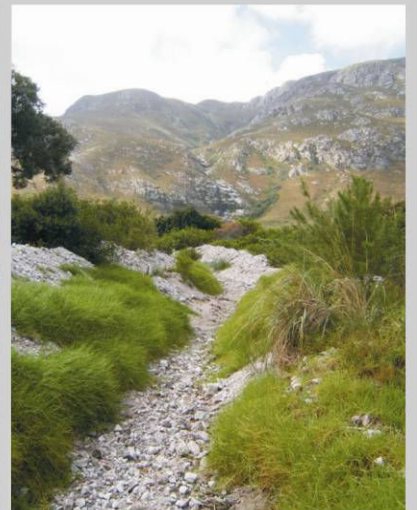




KLEIN RIVER ESTUARINE MANAGEMENT PLAN



ESTUARINE MANAGEMENT PLAN

for the

KLEIN RIVER

Overberg Region, Western Cape

2008 – 2013

First Generation E.M.P.

FIRST DRAFT DISCUSSION DOCUMENT

23 APRIL 2008

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Acronyms and abbreviations

ABI	Agulhas Biodiversity Initiative	MLRA	Marine Living Resources Act, Act No.18 of 1998
agric	agriculture	MOA	Memorandum of Agreement
bldg	building	MOU	Memorandum of Understanding
C4, C8 etc.	Job grade code	MTEF	Medium Term Expenditure Framework
CAPE EP	CAPE Estuaries Programme	muni	municipality
CAPE	Cape Action for People and the Environment	NBSAP	National Biodiversity Strategy and Action Plan (2005)
CMA	Catchment Management Agency	NEM	National Environmental Management
CMS	Catchment Management Strategies	NEMA	National Environmental Management Act (1998)
CZS	Coastal Zoning Scheme	NFSD	National Framework for Sustainable Development (2006)
DEA&DP	Department of Environmental Affairs and Development Planning (Western Cape)	NWA	National Water Act, Act No.36 of 1998
DEADP(DP)	Dept of Environmental Affairs and Development Planning (Development Planning section)	NWRS	National Water Resources Strategy
DEADP(IEM)	Dept of Environmental Affairs and Development Planning (Integrated Environmental Management section)	ODM	Overberg District Municipality
DEAT	Department of Environmental Affairs and Tourism (national)	PM	Project Manager
DPLG	Department of Provincial and Local Government (national)	PR-x.x.x	EMP Project reference number
DoA	Department of Agriculture	proj	project
ECA	Environment Conservation Act, Act No.73 of 1989	Q1, Q2 etc	Quarter 1 (being January, February, March) , Quarter 2 etcetera
EF	Estuarine Forum	regs	regulations
EIA	Environmental Impact Assessment	RDA	Rural Development Area
EMA	Estuarine Management Area	RDF	Rural Development Framework
EMP	Estuarine Management Plan	RQO	Resource Quality Objectives
EZP	Estuarine Zoning Plan	SA	South Africa
GIS	Geographic Information Systems	SANBI	South African National Biodiversity Institute
IAPs	Interested and Affected Parties	SCDF	Spatial Conservation and Development Framework
ICM	Integrated Coastal Management	SCM	Supply Chain Management
IDP	Integrated Development Plan	SCP	Systematic Conservation Planning
IEM	Integrated Environmental Management	SDF	Spatial Development Framework
infrastr	infrastructure	SPC	Spatial Planning Category
i.r.o.	in respect of	TWG	Technical Working Group
ISP	Internal Strategic Perspective	WCNCB	Western Cape Nature Conservation Board
LUM	Land Use Management	WG	Working Group
LUMS	Land Use Management Systems	WMA	Water Management Area
MCM	Marine & Coastal Management Sub-directorate of DEAT	w.r.t.	with regard to
mgmnt	management		

PART A : OBJECTIVES

1 Introduction

This document describes the plan for managing the Klein River estuary over the five-year period commencing in the third quarter of 2008 (2008/Q3). It is the first time that a plan of this sort has been prepared for the Klein River estuary and hence this is referred to as the First Generation Estuarine Management Plan for the Klein River (Klein EMP). A process of monitoring, evaluation and review, and planning for the next cycle (2013 to 2018) is built into this plan. The five-year cyclical approach is consistent with the approach adopted in South Africa for municipal-level integrated development planning, and is supported by international approaches to integrated coastal management (Figure 1).

