposed Budget

Budget 2006/07		
Budget Item	NHT	Other Funds
Employment/ Project management	\$97,100	\$25,000 (LG)
Project Operational costs	\$57,900	
Project Mgmt. Costs	19,451	
TOTAL	\$174,451	\$25,000
Budget 2007/08		
Budget Item	NHT	Other Funds
Employment/ Project management	\$96,347	\$25,000 (LG)
Project Operational costs	62,653	
Project Mgmt. Costs	22,413	
TOTAL	\$181,413	\$25,000

17.5.7 Skills for Nature Conservation

17.5.7.1 Project Description

The Skills for Nature Conservation (SFNC) project addresses the capacity of the community and NRM professionals in the:

- Management, protection and restoration of natural areas including bushland, coastal areas, wetlands and waterways
- skills necessary for community conservation groups to continue their involvement in conserving Perth's environment

This is achieved through the delivery of a calendar of training courses that focuses on transferring skills and knowledge needed by the community and NRM professionals to address these issues. The program is evaluated each year by course participants and their feedback is used to develop the topics and improve the calendar for the next year. This ensures that the workshops delivered through the program are timely and relevant to the target audience.

The outcomes will be:

- increased skills and knowledge of participants on a wide range of biodiversity issues which will allow them to undertake and participate in the management and restoration of biodiversity assets.
- networking opportunities and an important mechanism for ongoing motivation and involvement of community volunteers in NRM activities.
- a strong partnership between Swan Catchment Centre (DOE), Urban Nature (CALM) and Greening Australia WA.

17.5.7.2 Project Actions

Eighteen community workshops delivered in each calendar year, aimed at volunteers and NRM professionals who are working to conserve Perth's natural areas including bushland, coastal areas, wetlands and waterways.

17.5.7.3 Partnerships

- Department of Conservation and Land Management (Urban Nature)
- Greening Australia WA
- Department of Environment
- Swan River Trust (Swan-Canning Cleanup Program)
- Community volunteers who present at workshops
- Catchment groups who present at workshops
- Academics and other professionals who present at workshops

17.5.7.4 Risk Management

Attendance at workshops may not result in on-ground action and change in asset values. The workshops are designed to be very practical and to provide ability to community engaged in on-ground action. Evaluations are designed to gauge change in actions as a result of the training, not just satisfaction with the course.

17.5.7.5 Monitoring and Evaluation

Participants provide feedback on individual courses and an overall evaluation of the training program is run at the end of each year with participants and presenters to provide feedback on the calendar and to generate topics for the next years calendar, ensuring that the development of the training calendar is community-driven and meets the needs of our target audience.

17.5.7.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 69: Skills for Nature Conservation Project Linkages to RCTs and MATs

RCTs	MATs
WR1 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005)	WM1.5 30% increase in community participation in education, restoration, protection and management activities of the major rivers and waterways in Region by 2009
WR2 Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites, by 2020 (with quantified targets for priority wetlands in the Region set by 2005)	WM2.5 20% increase in community participation in wetlands education, restoration, protection and management activities by 2009
WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen, by 2020	WM3.4 20% increase in community participation in nutrient intervention education, restoration, protection and management activities by 2009
WR4 Maintain and improve condition of aquatic environments in the Region, as measured at representative sites, by 2020 (with quantified targets for turbidity / suspended particulate matter set by 2005)	WM4.4 20% increase in community participation in education, restoration, protection and management activities for managing turbidity / particulate matter by 2009
BR1b The comprehensiveness, adequateness and representativeness (CAR) of the protected area system (including formal reserves and off-reserves) is improved by 50% by 2015, based on 2005 baseline data	BM1.5 30% increase in community participation in education, restoration, protection and management activities high priority native vegetation in the Region by 2009
BR2 50% of critical habitat for identified significant species and ecological communities protected by 2014	BM2.5 30% increase in the participation of the community and stakeholders in education, mitigation and remediation activities to conserve and protect significant species and ecological communities by 2008
BR3 Reduction in impact of regionally significant invasive species by 2020 (with a quantified target set by December 2005)	BM3.4 30% increase in the effectiveness of control programs for feral animals, pests and diseases by 2009
CMR1 Maintain and improve the condition of terrestrial coastal habitats in the Region, as measured at representative sites, by 2020 (with a quantified target set by 2005)	CMM1.5 30% increase in community participation in biodiversity education, mitigation and remediation actions by 2009

17.5.7.7 Project Achievements

Table 70: Skills for Nature Conservation Proposed Project Achievements

Milestone	Outputs	Timelines
Produce annual Calendar of training events	CB1.2 Calendar of training events produced	1 calendar Feb 2006 1 calendar Feb.2007
Hold 18 training workshops	CB2.1 36 workshops for community held on natural diversity issues for 500 participants	18 workshops Nov 2006 18 workshops Nov 2007
Produce fact sheets	CB1.2 2 Fact Sheets produced	October 2006 October 2007

17.5.7.8 Proposed Budget

Table 71: Skills for Nature Conservation Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
Project support	\$101,000	
Other		\$4,000 (SRT) \$109,000 (CALM & DOE) \$43,000 (GAWA)
Project Mgmt. Costs	12,675	
TOTAL	\$113,675	\$4,000
2007/08		
Budget Item	NHT	Other Funds
Project support	\$101,000	
Other		\$4,000 (SRT) \$109,000 (CALM & DOE) \$43,000 (GAWA)
Project Mgmt. Costs	14,237	
TOTAL	\$115,237	\$4,000

17.5.8 Perth Biodiversity Project

17.5.8.1 Project Description

The Project supports Local Governments (LGs) in the Swan Region to better manage their biodiversity conservation roles and responsibilities as managers of natural areas and as key decision makers within the land use planning and development process.

This project enables LG to identify the highest value natural diversity areas by the consistent use of regional and local significance criteria and by setting targets for the protection and retention of these natural areas. Local biodiversity planning is the only remaining process recognised by State Government that can be used to achieve significant retention and protection of additional natural areas as Perth continues to grow. The project is therefore essential to achieving the Region's natural diversity retention and protection targets.

The project is already supporting three LGs (Wanneroo, Kalamunda and Kwinana) to prepare Local Biodiversity Strategy Discussion Papers. In 2006/07 the project will have a role in liaising with and supporting State Government to assess and endorse resulting Local Biodiversity Strategy Discussion Papers.

It is anticipated that approximately \$160,000 of devolved grants will be provided through rounds six and seven to assist LGs with biodiversity conservation projects that may include Local Biodiversity Planning, ecological assessment, management of natural areas and incentives for private land conservation.

Since 2003 the project has coordinated and facilitated the Natural Area Managers Network Forum (NAMN). The NAMN provides an opportunity for managers of natural areas to get together to discuss management related issues with their peers. Eight NAMN meetings are held a year with approximately 20-25 people attending on each occasion.

The Perth Region Plant Biodiversity Project (PRPBP) aims to build on the extensive existing knowledge base of plant biodiversity information available for the Perth region to support LG and other stakeholders in understanding, protecting and managing Perth's unique biodiversity. The PRPBP has compiled Reference Site and Reference Plot information for a selection of Bush Forever Sites on the Swan Coastal Plain.

Ecological assessments, done with the Perth Biodiversity Project's Natural Areas Initial Assessment Templates, will enable LG to prioritise natural areas occurring within LG Reserves for protection and management. The project also encourages the use of the templates on private land and other public lands and will endeavour to support the use of the templates within private land conservation incentive schemes operating within the Region. A database is being developed and will be provided to each LG to collate information collected using the templates. The project will coordinate the integration of individual LG Natural Area Initial Assessment databases to form a regional database.

The 2005/06 financial year represents five years since the 30 Perth Metropolitan LGs were surveyed to ascertain the policies and processes they have in place for addressing biodiversity conservation issues, the effectiveness of these and the level of resources invested in biodiversity conservation. It is intended that all the participating LGs will be surveyed in 2007 in regard to how they have dealt with biodiversity conservation issues during the 2005/06 year. This survey will provide a valuable comparison to track changes in LG biodiversity conservation capacity over a five year period and also highlight areas where LG may require further assistance in the future.

17.5.8.2 Project Actions

- Local biodiversity strategy discussion papers assessed and endorsed by State Government.
- LG biodiversity projects funded through devolved grants.
- Training and support provided for use of reference sites on coastal plain, and reference sites developed for the Jarrah Forest.
- LG assisted to assess and manage reserves using the Natural Area Initial Assessment, and a regional database developed from the assessments.
- A survey of improvements in LG capacity to manage natural areas carried out and assessed.
- Facilitate regular meetings of LG Officers who manage natural areas.

17.5.8.3 Partnerships

The project has a number of cooperative partnerships that assist in delivery of certain aspects of the project. Partnerships will be maintained with Greening Australia for the provision of a Biodiversity Technical Officer and with the Departments of Environment and Conservation and Land Management for the continuation of the Perth Region Plant Biodiversity Project. Since 2002 the project has collaborated with Birds Australia WA to undertake regular bird surveys of LG Reserves. The continuation of this survey program will depend on the availability of Birds Australia WA volunteers and therefore will be reviewed in 2006. The project also maintains a number of informal partnerships with other biodiversity projects within the Region, for example, CALM's Urban Nature, the Dieback Working Group and the Perth Urban Bushland Fungi Project.

The WALGA, Department for Planning and Infrastructure and the Western Australian Planning Commission have signed a partnership agreement for delivery of the Strategic Reserve funded NRM Land Use Planning Project, commencing in January 2006. Development of strong links between the Perth Biodiversity Project and the NRM Land Use Planning Project will assist land use planning related outputs.

17.5.8.4 Risk Management

Not all LGs have the resources to commit to management of natural areas and additional methods of funding may need to be sourced. Areas identified for preservation may be difficult to retain under current planning legislation and negotiation will be required with the Western Australian Planning Commission.

17.5.8.5 Monitoring and Evaluation

The project is largely about coordinating LG planning for protection and management of natural areas, however the project also aims to improve the condition of local bushland and wetlands.

Monitoring and evaluation will cover the following:

- Number of Local Biodiversity strategies endorsed.
- Areas set aside for protection.
- Improvement in vegetation condition at representative sites as measured using the template.
- Change in LG capacity to manage natural areas as measured by the survey.