“...progress towards sustainable forms of coastal development will be achieved by ICM programmes that cycle repeatedly through the stages of the management process. Each cycle may be considered a generation of an ICM programme”
(GESAMP, 1996: 4)

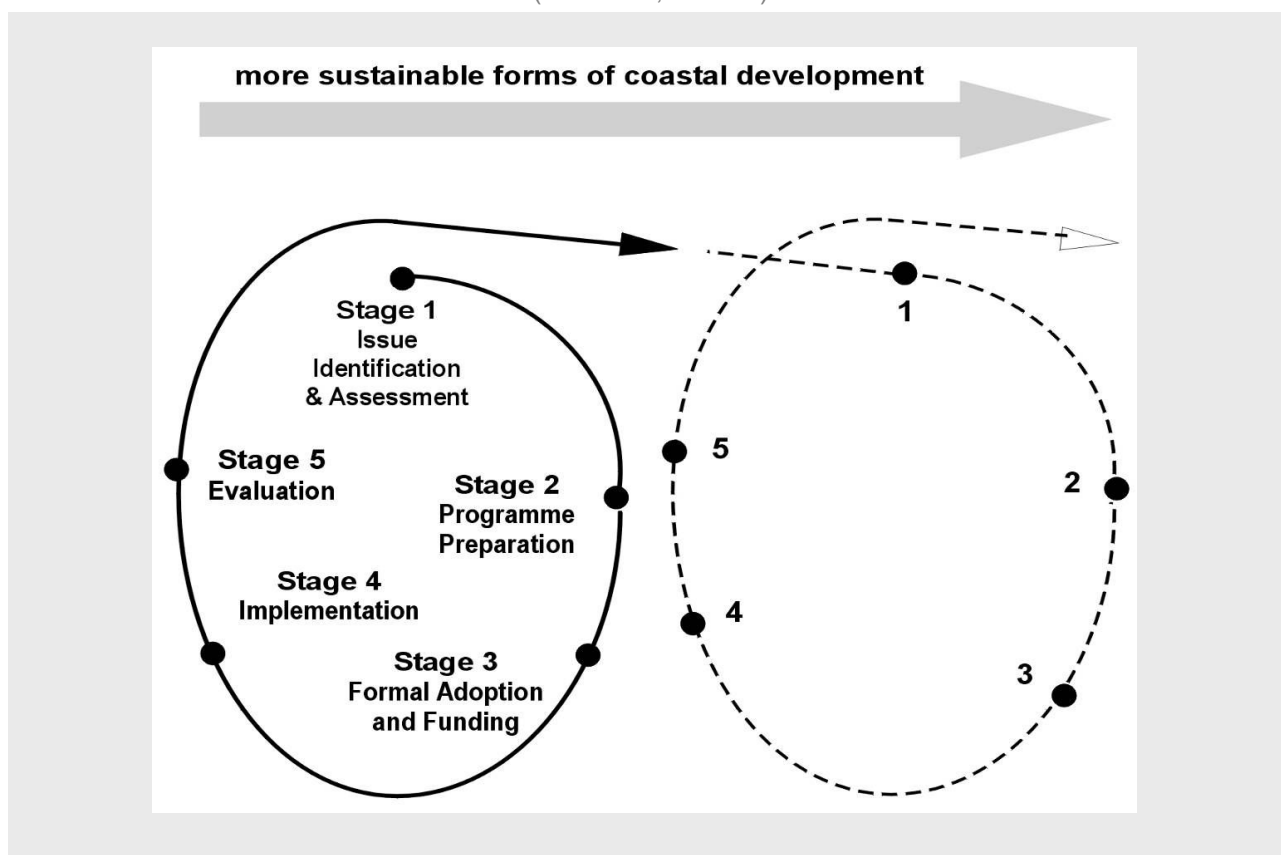


Figure 1. The stages of the Integrated Coastal Management Cycle (after GESAMP, 1996: 10)

The Situation Assessment for the Klein EMP was conducted during November and December 2007, resulting in a report dated 13 December 2007. This report, with its appendix of Data Sheets, are an important information resource that underpin this Estuarine Management Plan.

The EMP has been prepared at a time when the promulgation of South Africa's Integrated Coastal Management Bill is imminent. The ICM Bill calls for establishment of a national estuarine management protocol. The development of the Klein EMP is one of six pilot projects in the Cape Floristic Region that are contributing to the formulation of the protocol.