17.5.8.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 72: Perth Biodiversity Project Linkages to RCTs and MATs

RCTs	MATs
BR1a The comprehensiveness, adequateness and representativeness (CAR) of the protected area system (including formal reserves and off-reserves) is improved by 50% by 2015, based on 2005 baseline data BR1b Maintain and improve the condition of high priority native vegetation (including formal reserves and off-reserves) by 2020, based on 2005 baseline data	BM1.1 100% of priority areas in each IBRA sub-region identified for inclusion into CAR reserve system by 2005 BM1.2 25% of priority areas in each IBRA sub-region have natural diversity conservation plans developed by 2006 BM1.3 100% of all relevant NRM legislation and policy reviewed and amendments recommended for the protection and management of the Region's natural diversity by 2006 BM1.4 100% of priority protected areas have an active conservation management response by 2006 BM1.5 10 local natural diversity strategies for priority areas outside the CAR reserve system implemented by 2006
BR2 50% of critical habitat for identified significant species and ecological communities protected by 2014	BM2.1 100% of critical habitat at regional and local scale for significant species and ecological communities identified by 2005 BM2.2 100% of all relevant NRM legislation and policy in State and local planning systems reviewed and amendments recommended to provide increased consideration and protection for significant species and ecological communities BM2.3 25% of all significant Indigenous species have viable linkages established between populations over their original geographical extent by 2009 BM2.4 100% of priority areas to be reconstructed as buffers to threatened ecological communities / vegetation complexes determined by 2006
BR3 Reduction in impact of regionally significant invasive species by 2020, with a quantified target set by December 2005	BM3.1 Identify, prioritise and set targets for the management of significant threatening species to natural diversity by 2005

RCTs	MATs
WR2 Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites, by 2020 (with quantified targets for priority wetlands in the Region set by 2005)	WM2.1 100% of priority wetlands in the Region identified for protection by 2005 WM2.2 100% of all relevant NRM legislation and policy reviewed and amendments recommended for the protection and management of the Region's priority wetlands by 2006 WM2.4 Develop and implement management restoration plans for priority wetlands by 2008
CMR1 Maintain and improve the condition of terrestrial coastal habitats in the Region, as measured at representative sites, by 2020 (with a quantified target set by 2005)	CMM1.1 100% of priority natural coastal areas identified and assessed by 2005 CMM1.3 100% of Councils adopting or updating local coastal plans and policies by 2009

17.5.8.7 Project Achievements

Table 73: Perth Biodiversity Project Proposed Achievements

Milestone	Outputs	Timelines
Local natural diversity strategies prepared and endorsed by State Government	P3.1 5 Local Biodiversity Strategy Discussion Papers produced	3 papers produced June 07 2 papers produced June 08
Targeted Grants Devolved to Local Government	P4.2 7 Natural Resource Assessment studies funded (also see Milestone 1 output)	3 studies June 07 4 studies June 08
Jarrah Forest Reference sites identified	P5.1 1 Information collated for 10 reference sites in the Jarrah Forest region CB2.1 6 workshops conducted on the use of Reference Sites during Natural Area assessment (300 people days)	Jarrah Forest site information collated by June 2007 4 workshops held June 2007 (Swan Coastal Plain) 2 workshops held June 2008 (Jarrah Forest)
Regional database for Natural Area Initial Assessment (NAIA) established	RA3.2 1 NAIA Regional Database developed	Database developed June 2008
Survey on LG Biodiversity Conservation Capacity undertaken and report prepared	P5.1 30 LGs surveyed and summary and individual LG reports written	Survey completed & Reports Distributed Dec 2007
	CB2.1 8 Natural Area Managers Network Forums coordinated (80 people days)	
	CB1.2 20 Natural Area Managers Network Electronic Bulletins distributed (120 recipients)	

17.5.8.8 Proposed Budget

Table 74: Perth Biodiversity Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
Biodiversity Project Officer x 2 (salary plus 15% salary on costs) based at WALGA	\$115,000	
Project Manager (salary plus 15% salary on costs) based at WALGA	\$71,875	
Vehicle (lease and running costs)	\$13,644	
Technical Officer – based at GAWA	\$80,100	
Promotional Activities	\$10,000	
0.2FTE Perth Region Plant Biodiversity Project Ecologist	\$30,193	
Natural Area Initial Assessment database	\$5,000	
Other Operating	\$12,000	\$29,000 (WALG) \$103,988 (LG)
Targeted Grants	\$78,188	
Project Mgmt. Costs	52,205	
TOTAL	\$468,205	\$132,988
2007/08		
Budget Item	NHT	Other Funds
Biodiversity Project Officer x 2 (salary plus 15% salary on costs) based at WALGA	\$115,000	
Project Manager (salary plus 15% salary on costs) based at WALGA	\$71,875	
Vehicle (lease and running costs)	\$13,644	
Technical Officer – based at GAWA	\$80,100	
Promotional Activities	\$10,000	
0.2FTE Perth Region Plant Biodiversity Project Ecologist	\$30,193	
Natural Area Initial Assessment database	\$5,000	
Other Operating	\$12,000	\$29,000 (WALG) \$103,988 (LG)
Targeted Grants	\$78,188	
Project Mgmt. Costs	58,641	
TOTAL	\$474,641	\$132,988

17.6 Proposed Activities – Biodiversity Planning and Threatened Species and Communities Sub-program

17.6.1 Threatened Species and Communities

17.6.1.1 Project Description

This project provides support to an on-going program coordinated by the Department of Conservation and Land Management (CALM) with other organisations to protect and recover the threatened species and ecological communities of the Swan Region.

This project will plan for and implement the most urgent actions for the recovery of threatened flora and fauna and ecological communities in the Region. Priority will be given to the most endangered species and ecological communities and those with a status of Critical and Endangered. Recovery activity will be guided by Recovery Plans and Interim Recovery Plans where they exist, and by recommendations of Recovery Teams for the Region's threatened species and ecological communities.

The outcomes of this project are to prevent further decline and maintain threatened species and ecological communities. Recovery Plans identify success criteria and while these criteria will be used in monitoring the success and outcomes on this project, it is unlikely that there would be a change in status of the threatened species and ecological communities in the two years covered by the 2006/08 Investment Plan.

The recovery actions address and seek to ameliorate priority threats to the species and ecological communities (feral predators, changes to hydrology, reduced population size, lack of knowledge) and are carried out on the known remaining, and possible future habitat of the species and ecological communities.

17.6.1.2 Project Actions

Recovery actions for these threatened species and ecological communities include, but are not limited to:

- Habitat assessment, mapping and monitoring, including identification of new occurrences.
- Threatening process assessment, mapping and monitoring.
- Planning and implementation of habitat management such as fencing and access control, control of weeds and ferals, dieback management and treatment, fire planning and management, rehabilitation.
- Systems and programs of investigation, research and adaptive management of occurrences.
- Captive breeding of significant fauna species and propagation of significant flora species.
- Production and dissemination of interpretive material.
- Increase community awareness through field visits, newspaper articles, radio interviews, posters and presentations.
- Liaison and coordination with decision making authorities and other stakeholders to promote and enable the achievement of the project outcome.

17.6.1.3 Partnerships

- Department of Conservation and Land Management
- Perth Zoo
- Private property owners
- University of WA
- WWF Threatened Species Network
- Community volunteers

17.6.1.4 Risk Management

Environmental and seasonal factors (including climate variability) may influence implementation of the project. For example the flowering, breeding or active periods of particular species may vary depending on season or weather.

Given the human population density of the Perth area and the small size of many of the bushland areas that contain threatened species and ecological communities, there is a continuing risk from human interference or destruction. This includes issues such as wildfire, as well as deliberate interference or vandalism of conservation works.

Access to land owned or managed by other agencies and private property requires permission and support. If support for recovery actions is not given then condition may decline. Delays in replacing key staff if required will cause disruption and delays to the project.

17.6.1.5 Monitoring and Evaluation

A component of the project is the continued monitoring of threatened species populations and occurrences of Threatened Ecological Communities. This monitoring forms part of the ongoing management and assessment of the status of these entities by CALM. The implementation and success of management activities carried out in this project form a component of the adaptive management approach to threatened species and communities carried out by CALM. The project staff will maintain specific records of activity and success (or otherwise) for NHT project reporting purposes.

17.6.1.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 75: Threatened Species and Communities Project Linkages to RCTs and MATs

RCTs	MATs
BR1 The comprehensiveness, adequateness and representativeness (CAR) of the protected area system (including formal reserves and off-reserves) is improved by 50% by 2015, based on 2005 baseline data Maintain and improve the condition of high priority native vegetation (including formal reserves and off-reserves) by 2020, based on 2005 baseline data	BM1.2 25% of priority areas in each IBRA sub-region have natural diversity conservation plans developed by 2006 BM1.4 100% of priority protected areas have an active conservation management response by 2006
BR2 50% of critical habitat for identified significant species and ecological communities protected by 2014	BM2.1 100% of critical habitat at regional and local scale for significant species and ecological communities identified by 2005 BM2.2 100% of all relevant NRM legislation and policy in state and local planning systems reviewed and amendments recommended to provide increased consideration and protection for significant species and ecological communities by 2006 BM2.5 30% increase in the participation of the community and stakeholders in education, mitigation and remediation activities to conserve and protect significant species and ecological communities by 2008
BR3 Reduction in impact of regionally significant invasive species by 2020 (with a quantified target set by December 2005)	BM3.3 15% reduction in the use of exotic species in urban landscaping by 2008
WM2 Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites, by 2020 (with quantified targets for priority wetlands in the Region set by 2005)	WM2.4 Develop and implement management restoration plans for priority wetlands by 2008

17.6.1.7 Project Achievements

Table 76: Threatened Species and Communities Proposed Project Achievements

Milestone	Outputs	Timelines
Project plans (annual works programs) completed	P5.1 4 annual works plans completed	4 plans June 2007 4 plans June 2008
Annual monitoring and review of populations and occurrences completed	RA2.1 Annual monitoring and review of populations and occurrences completed	1 monitoring plan June 2007 1 monitoring plan June 2008

Milestone	Outputs	Timelines
Re-Assessment of conservation status of critical endangered TECs	RA2.3 1 Re-assessment report on conservation status of critical endangered TECs completed	1 report June 2008
Captive breeding program for western swamp tortoise	OG7.2 Captive breeding program producing at least 40 individuals per year	1 breeding program 40 individuals June 2007 1 breeding program 40 individuals June 2008
Translocation program for western swamp tortoise	OG7.3 Release of at least 40 tortoises per year to nominated sites	40 individuals relocated June 2007 40 individuals relocated June 2008
Protection and conservation management actions (eg access control, weed/feral species management) undertaken on lands containing threatened species and ecological communities.	OG3.4: 800 ha terrestrial vegetation with various management and enhancement activities carried out	400ha June 2007 400ha June 2008
Weed assessment and control to protect threatened species	OG8.1 20ha of pest plant control	10ha pest plant control June 2007 10ha pest plant control June 2008
Community awareness, participation, or training events	CB1.1 16 awareness raising events; about endangered species	8 events June 2007 8 events June 2008
Advisory notes for statutory planning decision makers on threatened species and Ecological communities	P1.1 1 set of best management practice codes or guidelines completed	1 set BMPs June 2007
Media opportunities	CB1.4 5 media opportunity resulting in articles in newspapers or on radio or television created.	3 media events June 2007 2 media events June 2008

17.6.1.8 Proposed Budget

Table 77: Threatened Species and Communities Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
TEC Recovery Project	\$196,000	
Threatened flora Recovery Project	\$0	
Threatened fauna Recovery Project	\$218,000	
Project Mgmt. Costs	51,954	
TOTAL	\$465,954	
2007/08		
Budget Item	NHT	Other Funds
TEC Recovery Project	\$0	
Threatened flora Recovery Project	\$0	
Threatened fauna Recovery Project	\$218,000	
Other		
Project Mgmt. Costs	30,730	
TOTAL	\$248,730	

18. SUSTAINABLE PRODUCTION REGIONAL DELIVERY PROGRAM

18.1 Program Description

The Sustainable Production Regional Delivery Program (RDP) covers the areas of sustainable agriculture and light industry.