Because there is as yet no entrenched protocol for Estuarine Management, much of the focus in this EMP is on establishing the organisational arrangements and institutional capacity that will support its implementation. The emphasis in this plan is on laying a foundation for sustained implementation of management interventions that will lead in the direction of the long-term goal.

Who will use this document?

The next stage of the current cycle of management, as per Figure 1, is formal adoption and funding. This document is an indicative plan which provides the basis for you, the participating institutions and Estuarine Forum, to examine your roles in its implementation and understand the allocated responsibilities. It provides the basis for you to assess your organisation's current capacity and resources, relative to the allocated responsibilities, and make decisions that would include any or all of the following:

- Undertake to carry out the activities for which you are the "Responsible entity" in this document;
- Delegate some or all of your responsibilities to another organ of state or entity;
- Engage in the planning process in order to identify another means of achieving the objective;
- Notify the CAPE Estuaries Programme of any errors or misinformation.

This process is described in Management Action Plan 1.1 (*Who does what*). The time frame for completing the activities is 3 months, at the end of which the EMP will have been adopted by the participating institutions. A further process, of identifying human resources and funding required for the execution of the activities, is described in Management Action Plan 1.3 (*Knowing what's important*).

The final draft of this document will become the contractual basis for the Memorandum of Agreement – a contract between participating institutions – which effectively is the 'Project' to be implemented over this first five-year period. It will continue to be used as the baseline reference for the First Generation EMP during the five-year implementation period.

Document structure

The document is presented in four parts:

Part A sets out the **Objectives** for the EMP. Section 2 describes the vision and outcomes; Section 3 describes the outputs of the management strategies. These objectives collectively describe the desired future state at the end of the five-year period and provide the overarching logical framework for the Management Action Plans (MAPs). Section 4 provides a summary list of further research, preparation and projects that are included in the EMP's MAPs.

Part B contains the detailed **Management Action Plans**.

Section 1 describes the **Institutional Arrangements** for implementation of the EMP, and ongoing estuarine management, including monitoring and evaluation.

Section 2 addresses the issue of **Water Quantity and Flow** and the priority interventions that are needed to restore estuarine health.

Section 3 focuses on the developmental aspects of the EMP and three strategies that will kick-start the process of enhancing the **User value** of the estuary and associated resources.

Section 4 addresses the need for **Land Use Management** tools that will help the various regulating authorities to manage the estuarine environment in a manner that is consistent with the vision and objectives of the EMP.

Part C presents **Technical Summaries**: The proposed responsibilities of participating institutions, mandates and responsibilities conferred by the legislation, a rolled up Gantt chart showing time frames, indicative funding requirements over the 5-year implementation period, and the Logical Framework for planned interventions and monitoring and evaluation of the Klein EMP.

Part D presents the First Draft version of each of the **Land Use Management tools**: A Spatial Conservation and Development Framework, Coastal Zoning Scheme, and a Biodiversity Assessment.

2 Vision and strategic objectives

The *vision statement*

for the EMP draws its inspiration from the vision statements of the CAPE Estuaries Programme, the Overberg and Overstrand Municipalities' IDPs, and the instruction of Klein Estuarine Forum (EF) to the Technical Working Group (TWG). The full text of these statements are provided in the EMP Situation Assessment Report. The vision statement proposed for the Klein River estuary is:

The birdsong is beautiful and the fish are bountiful. There is no better place to be than the Klein River Estuary.

The *long-term goal* or *impact*

i.e. the overall objective to which the EMP contributes, connects this EMP to the goal of the CAPE Estuaries Programme:

Estuarine biodiversity and ecosystem functions (integrity) in the Cape Floristic Region are secured.

The *project purpose*

applies to this First Generation phase of implementation of an EMP for the Klein River. Unless the EMP has been accepted and embraced by all affected parties, and is properly embedded in effective institutional structures, the work done to date would have been in vain. Hence, the focus of a great deal of the effort during this five-year period will be to ensure that, by the end,

The Estuarine Management Plan for the Klein River is adopted and its implementation is underway.