18.1.1 Sustainable Agriculture

The Swan Region has some broadacre agriculture as well as significant areas of intensive horticulture.

Broadacre farming areas in the Avon Upper Swan have two major issues, nutrient loss with resulting contamination of the Swan River and rising salinity levels which are impacting on the viability of farms and threatening biodiversity values. The SCC is partnering with the Avon Catchment Council in utilising some of their NAP funded projects to address issues in this area.

Identification of areas at risk from salinity has been completed and now needs to be followed by development of salinity reduction strategies and implementation of actions. Nutrient reduction requires adoption of fertiliser BMP, supplemented by development of nutrient stripping structures at identified intervention points. The Ellen/Brockman area of the Avon Upper Swan is dealt with through a project in the Integrated Water Management RDP: Salinity and Nutrient Management in the Avon Upper Swan (refer to the section on the Integrated Water Management RDP for detail).

Intensive horticulture is very significant in the Swan Region. A range of activities are carried out in the Wanneroo and Cockburn/Kwinana areas, including vegetables, strawberries, turf and avocado growing. The richer soils of the eastern coastal plain and the Darling Scarp support grape growing and orchards. Threats posed by intensive horticulture include over extraction of groundwater leading to impacts on wetland values and off-site impacts from inappropriate fertiliser and chemical use. Capacity building of the industry is required, with development and adoption of BMP. Demonstration sites will encourage uptake of practices by growers.

18.1.2 Light Industry

The Swan Region contains significant light industrial areas and has over 112,000 small to medium enterprises. (defined as those businesses with under 100 employees). Many of these businesses are small and are unaware of the impact of poor practices on the surrounding environment. Environmental threats from light industry include contamination of stormwater and groundwater with a range of pollutants, leading to decline of water quality in receiving bodies, potential air pollution with resulting health issues and dumping of waste in areas of conservation value.

Initial water testing in some industrial areas has indicated significant contamination issues. There is a need to scope the magnitude of the threat and to develop methods of increasing the capacity of industry to move to BMP. This capacity can be reinforced through incentives such as Green purchasing programs. In addition there are 18 new industrial estates planned for Perth over the next 30 years. It is vital that these areas are designed to incorporate best practice principles from the start of development.

18.2 Program Budget

There is significant external investment into the Sustainable Production RDP. As projects develop, there will be an increase in investment by Local Government and industry stakeholders through the implementation phase of BMPs.

Table 78: Sustainable Production RDP Program Budget 2006/08

Funding Source	2006/07	2007/08
NHT	643,781	595,583
Commonwealth	130,000	20,000
State Government	100,000	20,000
Local Government	60,000	120,000
Industry	68,000	60,000
Community	17,000	17,000
TOTAL	\$1,010,781	\$832,583

18.3 Proposed Activities

18.3.1 Wooroloo Salinity Management Project

18.3.1.1 Project Description and Justification

The Wooroloo catchment has increasing salinity issues. The ecological values of Wooroloo Brook and its tributaries are under threat, as well as the sustainable use of agricultural land. If not addressed, salinity will continue to increase. The continuing productive use of land in the Wooroloo catchment for broadacre farming will have a social and economic benefit for the Wooroloo and surrounding communities. Public environmental benefit will ensue from the preservation of the existing ecological values of the stream systems and these will be enhanced by the development of additional ecological corridors through revegetation. The project leverages large amounts of funding for a small NHT investment and is a very cost effective project.

18.3.1.2 Project Actions

Risk assessment for salinity will be complete by June 2006. The project for 2006/08 will focus on working intensively with landowners identified as owning high risk properties. It will use the recently developed decision support tool for salinity to work with landowners to create implementation plans to reduce salinity. The project will also coordinate the activities funded by the Avon Catchment Council through their NAP allocation to ensure they complement the work occurring within the catchment.

18.3.1.3 Partnerships

This project has a strong partnership link with the Eastern Metropolitan Regional Council (EMRC), the Wooroloo Brook LCDC, the Avon Catchment Council and the Ellen Brockman Catchment Group (EBCG). The EMRC have been active in this area for many years and currently employ the NHT funded officer who is carrying out the salinity risk mapping.

Wooroloo Brook LCDC are very involved with key stakeholders in the catchment and have led many of the activities. The Avon Catchment Council have several NAP funded projects which will be delivered through the Avon Arc, which includes the Avon Upper Swan. Details of actions to be delivered are still being negotiated but are likely to include fencing, demonstration sites and groundwater monitoring.

The EBCG have led in the development of salinity reduction strategies in Swan Region and have a key project to continue this work within their ICM Program. This group are developing the decision support tool for salinity and will be working closely with the Wooroloo project in its implementation.

18.3.1.4 Risk Management

The implementation of the on-ground actions is dependant on funding from Envirofunds and from the Swan Alcoa Landcare Program (SALP). Implementation will be reduced if grant applications are not successful or if Alcoa Australia Ltd discontinue support for the SALP program. The scale of the implementation program will determine its level of success.

Key landowners with identified high risk areas must also be convinced to participate in the program. Given the high level of involvement with both the Wooroloo Brook LCDC and the EMRC, this risk is minimal.

18.3.1.5 Monitoring and Evaluation

Sub-catchment surface water quality monitoring is being established in 2005/06 in partnership with the Department of Environment. Details of groundwater monitoring are still being negotiated with the Avon Catchment Council. River Health parameters are also being developed for implementation within the Monitoring and Evaluation Framework in 2006/07. These actions will enable evaluation of the reduction in salinity within the catchment and the level of River Health within Wooroloo Brook and its tributaries.

18.3.1.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 79: Wooroloo Salinity Management Project Linkages to RCTs and MATs

RCTs	MATs
WR5 Maintain and improve condition of surface waters in priority catchments in the Avon Upper Swan Region, as measured at representative sites by 2020, with quantified targets to reduce salinity set by 2005	WM 5.3 Implement identified remedial actions to address surface water salinity in the Avon Upper Swan Region by 2009 WM 5.4 20% increase in community participation in salinity education, mitigation and remediation actions by 2009
LR1 There will be a reduction in the area of salinity-affected land within the Avon Upper Swan NAP region by 2020 (RCT to be set by December 2005)	LM 1.3 Implementation of actions to address land salinity in priority areas of the Avon Upper Swan NAP Region by 2009

RCTs	MATs
	LM 1.4 30% increase in community participation in land salinity education, mitigation and remediation actions by 2009

18.3.1.7 Project Achievements

Table 80: Wooroloo Salinity Management Project Proposed Achievements

Milestone	Outputs	Timelines
Development and implementation of Farm Plans	P3.2 6 property or reserve management plans completed	3 plans 2006/07 3 plans 2007/08
Strategic Revegetation of identified at risk areas	OG 3.4 20ha of terrestrial native vegetation enhanced/rehabilitated	10ha 2006/07 10ha 2007/08
Implementation of water table reduction strategies	OG 5.3 5ha of exotic perennial pastures established	2.5ha 2006/07 2.5ha 2007/08
Field days on salinity management held	CB 1.1 4 field days conducted with 80 participants	2 field days 2006/07 2 field days 2007/08

18.3.1.8 Proposed Budget

Table 81: Wooroloo Salinity Management Project Proposed Budget

Budget Item	NHT Funded	Other Funds
2006/07		
0.5 FTE	\$46,000	
Vehicle		\$10,000 (EMRC)
Estimate SALP funding		\$25,000 (Alcoa, SRT)
Estimate Envirofunds and other funding		\$20,000 (Aust Govt)
Labour		\$37,000 (Alcoa and community)
Project Mgmt. Costs	5,773	
TOTAL	\$51,773	\$92,000
2007/08		
0.5 FTE	\$46,000	
Vehicle		\$10,000 (EMRC)
Estimate SALP funding		\$25,000 (Alcoa, SRT)
Estimate Envirofunds and other funding		\$20,000 (Aust Govt)
Labour		\$37,000 (Alcoa and community)
Project Mgmt. Costs	6,484	
TOTAL	\$52,484	\$92,000

18.3.2 Waterwise on the Farm

18.3.2.1 Project Description and Justification

Groundwater assets throughout the Region are under threat from both nutrient contamination and depletion through crop irrigation, which impacts on both wetland and river systems. Intensive horticulture is potentially a large contributor to falling groundwater levels and groundwater nutrient loading. There is an opportunity for the SCC to invest in a program that adds value to the Gngangara Metering Project run by the Department of Environment and to the larger Waterwise on the Farm Project run by the Department of Agriculture. The project aims to improve water use efficiency within the horticulture industry through best practice irrigation management. If not addressed groundwater will continue to be increasingly under threat in terms of quality and quantity. This will impact on wetland and river systems and agricultural production.

In terms of public and private benefit, agricultural production has an economic value estimated at \$277 million with flow on economic benefit estimated at \$692 million. This project also has public benefit in that it relieves pressure on the eco system, maintaining and preserving existing ecological value of our ground and surface water for agricultural production and bio diversity.

VegetablesWA has access to industry funds through a levy and further investment through the Waterwise on the Farm project sponsored by the SCC.