The Klein EMP was generated through a management-by-objectives methodology referred to as the 'Logical Framework Approach' (LFA). The 'action items' highlighted in the dashed boxes in the Situation Assessment Report provided the material for an Objectives Tree. Sets of objectives were grouped as strategies on the basis of their means-end relationships, and the five-year time frame of the EMP's first cycle of implementation was used as a filter to select outcomes and outputs that can be achieved in that time frame. The LFA is widely used as a methodology that works well for integrated development planning.

The **LFA matrix (PART C)** lists the outcomes and outputs along with indicators for monitoring whether the objectives are being achieved, and any assumptions which are critical or important to success. The strategies contribute to attaining four targeted outcomes of the Klein EMP, listed here in order of importance.

“Outcome” – the change in behaviour of the target group or a change in the quality of the targeted resources

Four targeted outcomes of the Klein EMP

Institutional Arrangements:

By the end of the five-year period, participants are engaged in an organisational structure for implementation of the Klein EMP. They have the necessary institutional capacity for effective delivery.

Water Quality and Flow:

By 2013, water in the Klein River estuary is safe for swimming all year round.

User value:

By the end of the five-year period, users attach greater social and economic value to the Klein River estuary than they do now.

Land Use Management:

By the end of the five-year period, the Overstrand Municipality and land owners in the study area have introduced measures in their land use management practices to safeguard the health of the estuarine ecosystem.

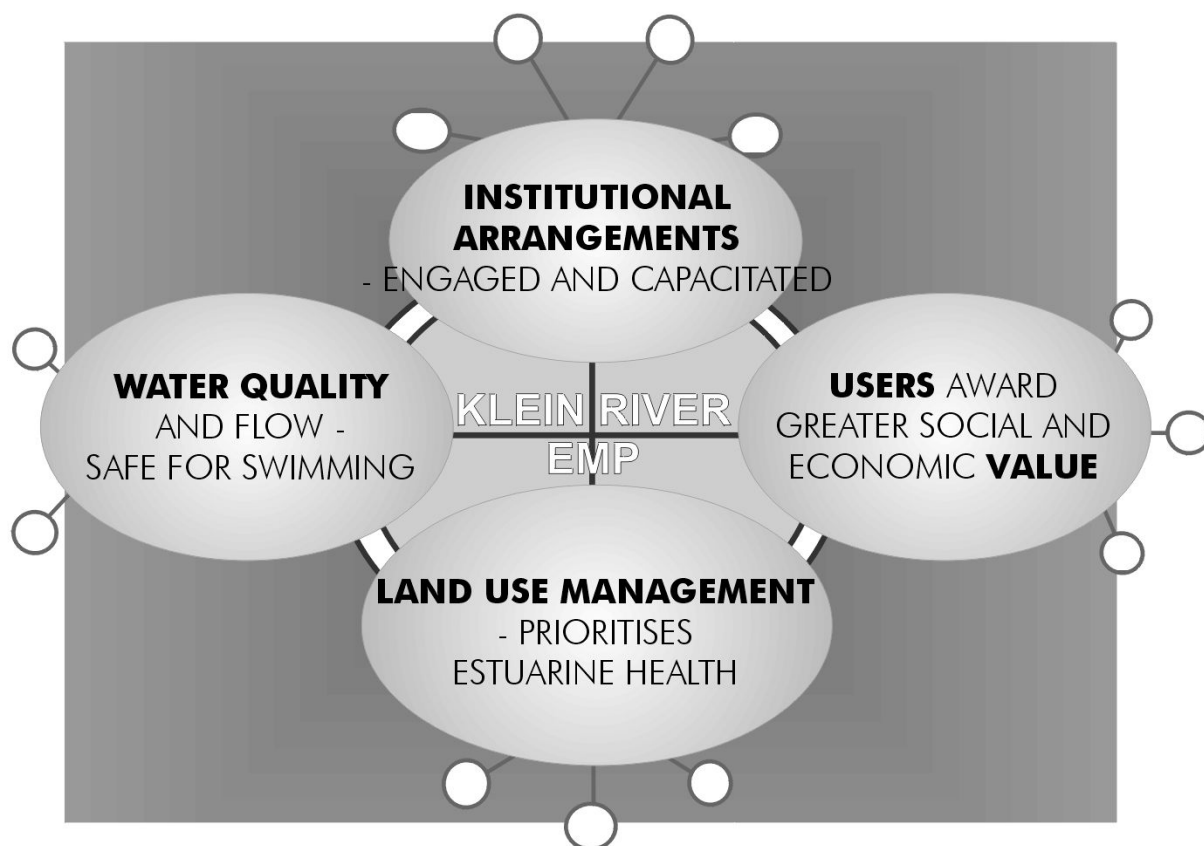


Figure 2 The four outcomes of the first generation Klein River Estuarine Management Plan