18.3.2.2 Project Actions

The Waterwise on the Farm project is based on a successful program from NSW. The SCC, in partnership with key stakeholders, has introduced the program to the Region. A summary of current best practices for irrigation and nutrient management for intensive horticultural production on sands is not available. This information is needed as a base set of practices that growers can adopt to improve water efficiency and nutrient management. Documentation of BMPs will also greatly assist the development of Environmental Management Systems (EMS) for horticulture including Enviroveg and Farming for the Future. Therefore there is an urgent need to identify best practice in partnership with the industry associations and the Department of Agriculture and to assist industry to adopt the guidelines.

Activities will include; identification of current water use and efficiency gains that can be made through best practice irrigation management, education of horticultural managers on efficient irrigation practices for sustainable production, five demonstration sites on best management irrigation practices, contribute/support existing projects such as Enviroveg and Farming for the Future.

18.3.2.3 Partnerships

This project has been developed with a collaborative approach between VegetablesWA, Enviroveg, Departments of Agriculture and Environment that see this project as filling a much-needed gap. Currently the Waterwise on the Farm project is assessing and evaluating irrigation practices on four sites, followed by demonstration projects on these sites. The Enviroveg program, while having developed BMPs have not considered our sandy soils, are keen to work collaboratively with the SCC to ensure the catchment area is included within their program.

VegetablesWA and Department of Agriculture have undertaken to collaborate on this project. Coordination will be provided through the SCCs Sustainable Production Program Manager.

The project also works with the turf growers and avocado growers, and negotiations are underway to include the grape growers and orchardists in the project.

18.3.2.4 Risk Management

The Premier's Water Foundation was established due to decreasing water assets and identified threats. As a large user of water, the horticultural industry is a major threat to this asset. Key landowners in identified high-risk areas must be convinced to participate in the program. Given the high level of involvement with key stakeholders the risks these growers pose can be minimised and halt further problems with water reduction.

18.3.2.5 Monitoring and Evaluation

The Waterwise on the Farm project has established a weather station and monitoring stations on four horticultural sites measuring water and nutrient use. The data will establish best watering and nutrient regimes for various crops and weather conditions. Based on this information, this project will support demonstration sites, BMPs and appropriate education/training needs.

18.3.2.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 82: Waterwise on the Farm Linkages to RCTs and MATs

RCTs	MATs
WR2 Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites, by 2020 (with quantified targets for priority wetlands in the Region set by 2005)	WM 2.3 Develop, adapt and/or review allocation limits and management plans for groundwater areas by 2008
WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen, by 2020	WM3.3 Implement identified remedial actions to address nutrient enrichment by 2007 WM3.4 20% increase in community participation in nutrient intervention education, restoration, protection and management activities by 2009

18.3.2.7 Project Achievements

Table 83: Waterwise on the Farm Proposed Project Achievements

Milestone	Outputs	Timelines
Identification of current water use in new sites.	RA1.2 1 new monitoring program established for current water use.	Completed June 2007

Milestone	Outputs	Timelines
Identification of irrigation trial sites.	P3.2 6 irrigation management plans completed. OG13.1 *(ha) of land where improved irrigation practices have been adopted and 6 land managers using improved irrigation practices.	Completed by June 2007
Education of farm managers on best irrigation practices.	CB2.1 4 training sessions, on BMP irrigation. CB2.2 1 workbook set and course notes developed for BMP irrigation.	Completed by June 2007

18.3.2.8 Proposed Budget

Table 84: Waterwise on the Farm Proposed Budget

Budget 2006/07		
Budget Item	NHT Funded	Other Funds
Project support	\$15,000	\$110,000 (National Landcare Program) \$20,000 (Dept of Agriculture)
Other		\$30,000 (Industry)
Project Mgmt. Costs	1,882	
TOTAL	\$16,882	\$160,000
Budget 2007/08		
Budget Item	NHT Funded	Other Funds
Project support	\$15,000	\$110,000 (National Landcare Program) \$20,000 (Dept. Of Agriculture)
Other		\$30,000 (Industry)
Project Mgmt. Costs	2,114	
TOTAL	\$17,114	\$160,000

18.3.3 Linking Best Management Practices with Vegetable Growers

18.3.3.1 Project Description and Justification

Groundwater assets throughout the Region are under threat from both nutrient contamination and depletion through crop irrigation, which impacts on both wetland and river systems. Surface water flows are subject to nutrient and other contaminants which affect water quality in natural systems. Intensive horticulture is potentially a large contributor to falling groundwater levels and surface and groundwater water nutrient loading.

There is an opportunity for the SCC to invest in a program that adds value to a current industry funded project that aims to improve water use efficiency and nutrient use within the vegetable industry through BMPs. If not addressed, water assets will continue to be increasingly under threat in terms of quality and diminishing water quantity. In terms of public and private benefit, agricultural production has an economic value estimated at \$277 million with flow on economic benefit estimated at \$692 million. This project also relieves pressure on water dependant eco systems, providing a public benefit.

VegetablesWA has access to industry funds through a levy and further investment is available through the Waterwise on the Farm project. The small amount of NHT investment has identified gaps to resource and adds value to existing projects.

18.3.3.2 Project Actions

A collation of current best practices for irrigation and nutrient management in vegetable production on sands is currently being prepared with NHT investment in 2005/06.. This information is needed as a base set of practices which growers can adopt to improve water efficiency and nutrient management. Documentation of BMPs will also greatly assist the development of Environmental Management Systems (EMS) for horticulture including Enviroveg and Farming for the Future.

Actions in the extension of this project for 2006/08 will include identification of skills/training/education needs and extension of BMPs via grower workshops and one-on-one facilitation with growers.

18.3.3.3 Partnerships

This project has been developed with a collaborative approach between VegetablesWA, Enviroveg, Departments of Agriculture and Environment who see this project as filling a much-needed gap. Currently the Waterwise on the Farm project is assessing and evaluating irrigation practices on four sites, followed by demonstration projects on these sites. The Enviroveg program, while having developed BMPs have not considered our sandy soils. They are keen to work collaboratively to ensure the catchment area is included within their program.

18.3.3.4 Risk Management

Key landowners with identified high risk areas must be convinced to participate in the program. Given the high level of involvement with key stakeholders these risks can be minimised.

18.3.3.5 Monitoring and Evaluation

Sub-catchment surface water quality monitoring was established with the Department of Environment (DOE). The Waterwise on the Farm project has established a weather station and monitoring stations on four horticultural sites measuring water and nutrient use. The data will establish best watering and nutrient regimes for various crops and weather conditions. The Gngangara metering project run by the DOE is measuring groundwater tables in the area.

18.3.3.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 85: Linking BMP with Vegetable Growers project Linkages to RCTs and MATs

RCTs	MATs
WR2 Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites by 2020, with quantified targets for priority wetlands in the Region set by 2005.	WM2.5 20% increase in community participation in wetlands education, restoration, protection and management activities of the major rivers and waterways by 2009
WR3 Maximum concentrations for priority waterways do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen by 2020	WM3.3 Implement identified remedial actions to address nutrient enrichment by 2007 WM3.4 20% increase in community participation in wetlands education, restoration, protection and management activities of the major rivers and waterways by 2009

18.3.3.7 Project Achievements

Table 86: Linking BMP with Vegetable Growers Project Proposed Achievements

Milestone	Outputs	Timelines
Update information for the development of BMPs in partnership with key stakeholders for Enviroveg and VegetablesWA	P1.1 1 BMP codes or guidelines completed	ongoing
Update existing and develop new BMPs education/training packages and run training events.	CB 2.1 8 training sessions, workshops, seminars or other skills and training events conducted	4 workshops 2006/07 4 workshops 2007/08
Develop and implement Farm Plans	P 3.2 8 property or reserve management plans completed	4 plans 2006/07 4 plans 2007/08

18.3.3.8 Proposed Budget

Table 87: Linking BMP with Vegetable Growers Project Proposed Budget

2006/07		
Budget Item	NHT Funded	Other Funds
1 FTE	\$80,000	
Vehicle	\$20,000	
Project support	\$20,000	\$25,000 (VegetablesWA) \$5,000 (Dept of Agriculture)
Waterwise Project		\$110,000
Project Mgmt. Costs	15,059	
TOTAL	\$135,059	\$140,000
2007/08		
1 FTE	\$80,000	
Vehicle	\$20,000	
Project support	\$20,000	\$25,000 (VegetablesWA) \$5,000 (Dept of Agriculture)
Project Mgmt. Costs	16,916	
TOTAL	\$136,916	\$30,000

18.3.4 Linking Best Management Practices with Grape Growers and Orchardists

18.3.4.1 Project Description and Justification

Groundwater assets throughout the catchment are under threat from nutrient enrichment and over extraction, whilst surface water assets are under threat from nutrient and sediment enriched runoff, extraction for crop irrigation and falling groundwater tables. Grape growers and orchardists are a contributor to these threats.

There is an opportunity for the SCC to invest in a program that adds value to a current industry funded project that aims to improve water use efficiency and nutrient use through BMPs. If not addressed these assets will continue to be increasingly under threat. In terms of public and private benefit, agricultural production within the catchment has an economic value estimated at \$277 million with flow on economic benefit estimated at \$692 million. Private benefit is obtained through the preservation of water dependant ecosystems.

This project will be supported through the Waterwise on the Farm project. The small amount of NHT investment has identified gaps to resource and adds value to existing projects.

18.3.4.2 Project Actions

BMP information is needed as a base set of practices that growers can adopt to improve water efficiency and nutrient management. There is an urgent need to identify best practice in partnership with the industry associations and the Department of Agriculture to assist industry adopt the guidelines.

Activities will include development of BMPs for irrigation and nutrient use, identification of skills/training/education needs and extension of BMPs to growers through workshops and face-to-face contact. Investment through NHT is small, with considerable resources from other sources.

18.3.4.3 Partnerships

Meetings with the Grape Growers Association, Australian Wine Industry Stewardship, WA Fruit Growers Association and the Department of Agriculture have indicated they are all keen to work in partnership to achieve environmental outcomes through BMPs with growers.

Added support will be offered through the Waterwise on the Farm project. Coordination will be provided through the SCCs Sustainable Production Program Manager.

18.3.4.4 Risk Management

Key landowners with identified high-risk areas need to be convinced to participate in the program. Given the high level of involvement with key stakeholders these risks are minimal.

18.3.4.5 Monitoring and Evaluation

The Waterwise on the Farm project will establish monitoring stations sites measuring water and nutrient use with weather stations. The data will establish best watering and nutrient regimes for various crops and weather conditions.

18.3.4.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 88: Linking BMPs with Grape Growers and Orchardists Project Linkages to RCTs and MATs

RCTs	MATs
WR1. Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005)	WM1.3 Implementation of EWP projects in the Canning, Helena and Brockman River catchments by 2007 WM1.5 30% increase in community participation in education, restoration, protection and management activities of the major rivers and waterways in the region by 2009
WR3. Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen, by 2020	WM3.3 Implement identified remedial actions to address turbidity/particulate matter by 2007 WM3.4 20% increase in community participation in wetlands education, restoration, protection and management activities for managing turbidity/particulate matter by 2009

RCTs	MATs
WR4. Maintain and improve condition of aquatic environments in the Region, as measured at representative sites, by 2020 (with quantified targets for turbidity / suspended particulate matter set by 2005)	WM4.3 Implement identified remedial actions to address turbidity/particulate matter by 2007 WM4.4 20% increase in community participation in wetlands education, restoration, protection and management activities of the major rivers and waterways by 2009

18.3.4.7 Project Achievements

Table 89: Linking BMPs with Grape Growers and Orchardists Project Proposed Achievements

Milestone	Outputs	Timelines
Compile existing information for the development of BMPs in partnership with key stakeholders	P1.1 1 BMP manual completed	June 2007
Training courses developed	CB2.2 2 training courses developed.	December 2007
Extension and demonstration activities	CB2.1 4 training sessions, workshops, seminars or other skills and training events conducted	June 2008

18.3.4.8 Proposed Budget

Table 90: Linking BMPs with Grape Growers and Orchardists Proposed Budget

Budget 2006/07		
Budget Item	NHT Funded	Other Funds
1 FTE	\$46,000	
Vehicle		\$10,000 (EMRC)
Project support		\$5,000 (Dept. of Agriculture)
Project Mgmt. Costs	5,773	
TOTAL	\$51,773	\$ 15,000
Budget 2007/08		
Budget Item	NHT Funded	Other Funds
1 FTE	\$46,000	
Vehicle, project support		\$10,000 (EMRC)
Project support		\$5,000 (Dept. of Agriculture)
Project Mgmt. Costs	6,484	
TOTAL	\$52,484	\$ 15,000

18.3.5 Small to Medium Enterprise(SME) Sustainability Project

18.3.5.1 Project Description

There is an urgent need to systematically tackle the problem of poor environmental practice amongst Small to Medium Enterprises (SMEs). The SCC has a suite of pilot projects to encourage SMEs to adopt BMPs. There have been many attempts across Australia to work with SMEs and while some have been very successful most have failed due to a number of reasons. These include lack of foresight regarding the long-term viability and on-going support for initiatives. The SCC continues to work closely with Local Government, State Agencies and industry to ensure initiatives developed are strategic and have the support of all stakeholders.

All projects are developed in consultation with relevant partners and stakeholders.

There are approximately 120,000 SMEs throughout the catchment with varying threats impacting on water and land assets through pollutants leaching into the soil and groundwater, contaminants flowing into rivers and wetlands and solid waste to landfill. Broadly, contaminants include hydrocarbons, nutrients and metals.

Small business are the ‘power house ‘ of the economy in terms of employment and financial turnover and provide essential private benefits to the community. Public environmental benefit will ensue from the encouragement of SMEs to adopt BMPs (whether regulatory or voluntary) to ensure the preservation of the existing ecological values of water and land assets. The problems associated with SMEs have not been addressed adequately throughout Australia and cannot continue to be ignored. They will continue to be a major threat to our natural assets and need to be considered as a serious threat and key contributor to NRM issues.

The project leverages large amounts of funding for a small NHT investment and is a very cost effective project.

18.3.5.2 Project Actions

Audit and Education project

The pilot audit program was developed with funding in the 2005/06 Investment Plan. All Local Governments within the catchment have shown a keen interest in this project and five are trialing the audit project with motor trades in 2005/06. Once the trial has been completed and evaluated the audit will be expanded to other industries as well as other Local Governments.

SME Data Base

While there is agreement that SMEs pose a serious NRM threat there is no coordination or data available to ascertain where industries are situated within most within industrial precincts. State Agencies and Local Governments have shown a keen interest in developing a central database of information about SMEs. Initially, a feasibility study for the development and funding of the database will be carried out, followed by a pilot program

SME Fact Sheets

Several generic fact sheets for light industry have been developed in 2005/06 with assistance from CSBP Limited. There is a need to further develop sheets, both of a generic and industry specific

nature and continually review existing material relevant to SMEs. Another 12 sheets are planned for 2006/08.

Green Procurement

The SCC provided advice to the WA Local Government Association (WALGA) on the development of their Green Procurement Manual in 2005/06. There has been little uptake of this initiative and the SCC needs to continue to be an advocate and partner with WALGA on encouraging member Local Governments to accept this initiative. The SCC will seek to include contract services (eg. cleaning and weed spraying) as part of the manual and ensure that tender documents include these initiatives as part of the tender document. This initiative will help to support industry accreditation programs such as Greenstamp.

Eco Industrial Parks

Perth is one of the fastest growing areas in Australia. There are plans for up to 15-20 planned SME Industrial Precincts in the Region. Most will be situated either around the outer metropolitan area or in existing older suburbs usually on remnant biodiversity sites including wetlands. To preserve and plan for NRM and sustainable SME outcomes, the SCC sponsored a workshop on this issue in 2005/06. There was wide-spread support from Local Government and State Agencies to pursue an initiative for a sustainable precinct model. The SCC will conduct an investigative study working with key stakeholders including property developers and business chambers with the objective of piloting this concept in a suitable location.

18.3.5.3 Partnerships

The Light Industry Sustainability Project has developed strong links with most key stakeholders by ensuring initiatives have involved close consultation and a collaborative approach when planning, thus ensuring key stakeholders have responsibility and ownership of projects. This is a difficult area in which to work due to lack of good models, information and willingness by any group or agency to tackle the major threats posed by SMEs. This has been recognised by all the following partners who have shown a willingness to work collaboratively with the SCC to plan initiatives to tackle environmental threats posed by SMEs:

- Department of Environment, Department for Planning and Infrastructure
- Swan River Trust
- Water Corporation
- Local Governments within the Region including Regional Councils and WALGA
- Edith Cowan University
- Business Associations and Local Chambers including the State Chamber of Commerce and Industry.
- CSBP Limited

18.3.5.4 Risk Management

Not all Local Governments have the resources to participate in the audit project, however the SCC is investigating options to fund the project. The SCC may be unable to find a suitable site and project partners to pilot the eco-industrial park concept. At present the SCC has an expression of interest from a Local Government for an industrial area due to begin within two years. Further expressions of interest will be sought from Local Governments in the Region in 2006.

18.3.5.5 Monitoring and Evaluation

In 2006/08 monitoring will include:

- Number of businesses audited by Local Government and trends in change of practices.
- Survey of Local Government to identify uptake of green procurement of services
- Report from Edith Cowan University on the pilot program within the Bellevue Industrial Precinct including waste management practices, development of BMPs and attitude and behaviour change.
- Water Quality monitoring programs will be established for each industrial area by mid 2006.

18.3.5.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 91: SME Sustainability Project Linkages to RCTs and MATs

RCTs	MATs
WR1 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005)	WM1.5 3 0% increase in community participation in education, restoration, protection and management activities of the major rivers and waterways in the Region by 2009
WR2 Maintain and improve condition of inland aquatic ecosystems integrity, as measured at representative sites, by 2020 (with quantified targets for priority wetlands in the Region set by 2005)	WM2.5 20% increase in community participation in wetlands education, restoration, protection and management activities by 2009
WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen, by 2020	WM3.1 100% of the 1-5 year actions of the reviewed Swan-Canning Cleanup Program (SCCP) implemented by 2010 WM3.4 20% increase in community participation in nutrient intervention education, restoration, protection and management activities by 2009

18.3.5.7 Project Achievements

Table 92: SME Sustainability Project Proposed Achievements

Milestone	Outputs	Timelines
Development of new industrial SME audits.	RA3.3 2 new industrial audits developed.	June 2008
Number of Local Governments (LGs) implementing audits.	CB3.3 10 arrangements for effective collaboration negotiated with LGs to audit industry.	5 LGs partnered June 2007 5 LGs partnered June 2008
Investigative study on developing SME Data base.	RA2.3 1 report on feasibility of SME database.	June 2007

Milestone	Outputs	Timelines
Trial of SME data base.	CB4.4 1 trial of SME database with Local Chamber.	June 2008
Development of SME Eco Industrial Park Model.	RA2.3 1 report on model design for eco-industrial park.	Feasibility study complete June 2007 Model design complete June 08
Further fact sheets developed for SMEs.	CB1.2 12 sets of industry fact sheets prepared and 3000 sets distributed.	June 2008
Service contracts by LGs include BMPs.	RA2.3 1 report on green procurement of services. RA3.3 1 decision support tool for LGs to use in tender documents for green procurement.	Report complete June 2007 Decision support tool complete June 2008
Bellevue waste and change behaviour project completed.	P5.1 1 report on project outcomes complete	June 2008

18.3.5.8 Proposed Budget

Table 93: SME Sustainability Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
1 FTE across region to support pilot projects.	\$92,000	
1 FTE work with WALGA on implementation	\$92,000	
Continued development of pilot projects.	\$110,000	\$60,000 (Waste Management Board) \$40,000 (LG) \$8,000 (CSBP)
Project Mgmt. Costs	36,895	
TOTAL	\$330,895	\$108,000
2007/08		
Budget Item	NHT	Other Funds
1 FTE across region to support pilot projects.	\$92,000	
1 FTE work with WALGA on implementation	\$92,000	
Continued development of pilot projects.	\$96,000	\$100,000 (LG)
Project Mgmt. Costs	39,470	
TOTAL	\$319,470	\$100,000

18.3.6 Small to Medium Enterprise(SME) Air Emission Study

18.3.6.1 Project Description and Justification

SMEs are often located in close proximity to urban/residential areas and with Perth's expected growth this will only increase. The majority of SMEs are not licensed and there is no information on the type or amount of emissions they generate. There is also no information on the type, number and location of SMEs. There is an urgent need to ascertain whether emissions from SMEs are cause for public concern.

There is a need to increase resources in the study of emissions in a collaborative manner. The air emissions project began in the 2005/06 funding round, and this round of funding will continue the data collection and analysis of 11 targeted SME industrial precincts.. This will be achieved through ambient screenings carried out over the next year, when a final report will be produced.

Poor air quality is a threat to biodiversity and to human health. This relatively small of investment from NHT will indicate the threat posed by SME emissions and provide potential solutions.