3 Management strategy objectives

The four outcomes are disaggregated into 12 strategies aligned with existing institutional structures, functional management areas and programmes. The strategies are ‘unpacked’ into multi-year indicative management action plans (MAPs) in Part B. Management Action Planning is used as a tool for identifying and describing the activities and outputs that will result in the targeted outcomes being attained. The 12 strategies and their outputs are listed on the following page. Each strategy has a formal title (e.g. Institutional Roles and Responsibilities) and a catchphrase or tag that conveys its intention (e.g. *Who does what*).

“Outputs” – the results that can be guaranteed by the project as a result of its activities.

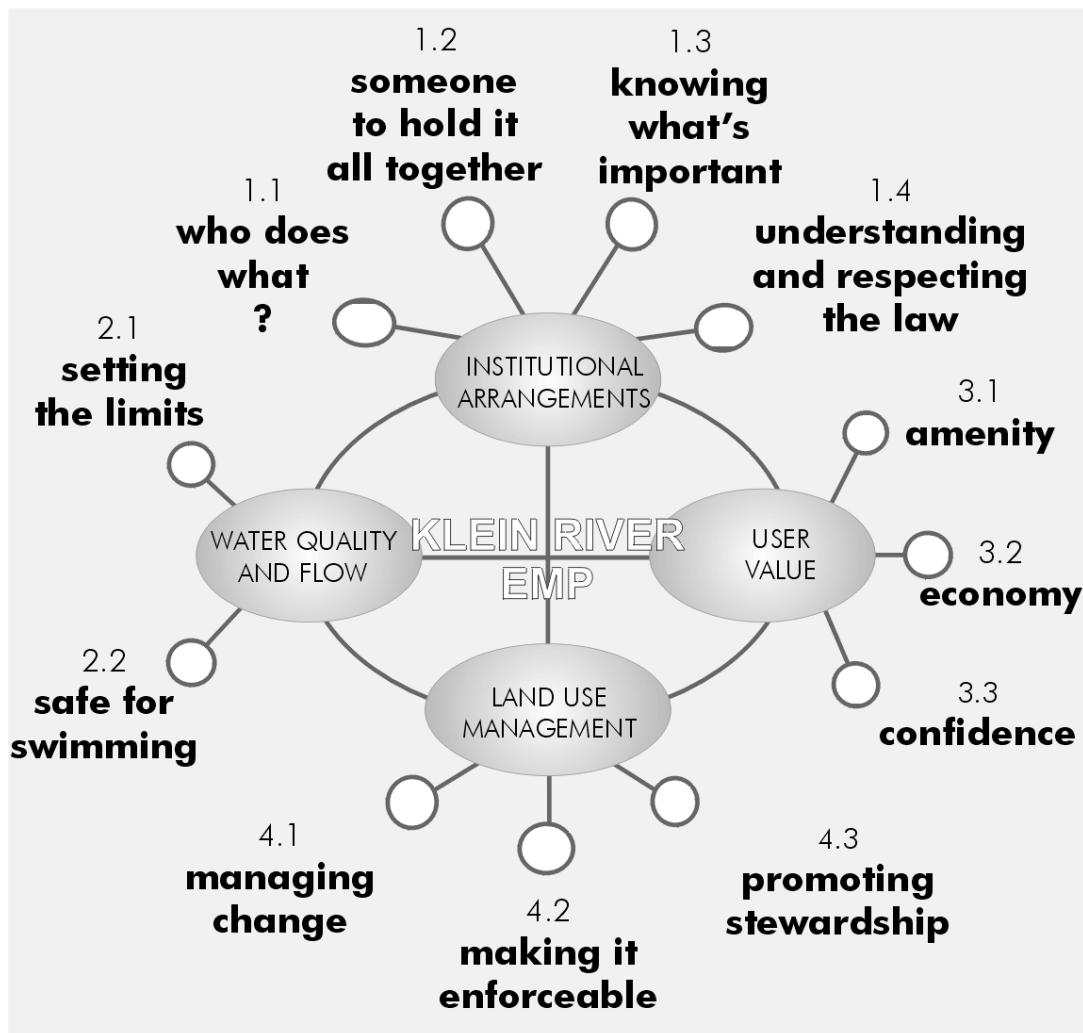


Figure 3 The twelve strategies of the first generation Klein River Estuarine Management Plan