18.3.6.2 Project Actions

The work program will establish an emissions inventory within the Region. This will be achieved through passive sampling of air emissions with emphasis on exotic emissions within specified industrial precincts.

The data analysis will identify high risk emissions within the catchment. This will be the basis for developing programs targeting SME BMP in relation to air emissions.

This program will complement the SME Data and Tracking Projects, enabling this project to quickly identify and target air emission hotspots and problematic, specific industry types.

This project has been developed in partnership with the Department of Environment to implement the Perth Air Quality Management Plan (AQMP).

18.3.6.3 Partnerships

The Department of Environment has assisted with the selection of sites and emissions to be measured. They will also be producing the final report in consultation with other organisations. Sub-regional catchment groups are assisting with the sampling collection program. Local Governments with targeted industrial areas have been briefed and have indicated willingness to be involved in the solutions should a problem be shown to exist.

18.3.6.4 Risk Management

The study of the impact of SME air emissions throughout Australia is very limited, so there may be an element of trial and error as we initiate research trial projects in this emerging area of concern.

18.3.6.5 Monitoring and Evaluation

monitoring and evaluation will be supervised by the Department of Environment with the data analysis provided by the Chemistry Centre. An interim and final report will be produced by the Department of Environment.

18.3.6.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 94: SME Air Emission Study Linkages to RCTs and MATs

RCTs	MATs
AR1. Continue to progress towards improved air quality, with Resource Condition Target/s to be set for air quality by 2005	AM 1.1 Establish set of monitoring systems to collect/analyse baseline and trend information to enable Resource Condition Target setting for 2008. AM 1.2 Establish a partnership framework to assist in implementation of Air Quality management Plan by 2008

18.3.6.7 Project Achievements

Table 95: SME Air Emission Study Proposed Project Achievements

Milestone	Outputs	Timelines
Interim and final report completed	RA 2.31 report on SME air emissions completed	interim report March 2006 final report June 2007

18.3.6.8 Proposed Budget

Table 96: SME Air Emission Study Project Proposed Budget

Budget 2006/07		
Budget Item	NHT Funded	Other Funds
Air analysis	\$26,000	\$20,000 (DOE)
Report	\$10,000	
Project Mgmt. Costs	4,518	
TOTAL	\$40,518	\$20,000

18.3.7 Bellevue Sustainable Industry Project

18.3.7.1 Project Description

This project is funded through the Waste Management Board, and aims to work collaboratively with industries, community and Local Government to manage waste within an industrial precinct. Bellevue is an old dilapidated industrial area with poor facilities. A toxic fire in the area years ago has raised community awareness of pollution issues. Poor practices in the industrial area lead to unauthorised discharge from the site, which contaminates groundwater and stormwater.

A steering committee has been formed composed of the SCC, Bellevue Ratepayers Association, the City of Swan, local industries and the Eastern Metropolitan Regional Council. A partnership with Edith Cowan University will monitor both barriers to behaviour change and change in attitudes over the life of the project. The outcome will be an industrial precinct which takes responsibility for the management of its waste.

18.3.7.2 Project Actions

This is a two year funded project with the following actions:

- Consultation with key stakeholders on project input & development including ratepayers, local industry and Local Government.
- Employment of Project Coordinator.
- Design survey tool that meets needs of the project.
- Pilot, modify and survey all businesses within the precinct.
- From the results, design and implement waste management project.
- Ongoing monitoring.
- Resurvey all businesses.
- Final report and recommendations.

18.3.7.3 Partnerships

- Waste Management Board
- Swan River Trust
- City of Swan
- Swan Chamber of Commerce
- North East Chamber of Commerce
- Local Businesses
- Waste Management Businesses.
- East Metropolitan Regional Council
- Midland Redevelopment Authority
- Bellevue Ratepayers Association
- Edith Cowan University

18.3.7.4 Risk Management

The project may experience lack of desire for involvement in the project from local businesses. Waste management businesses may not find it profitable to be involved in the project. These issues

are being minimised by involvement of stakeholders on the steering committee and through consultation and partnership development with a broad range of stakeholders.

18.3.7.5 Monitoring and Evaluation

The survey work carried out by Edith Cowan University will establish baseline attitudes and waste production/disposal data. Ongoing survey work will monitor changes in these two parameters with an evaluation report at the end of the project. A water quality-monitoring program will also be established for the precinct.

18.3.7.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 97: Bellevue Sustainable Industry Project Linkages to RCTs and MATs

RCTs	MATs
WR1 Maintain and improve condition of inland aquatic ecosystem integrity, as measured at representative sites, by 2020 (with quantified targets for major rivers and waterways in the Region set by 2005)	WM1.5. 30% increase in community participation in education, restoration, protection and management activities of the major rivers and waterways in the Region by 2009
WR3 Maximum concentrations, for priority waterways, do not exceed 0.1mg/L for total phosphorus and 1.0mg/L for total nitrogen, by 2020	WM3.1 100% of the 1-5 year actions of the reviewed Swan-Canning Cleanup Program (SCCP) implemented by 2010 WM3.4 20% increase in community participation in nutrient intervention education, restoration, protection and management activities by 2009

18.3.7.7 Project Achievements

Table 98: Bellevue Sustainable Industry Proposed Project Achievements

Milestone	Outputs	Timelines
Survey report and findings completed	RA2.2 1 social /economic study completed	June 2008
Design & implementation of waste management model	RA3.1 1 model developed	June 2008
Design of BMPs for SMEs	P1.1 1 set of best management practice codes or guidelines completed	June 2007
Media opportunities (print)	CB1.4 1 media opportunity resulting in articles in newspapers or on radio or television created.	Ongoing to June 2008

18.3.7.8 Proposed Budget

Table 99: Bellevue Sustainable Industry Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
Project support	\$15,000	
Project Grant		\$60,000 (Waste Management Board)
Other		\$5,000 (Stakeholders)
Project Mgmt. Costs	1,882	
TOTAL	\$16,882	\$65,000
2007/08		
Budget Item	NHT	Other Funds
Project support	\$15,000	
Other		\$5,000 (Stakeholders)
Project Mgmt. Costs	2,114	
TOTAL	\$17,114	\$5,000

19. COASTAL & MARINE REGIONAL DELIVERY PROGRAM

19.1 Program Description

The Coastal and Marine Regional Delivery Program (RDP) covers the areas of Coastal Vegetation and Marine Habitats and Fauna.

19.1.1 Coastal Vegetation

Baseline coastal vegetation condition will be established through the 2005/06 Investment Plan. By June 2008, all significant coastal areas will have management plans in place and implemented through Local Government (LG) working in partnership with their community. Revegetation projects will enhance biodiversity through use of provenance seed.

19.1.2 Marine Habitats and Fauna

By June 2008 it is expected that the resource extent, distribution and condition of marine habitats and marine fauna will be documented and a framework for monitoring resource condition through a strong understanding of identified indicators will be in place. Projects for investment to improve the asset will have been identified.

19.2 Program Budget

There is significant other investment into the Coastal and Marine RDP. As projects develop, there will be an increase in investment by LG and community stakeholders through the implementation phase of best practices.

Funding Source	2006/07	2007/08
NHT	610,917	448,170
Commonwealth	0	0
State Government	128,650	0
Local Government	111,000	111,000
Industry	5,000	5,000
Community	26,750	21,750
TOTAL	\$882,317	\$585,920

19.3 Proposed Activities

19.3.1 Marine Indicators Project

19.3.1.1 Project Description and Justification

The SCC has placed a high priority on determining key marine indicator species for the setting of marine resource condition targets and long-term monitoring.

In 2005 'Securing WA Marine Futures' was funded through the State Strategic Reserve, with the aim of supporting management through developing resource condition targets. It is envisaged this project will deliver:

- Resource extent, distribution and condition of marine habitats.
- Framework for monitoring resource condition through a strong understanding of identified indicators.

Additionally, a considerable amount of investment is currently occurring at a State and Federal level in working towards a national set of indicators for estuarine, coastal and marine.

It is envisaged any shortcomings of these projects in meeting the SCCs aims will require substantial additional investment, due to the high costs associated with marine research.

19.3.1.2 Project Actions

Until the NHT Strategic Reserve Project ‘Securing WA Marine Futures’ and finalisation of Estuarine, Coastal and Marine indicators, it is premature to define the scope of the project. Based on the final outcomes, the SCC will be required to undertake a gap analysis and further develop the Identifying Marine Indicators Project to complete any short falls.

19.3.1.3 Partnerships

The SCC is currently working closely with the project manager of Securing WA Marine Futures and will have representation on the Project Steering Group. Additionally, the SCC is working closely with the WA State NRM Office and Federal Facilitators in developing a statewide set of indicators for estuarine, coastal and marine.

Potential partners for the Identifying Marine Indicators Project include DOE, CALM, Universities, WA Museum and private consultants through tender.

19.3.1.4 Risk Management

The SCC is currently establishing, in conjunction with SCRIPT, SWCC, NACC and the Southern Rangelands regional NRM councils, the State Marine Scientific Advisory Group for NRM. This group will be responsible for assessing all marine projects through Regional investment, ensuring marine investments are well budgeted and technically robust.

It has been recognised that reliance on the two current statewide projects to deliver the requirements for the Region runs the inherent risk of shortfalls. The scope of these projects will be assessed, in terms of meeting the Region’s needs through the SCC Coastal and Marine Reference Group.

19.3.1.5 Monitoring and Evaluation

Not relevant.

19.3.1.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 100: Marine Indicators Project Linkages to RCTS and MATs

RCT	MAT's
CMR2 Maintain and improve the condition of marine habitats in the Region, as measured at representative sites, by 2020 (with a quantified target set by 2005)	CMM2.1 100% of priority marine habitats identified for protection by 2006 CMM2.2 100% of all marine habitat areas affected by introduced marine pests in 'at risk' areas identified by 2007
CMR3 Maintain and improve the condition of marine fauna in the Region, as measured at representative sites, by 2020 (with a Quantified target for key indicator species by 2005).	CMM3.1 Determine key indicator species to protect and conserve viable populations of marine fauna by 2006.

19.3.1.7 Project Achievements**Table 101: Marine Indicators Project Proposed Achievements**

Milestone	Outputs	Timelines
Identification of key indicators for setting marine resource condition targets	RA1.1 1 x marine study undertaken to enable the setting of resource condition targets.	July 2008

19.3.1.8 Proposed Budget**Table 102: Marine Indicators Project Proposed Budget**

Budget 2006/07		
Budget Item	NHT Funded	Other Funds
Gap analysis, research, desktop assessment and reporting.	\$290,000	
Project Mgmt. Costs	36,393	
TOTAL	\$326,393	
Budget 2007/08		
Budget Item	NHT Funded	Other Funds
Gap analysis, research, desktop assessment and reporting.	\$140,000	
Project Mgmt. Costs	19,735	
TOTAL	\$159,735	

19.3.2 Coastal Managers Devolved Grants

19.3.2.1 Project Description and Justification

The project aims to fund the development or updating of NRM plans or strategies for all key coastal sites within the Region, through a devolved grants program with land managers. The SCC, through a NHT funded Coastal Evaluation Position, is currently identifying and assessing priority coastal areas for biodiversity and cultural conservation. A majority of these areas are under the jurisdiction of Local Government (LG), with many having no existing or past management plans in place for addressing key coastal asset threats.

Through a 1:1 funding criteria the leveraging of LG funds will result in high value for money, and increased engagement of LG in biodiversity conservation planning, investment and threat abatement. With the Coastal Evaluation Project due to be completed in 2005/06 the next step is to develop sound and comprehensive long-term plans for these sites. Without further investment the identification and assessment of these sites will have no on-ground conservation or remediation outcomes, and lack of engagement of the land manager in recognition of key coastal assets.

19.3.2.2 Project Actions

A devolved grants program will be established for land managers to apply for 1:1 funding to update or develop local plans addressing wind erosion, coastal biodiversity loss, or strategies addressing coastal asset threats. LG will also be eligible to partner with neighbouring land managers to develop best practice guidelines for addressing key coastal threats such as rabbit control or weed strategies.

The SCC will administer the devolved grants and grants will be assessed and approved through the Coastal and Marine RDP Reference Group.

19.3.2.3 Partnerships

As part of the criteria of the devolved grants, LG will be encouraged to partner with community groups and adjacent land managers in developing coastal plans. All coastal land managers will be eligible to apply, including Federal, State Authorities and agencies. Added support for this project will be offered through the Coastcare Program. Coordination will be provided through the Coastal and Marine Program Delivery Manager.

19.3.2.4 Risk Management

Land managers identified, through the current NHT funded Coastal Evaluation Position, as having high value coastal reserves must be convinced to participate in the project. Given the level of involvement and support to date, through the Coastcare Program, this would be avoided by the provision of financial and capacity support incentives.

19.3.2.5 Monitoring and Evaluation

The value of the project to engage land managers will be measured through the number of LGs applying for funding under the project and completing coastal management plans. The value of the program will be monitored through the number of LGs implementing on-ground plans developed through the project and the number of priority coastal sites with management plans in place or updated.

19.3.2.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 103: Coastal Managers Devolved Grants Project Linkages to RCTs and MATs

Target	Expected Change
CMR1. Maintain and improve the condition of terrestrial coastal habitats in the Region, as measured at representative sites, by 2020 (with quantified targets set by 2005).	CMM1.1 100% of priority natural coastal areas identified and assessed by 2005 CMM1.2 100% of priority coastal areas have five year protection and restoration targets defined for wind erosion by 2005. CMM1.3 100% of Local Governments adopting or updating local coastal plans and policies by 2009. CMM1.4 20% increase in on-ground community environmental restoration programs addressing coastal dune wind erosion in priority areas by 2007 CMM1.5 30% increase in community participation in biodiversity education, mitigation and remediation actions by 2009

19.3.2.7 Project Achievements

Table 104: Coastal Managers Devolved Grants Proposed Project Achievements

Milestone	Outputs	Timelines
All coastal reserves identified as high priority will have a minimum five –year protection and restoration plan.	P4.2 4 x Coastal Management plans complete	2 plans June 2007 2 plans June 2008
Development of best practice codes for addressing key threats across LGs	P1.1 2 x Best practice management practice guidelines for coastal threats	2 BMP's June 2008

19.3.2.8 Proposed Budget

Table 105: Coastal Managers Devolved Grants Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
Devolved Grants for local action plans	\$78,000	\$78,000 (Land managers matching \$)
Admin and printing	\$2,000	
Project Mgmt. Costs	10,039	
TOTAL	\$90,039	\$78,000
2007/08		
Budget Item	NHT	Other Funds
Devolved Grants for local action plans	\$78,000	\$78,000 (Land managers matching \$)
Admin and printing	\$2,000	
Project Mgmt. Costs	11,277	
TOTAL	\$80,000	\$78,000

19.3.3 Coastcare Program

19.3.3.1 Project Description and Justification

This project provides the framework for delivery of the Coastal and Marine Regional Delivery Program to a wide range of coastal and marine stakeholders throughout the Region. There is a significant role generating new opportunities for improved coastal and marine NRM management, and assisting the implementation of community and Local Government (LG) projects.

The Region contains significant remnant coastal natural areas with the majority of assets vested under LG. Hence the Coastcare Program has a strong focus in delivering on-ground NRM outcomes through LG, including assisting them with community engagement. The Swan Coastal and Marine sub-region currently has many highly active coastal community groups within each of the 10 coastal LGs.

Should the Coastcare Program not be funded the level of community participation and LG investment in coastal and marine NRM initiatives would be significantly reduced. Additionally, Federal and State funding of on-ground projects would have less cost effectiveness because of a lack of technical input and coordination with regional programs and other stakeholder investment.

19.3.3.2 Project Actions

Coastcare Officers have the direct role of:

- Assisting community groups develop and implement coastal and marine NRM projects in partnership with LG.
- Assisting LG in developing coastal projects addressing NRM threats to assets.
- Providing technical advice to ensure best practice for managing NRM coastal assets and facilitating community participation in coastal and marine management.
- Developing projects across LG boundaries to address NRM threats.

The Coastcare Officers are currently based at a host LG, with other LGs in the Region contributing financially to the Coastcare Program.

19.3.3.3 Partnerships

LG is a strong partner of this project in terms of support, implementation and funding. Chevron Texaco currently contribute to the Coastcare Officer's budget, and a sponsorship agreement has been secured until 2008. The Coastcare Officers also have a well developed role in facilitation across LG, State agencies, stakeholders and community in addressing coastal and marine NRM issues within the Region.

19.3.3.4 Risk Management

All stakeholder financial contributions to the Program are on-going, and to date no stakeholder has indicated withdrawal of support, including the in-kind contribution provided by both host LGs.

19.3.3.5 Monitoring and Evaluation

Through the Coastcare Officers Reference Group, comprising both community and LG, the two positions are evaluated on a quarterly basis. Additionally the ability of the Coastcare Officers to deliver cost effective outcomes for the sub-region will be assessed on an ongoing basis through the Swan Coastal and Marine Regional Delivery Program Reference Group.

Evaluations will be based on the number of LGs and community groups assisted and the area of coastal vegetation rehabilitated using best practice.

19.3.3.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 106: Coastcare Program Linkages to RCTs and MATs

RCTs	MATs
CMR1. Maintain and improve the condition of terrestrial coastal habitats in the Region, as measured at representative sites, by 2020 (with quantified targets set by 2005).	CMM1.2 100% of priority coastal areas have five year protection and restoration targets defined for wind erosion by 2005. CMM1.3 100% of Local Governments adopting or updating local coastal plans and policies by 2009. CMM1.4 20% increase in on-ground community environmental restoration programs addressing coastal dune wind erosion in priority areas by 2007. CMM1.5 30% increase in community participation in biodiversity education, mitigation and remediation actions by 2009.

RCTs	MATs
CMR2. Maintain and improve the condition of marine habitats in the Region, as measured at representative sites, by 2020 (with quantified target by 2005).	CMM2.4 100% of Local Governments with ocean out falls have stormwater action plans established by 2008. CMM2.5 20% increase in marine habitat restoration programs by 2007. CMM2.6 30% increase in community and stakeholder participation in education, mitigation and remediation activities related to marine habitat protection by 2005.

19.3.3.7 Project Achievements

Table 107: Coastcare Program Proposed Project Achievements

Milestone	Outputs	Timelines
Assisting LGs, other landholders and community groups to undertake rehabilitation projects	OG3.1 4 ha of coastal vegetation enhanced/rehabilitated OG4.2 1 ha of revegetated with coastal native species	2ha June 2007 2ha June 2008 0.5ha June 2007 0.5ha June 2008
Coastal Management Plans - new or updated.	P4.2 4 Strategies or plan developed addressing coastal assets or threats	2 plans June 2007 2 plans June 2008
Coastcare promotion within the Swan Region (Events/ Media)	CB1.1 4 Community awareness events/ activities CB1.4 4 Media opportunities resulting in articles in newspapers or on radio or television created	2 events June 2007 2 events June 2008 2 media events June 2007 2 media events June 2008
Capacity building programs for coastal and marine stakeholders	CB2.1 8 Workshops, training events or study tours for community and LG	4 workshops June 2007 4 workshops June 2008
Assisting and facilitating Local Government to undertake rabbit and fox control	OG8.3 4 ha of pest control programs implemented	2ha June 2007 2ha June 2008
Assist coastal and marine community groups	CB5.1 10 Groups or community projects being directed assisted	5 groups assisted June 2007 5 groups assisted June 2008
Support of marine community groups, undertaking marine monitoring projects	RA1.3 1 existing monitoring programs enhanced RA1.3 2 new monitoring programs established through CALM Marine Community Monitoring Program	1 monitoring program June 2007 2 new monitoring programs June 2008

Milestone	Outputs	Timelines
Support of marine community groups, through grant writing and implementation; monitoring projects and restoration work.	CB5.1 2 marine groups or projects assisted	2 groups assisted June 2008
Training/capacity building of marine stakeholders	CB2.1 2 training sessions, workshops or seminars on marine issues.	1 workshop June 2007 1 workshop June 2008

19.3.3.8 Proposed Budget

Table 108: Coastcare Program Proposed Budget

Budget 2006/07		
Budget Item	NHT Funded	Other Funds
2 x FTE	\$146,800	
Operating, community training etc.		\$5,000 (Corporate) \$21,000 (LG)
Administration, computer and hosting		\$10,000 (LG in-kind)
Community implementation and coordination, not including volunteer hours for projects.		\$15,000 (Community in-kind)
Project Mgmt. Costs	18,422	
TOTAL	\$165,222	\$51,000
Budget 2007/08		
Budget Item	NHT Funded	Other Funds
2 x FTE	\$146,800	
Operating, community training etc.		\$5,000 (Corporate) \$21,000 (LG)
Administration, computer and hosting		\$10,000 (LG in-kind)
Community implementation and coordination, not including volunteer hours for projects.		\$15,000 (Community in-kind)
Project Mgmt. Costs	20,693	
TOTAL	\$167,493	\$51,000

19.3.4 Coastal Seed Program

19.3.4.1 Project Description and Justification

The project aims to increase use of local provenance greenstock and the diversity of species in community based coastal restoration by establishing a comprehensive seed collection for all key coastal sites across the Region. This will be achieved through providing technical and logistical coordination of an annual seed collection program through Local Government (LG) and an established network of coastal community groups.