The twelve strategies address issues requiring priority attention, as follows:

- Lack of clarity around roles and responsibilities for planning, management and enforcement relating to estuarine resources and environment;
- The absence of any existing organisational structures to support integrated estuarine management;
- The diverse range of governmental, non-governmental and community-based organisations, and citizens, who have an interest or a mandate to participate in integrated estuarine management;
- The absence of existing capacity for estuarine management, in terms of numbers as well as skills;
- Low levels of compliance with legislation relating to use of water resources, land and marine living resources;
- The absence of established and agreed limits for fresh water abstraction;
- A controversial mouth management policy involving artificial breaching on an annual basis;
- Alien vegetation infestation in the catchment, sedimentation at the head of the lagoon, and *e-coli* pollution in the lagoon;
- Limited and low visibility infrastructure to support sustainable estuarine-based recreational activities, underexploited opportunities for development of related infrastructure;
- Very limited data on the levels of exploitation of living resources, unconfirmed reports of illegal activities;
- Peak time overcrowding on the water, lack of surveillance and vandalism of shoreside infrastructure;
- Absence of a spatial planning framework for conservation and development in the estuarine environment, undefined proposal for a Rural Development Area;
- New and untested legislation requiring introduction of Coastal Zoning Scheme into municipal LUMS, applicable to the estuarine environment;
- Existing conservation areas lacking proper linkages for effective biological corridors in the estuarine environment, Klein River estuary rated highly for conservation-worthiness.

Twelve Management Strategies and their Outputs

INSTITUTIONAL ARRANGEMENTS

1.1	Institutional Roles and Responsibilities	<i>Who does what</i>
	Institutional roles and responsibilities for planning, management and enforcement are agreed	
1.2	Sustainable Organisational Structure	<i>Someone to hold it all together</i>
	An effective and sustainable organisational structure is facilitating and co-ordinating implementation of the EMP	
1.3	Estuarine Management Capacity Building	<i>Knowing what's important</i>
	Institutions and individual roleplayers have the necessary capacity and resources to engage in estuarine management	
1.4	Enforcement Capacity	<i>Understanding and respecting the law</i>
	There is improved compliance, from citizens and officials, with the provisions of the legislation relating to resource use in and around the estuary	

WATER QUALITY AND FLOW

2.1	Resource Directed Measures	<i>Setting the limits</i>
	District and Local Municipalities and the Breede Water Management Agency co-operate to develop and implement Resource Directed Measures (RDM)	
2.2	Clean-up Campaign	<i>Safe for swimming</i>
	Water quality is improved, and flow is maintained or improved, through prioritised riparian restoration initiatives and an intensive local municipality-driven campaign to 'clean up' polluting activities and installations	

USER VALUE

3.1	Sustainable Recreational Infrastructure	<i>Amenity</i>
	The social value of the estuary has been enhanced by the improvement of facilities for recreational users	
3.2	Sustainable resource use	<i>Economy</i>
	Sustainable utilisation of estuarine resources is contributing to livelihood security and development of subsistence users and underemployed residents	
3.3	Safety and Security	<i>Confidence</i>
	Measures have been introduced to improve the safety and security of people and infrastructure at agreed public recreation areas, launch sites and on the water body	

LAND USE MANAGEMENT

4.1	Spatial Conservation and Development Framework	<i>Managing change</i>
	The spatial implications of the EMP have been integrated into the Overstrand Municipality's Spatial Development Framework in the 2011 review	
4.2	Coastal Zoning Scheme	<i>Making it enforceable</i>
	A Coastal Zoning Scheme has been adopted for the estuarine management area	
4.3	Biodiversity Management Plans	<i>Promoting stewardship</i>
	Public and privately owned land, and portions of the estuarine water body, are made available for management which prioritises biodiversity conservation	

4 Projects

There are projects embedded within the MAPs, for acquiring further data and implementing priority actions. Table 1 provides an easy-reference list of all EMP projects. Where these require the procurement of service provider support, the required skills are described in the MAP's Participant Analyses. A schedule of indicative annual funding requirements for service provider support and capital works projects over the 5-year period is provided in Section C (Table 5).

Table 1 List of projects included in the Klein EMP Management Action Plans

MAP	Proj. ref. no.	Project description
1.1	PR-1.1.1	Support to CAPE EP in mobilising participating institutions to adopt the EMP.
1.2	PR-1.2.10	External evaluation of implementation of First Generation EMP.
1.2	PR-1.2.12	Development of Second Generation EMP.
1.3	PR-1.3.4	Needs analysis, development of training materials and training: Estuarine Management
1.4	PR-1.4.2	Development of a training materials and training: para-legal aspects of estuarine management
1.4	PR-1.4.7	Implementation of any outsourced aspects of the Compliance Campaign, e.g. posters, equipment, demolition, etcetera.
2.1	PR-2.1.2	Ecological Reserve Determination for the Klein River and design of a monitoring and evaluation system for water quality and flow.
2.1	PR-2.1.6	Calculation and development of a GIS dataset for the 1:100 and 1:50 year floodline in the Klein River Rural Development Area.
2.2	PR-2.2.3	Investigation and preparation of an integrated management plan for alien clearing, riparian rehabilitation, erosion and run-off control in the Klein River catchment.
2.2	PR-2.2.4	Investigation and preparation of a rehabilitation management plan for point sources of pollution within the estuarine quaternary catchment of the Klein River.
2.2	PR-2.2.12	Implementation of any outsourced interventions identified through the Clean-Up Campaign (e.g. capital works, maintenance contracts, supplies purchases).
3.1	PR-3.1.5	Project preparation and packaging for development of public recreation nodes at agreed sites.
3.1	PR-3.1.11a	Basic Assessment / EIA for recreational nodes.
3.1	PR-3.1.11b	Design, building plan submission and tender documentation for development of recreational facilities.
3.1	PR-3.1.14	Capital works: Construction and landscaping for development of public recreational nodes.
3.2	PR-3.2.1	Development of a Sustainable Resource Use Action Plan and monitoring system for the estuarine management area.
3.3	PR-3.3.1	Development of a Safety and Security Strategy Plan for the estuarine management area.
3.3	PR-3.3.6	Tender documentation associated with implementation of Safety and Security Strategies.
3.3	PR-3.3.8	Supplies and works contracts associated with implementation of Safety and Security Strategies.
4.1	PR-4.1.2	Develop and refine the Spatial Conservation and Development Framework for the estuarine management area.
4.2	PR-4.2.5	Preparation of a test case Coastal Zoning Scheme for the estuarine management area, including land survey investigations and drafting of associated legal instruments.
4.3	PR-4.3.1	Development of a biodiversity management plan for the estuarine management area.

Data collected during the course of preparation of the EMP will be stored by the CAPE Estuaries Programme and made available to the Estuarine Forum Secretariat once established (MAP 1.2: *Someone to hold it all together*). The Klein EMP Situation Assessment Report highlighted the need for a centralised estuaries database.

PART B : MANAGEMENT ACTION PLANS

Twelve action plans are presented in this section, relating to the 12 strategies introduced in Part A, and grouped in four sections according to outcome. Each section begins with a discursive presentation of the conceptual basis for the plans and a Gantt chart showing time frames for implementation. The detailed management plans comprise a page of summary information – logframe data, dates, projects and participant analysis – followed by a step-by-step action plan which identifies the party responsible for the action and the associated significant inputs. Supporting information – on the mandates underpinning the allocation of responsibilities, inter alia – is provided in Part C.

The resource aspects of the Management Action Plans (MAPs) are indicative allocations, still to be interrogated by participating institutions. Job grading codes used by CapeNature have been added after the description of human resources to convey an indication of the skill level associated with the activity. Five grades have been applied loosely to describe skills and capacities as follows:

Table 2 Explanation of job grading codes used in the MAPs

C4	Peace officer (e.g. Fishery Control Officer, Honorary Conservation Officer, CapeNature or Municipal Nature Conservation Officer), gatherer of monitoring information
C8	GIS technician, EF Secretariat Project Officer, Stewardship Extension Officer, Agricultural Extension Officer, WfW Extension Officer, Building Inspector
C10	EF Secretariat Adviser, middle managers of participating institutions, Senior Project Manager (middle management), Senior Planner, Fishery Adviser
C12	Project Co-ordinator (senior management), Senior Legal Adviser, Municipal Unit Manager, Senior Manager
C14	Programme Manager, Business Unit Manager, Department Director.