Coastal biodiversity assets throughout the Region are under significant threat through past land use practices and management, land clearing, introduced flora and fauna and current recreation pressures. The level of on-ground activity addressing coastal biodiversity loss is high in the Region through LG investment and highly active on-ground community groups.

There is the opportunity for the SCC to invest in an on-going program that would ensure current coastal rehabilitation projects are undertaking best practice and optimising of on-ground investments. Whilst best practice in restoration techniques is currently being addressed through the Coastcare Program, the availability of species and local provenance issues have been demonstrated as a constraint on current on-ground outcomes.

If local provenance issues are not addressed future on-ground activities are at risk of altering species composition and decreasing biodiversity values through use of limited commercially available species.

19.3.4.2 Project Actions

The project will incorporate the collection of seed through established Coastcare community groups and LG officers on an annual basis. APACE Aid, as a preferred partner, will be contracted to technically direct this collection to ensure viability and minimisation of adverse environmental impacts. APACE Aid will additionally be contracted through the project to process the seed, database and store. The seed will remain in storage until required by a community group or LG for coastal rehabilitation projects.

An agreement will be signed by which all seed collections will remain the property of the relevant land manager or community group. Owners will be able to remove the seed from the coastal seed collection for use at a commercial nursery of their choice or for direct use in rehabilitation. Each year, following summer collection, APACE Aid will produce a written report to the SCC and all participants listing what species and quantities they have in the coastal seed collection.

Additionally training will be provided to key individuals of community groups and LGs to ensure best practice in seed collection practices and use in restoration. Coordination of the program will occur through the Coastcare Program.

19.3.4.3 Partnerships

APACE Aid will be a preferred partner for the project, due to their existing community seed processing and storage facility. NHT funds were used to establish this facility within APACE Aid. Being a non-for profit APACE Aid represent high value for money as compared to commercial rates for seed cleaning and storage, and minimise commercial ownership issues.

This project will be supported and coordinated through the Coastcare Program and the existing network of Coastcare volunteer groups. All coastal community groups and LGs currently involved in on-ground revegetation projects have expressed a strong support for a coordinated coastal seed program. In a trial project this year eight out of nine LGs participated in the project.

19.3.4.4 Risk Management

This project is aimed at aiding community-based restoration, and ensuring best practice in coastal restoration programs. This project can not be used to replace contractors currently engaged by LG to collect seed from non-coastal reserves, or where LGs currently undertake the work with internal staff.

Similarly a signed agreement will be signed between the custodians of the seed bank and the land manager. This will ensure ownerships of the seed remains with the land manager and that no seed collected under the project will be used for commercial gain.

19.3.4.5 Monitoring and Evaluation

The project will be evaluated through the number of LGs and Coastcare groups involved in the project, amount of seed collected under the project, and the percentage of coastal restoration projects using local provenance seed from the seed bank project.

19.3.4.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 109: Coastal Seed Program Project Linkages to RCTs and MATs

RCTs	MATs
CMR1. Maintain and improve the condition of terrestrial coastal habitats in the Region, as measured at representative sites, by 2020 (with quantified targets set by 2005).	CMM1.4 20% increase in on-ground community environmental restoration programs addressing coastal dune wind erosion in priority areas by 2007. CMM1.5 30% increase in community participation in biodiversity education, mitigation and remediation actions by 2009.

19.3.4.7 Project Achievements

Table 110: Coastal Seed Program Proposed Project Achievements

Milestone	Outputs	Timelines
Assisting community based coastal revegetation projects	CB5.1 10 x Community groups or community based project assisted.	5 groups June 2007 5 groups June 2008
Training to develop community and stakeholder best practice in seed collection	CB2.1 4 x Coastal seed accreditation course	2 courses June 2007 2 courses June 2008
Seed banks established for 100% of coastal LGs with priority coastal areas	OG7.4 1 coastal seed bank developed to cover all priority coastal areas	June 2008

19.3.4.8 Proposed Budget

Table 111: Coastal Seed Program Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
Technical support, processing, data base coordination and training	\$11,000	
Project Coordination		\$ 2,000 (LG Officer's)
Labour		\$6,750 (Community)
Project Mgmt. Costs	1,380	
TOTAL	\$12,380	\$8,750
2007/08		
Budget Item	NHT	Other Funds
Technical support, processing, data base coordination and training	\$11,000	
Project Coordination		\$ 2,000 (LG Officer's)
Labour		\$6,750 (Community)
Project Mgmt. Costs	1,551	
TOTAL	\$12,551	\$8,750

19.3.5 Coastal Indigenous Project

19.3.5.1 Project Description and Justification

The aim of the project is to build the capacity of the Indigenous community so they can effectively participate in the coastal and marine activities in the Swan Region and to provide a template for sustainable integrated environmental management (holistic) for future generations. This project will allow for the Indigenous sites and areas of significance to be recorded and be integrated into the on-ground works that are occurring. The project will complement the work being undertaken to assess and restore the natural areas in the Region.

A major gap currently exists in coastal and marine NRM for the Region in term of engagement of the Indigenous community in consultation and on-ground involvement in community based projects, understanding and knowledge of Indigenous coastal sites and documentation of key sites.

This project directly value adds to the NHT funded Coastal Evaluation Project and the Coastcare Program. The officer will have program management support from Greening Australia (for project delivery) and the Region (for program coordination).

19.3.5.2 Project Actions

The project will set guidelines for Indigenous consultation for land managers, document Indigenous heritage knowledge of the Perth coastal areas, engage the Indigenous community in on-ground activities and focus on cultural heritage education through:

- Documenting the areas of Indigenous significance along the Perth coast through mapping and recording stories. It is important that the Indigenous values of area are documented along with the natural values.
- Providing local community groups working along the coast with information to understand more about the Indigenous significance of the areas they are working in.
- Liaising with the Indigenous community to encourage their participation in on-ground works being undertaken.
- Developing signage for significant areas along the coast to provide information to the general public.
- Inclusion of Indigenous heritage in the database for the Coastal Evaluation Project.

19.3.5.3 Partnerships

The project has received funding through Lotterywest for 12 months over 2006/07. Greening Australia and the SCC are providing in-kind support through the SCC Coastcare Program, Coastal and Marine Regional Delivery Program Manager and the Indigenous NRM Coordinator. Other stakeholders involved in the project include Local Government, land managers, SCC Indigenous NRM Advisory Group, South West Land and Sea Council and coastal and marine community groups.

19.3.5.4 Risk Management

Indigenous communities may be difficult to engage in the project, however by appointing an Indigenous officer to manage the project this risk should be minimised.

19.3.5.5 Monitoring and Evaluation

This project is seen as a pilot. The SCC Coastal and Marine Reference Group will assess if funding would be sought to continue this position. To ensure the relationships built as part of the project are continued the SCC Coastcare Officers and the Coastal and Marine RDP Manager, with the assistance of the Indigenous NRM Coordinator, will develop a program for continued engagement through their work schedules.

Quarterly reporting requirements will be established for this project and any progress will be monitored and evaluated through this reporting process. The officer will also report to the SCC Indigenous NRM Advisory Group. The group meets every six weeks and reports through its Chairperson to the SCC, of which they are a member.

Evaluation will be based on the number of Indigenous groups and people engaged with coastal work, number of stories and sites mapped and documented, number of signs erected and data on cultural heritage entered in the NHT funded Perth Biodiversity Project database.

19.3.5.6 Achievement of RCTs and MATs

This project is linked to the achievement of the following Resource Condition Targets (RCTs) and Management Action Targets (MATs).

Table 112: Coastal Indigenous Project Linkages to RCTs and MATs

RCTs	MATs
Not Applicable	CHM1.1 Research, record, and publish Nyoongar history of the Swan Region by 2009 CHM1.2 Review and identify opportunities in policy and legislation to include indigenous cultural heritage by 2009 CHM1.3 Increase indigenous employment and participation in NRM activities locally and regionally by 2009 CHM1.4 Achieve 75% increase in the number of community, Local Governments and State Government agencies involved in NRM incorporating indigenous cultural heritage included as part of their processes by 2009 CHM1.5 Establish partnerships to further incorporate NRM principles into heritage protection by 2008
CMR1 Maintain and improve the condition of terrestrial coastal habitats in the Region, as measured at representative sites, by 2020 (with a quantified target set by 2005)	CMM1.4 20% increase in on-ground community environmental restoration programs addressing coastal dune wind erosion in priority areas by 2007 CMM1.5 30% increase in community participation in biodiversity education, mitigation and remediation actions by 2009

19.3.5.7 Project Achievements

Table 113: Coastal Indigenous Project Proposed Achievements

Milestone	Outputs	Timelines
Liaison with Indigenous community, local government, community groups and other stakeholders	CB1.1 4 Awareness raising events CB2.1 4 Training sessions, workshops, seminars	2 events Feb 2007 2 events Feb 2008 2 workshops June 2007 2 workshops June 2008
Documentation of Indigenous sites and area of cultural significance 1 database, map produced with a registry of significant sites 1 management framework for Indigenous engagement)	CB3.1 document on coastal Indigenous sites produced RA3.3 2 Decision support tools developed, 1 identifying Indigenous sites and 1 to guide Indigenous consultation	1 document Feb 2007 1 database Feb 2007 1 framework June 2007
Educational material developed for Indigenous cultural heritage.	Cb1.3 1 Display on coastal Indigenous heritage	1 display Feb 2007

19.3.5.8 Proposed Budget

Table 114: Coastal Indigenous Project Proposed Budget

2006/07		
Budget Item	NHT	Other Funds
Project support	\$15,000	
Project Grant (Lotterywest)		\$128,650
Other		\$5,000 (Greening Australia)
Project Mgmt. Costs	1,882	
TOTAL	\$16,882	\$133,650
2007/08		
Budget Item	NHT	Other Funds
Project support	\$15,000	
Project Mgmt. Costs	2,114	
TOTAL	\$17,114	\$ 0

APPENDIX 1

Reference Group Membership

Integrated Water Management Reference Group		
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Natural Diversity Reference Group

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Coastal & Marine Reference Group

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Sustainable Production Reference Group

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Indigenous NRM Advisory Committee

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