EF TWG members from participating institutions are senior management officials who are authorised to make commitments on behalf of the institutions that they represent. The capacity level being targeted is C12 as a minimum.

1 Institutional Arrangements

As far as possible, estuarine management functions have been embedded within existing institutions already identified as participants in the Klein River Estuarine Forum's Technical Working Group (TWG) through MAP 1.1 (*Who does what*). The CAPE Estuaries Programme (CAPE EP) is a provincial tier which will provide capacity building training in the early stage of implementation (MAPs 1.3 and 1.4) and an increasingly limited supporting and facilitating role in the long-term as local capacity emerges. The legal mandate of Western Cape Nature Conservation Board (CapeNature), within which the CAPE EP is located, is constrained in respect of estuarine management, in favour of a diversity of roleplayers.

The estuarine quaternary catchment of the Klein is centrally located within the boundaries of the Overstrand Municipality in close proximity to the main municipal offices in Hermanus and the area management office in Stanford. Location-wise, the Municipality is the ideal vehicle for hosting the co-ordinating function for the EMP. It also holds the mandates for many of the functions which are central to the management strategies: pollution control, infrastructure and recreational facilities, enforcement of by-laws, spatial planning and land use management. The co-ordinating office, to be known as the Estuarine Forum (EF) Secretariat, will be affiliated to the office of the Infrastructure and Planning Directorate, and staffed by a part-time administrator supported by a strategic adviser contracted on a retainer basis, at the level of Project Manager. The EF Secretariat will maintain the EMP's monitoring, evaluation and reporting system as well as providing a co-ordination function and administrative support to the Estuarine Forum, the TWG and the various special focus working groups (MAP 1.2: *Someone to hold it all together*).

The Estuarine Forum will function as an open association of representatives of interested and affected parties that will meet twice a year to attend to the business of guiding the work of the TWG. The TWG will operate as a co-ordinating body of key roleplayers and advisers which meets quarterly. Smaller special focus working groups will be established by the Estuarine Forum to assist with: Compliance Campaign, Clean-up Campaign, Recreational Infrastructure, Sustainable Resource Use, and Safety and Security.

The catchment management authority for the Breede River Water Management Area (WMA), and DWAF, have a significant role in the rehabilitation of water quantity and quality, through the development of Resource Directed Measures (RDM) for the Klein River (MAP 2.1: *Setting the limits*). The role of implementing agent for this aspect of the EMP, as well as regular attendance at meetings relating to other aspects of the EMP, will be significant enough to require the Breede WMA's employment of a part-time staff-member or contract worker. On an ongoing basis, this will provide the necessary capacity for water use authorisations and addressing non-compliance or inappropriate uses.

The Cape Town based Marine and Coastal Management (MCM) office is a national tier of government (sub-directorate of DEAT) and, like the CAPE EP, will play an increasingly diminishing role in the Klein EMP except in respect of the preparation of the Coastal Zoning Scheme (MAP 4.2: *Making it enforceable*) which, like the preparation of this EMP, will be a pilot project and will require MCM's support, particularly relating to legal interpretation of the ICM Bill. MCM will provide funding for the Sustainable Resource Use investigation (MAP 3.2: *Economy*), which has relevance to the monitoring of the fishery, and the cost of estuarine management training (MAP 1.3: *Knowing what's important*) and para-legal training for enforcement officials and members of the Estuarine Forum (MAP 1.4: *Understanding and respecting the law*).

DWAF (Working for Water programme), Department of Agriculture (Conservation of Agricultural Resources Act), Cape Nature, the Overstrand Municipality and private land owners all have responsibilities in terms of invasive alien plant management, and fire management, and have a role in the Clean-up Campaign in respect of the control of alien vegetation and run-off from farmlands (MAP 2.2: *Safe for swimming*).

Planning and assembling a network of conservation areas within the estuarine management area (MAP 4.3: *Promoting stewardship*) is driven initially by CAPE EP and Overstrand Municipality. Because a lot of the priority areas are on privately owned land, the land owners, CapeNature's Stewardship Programme, and the Department of Agriculture through their area-based planning approach, will all have a role in assembling the network. The key to integrating the EMP's conservation areas into a regional network is the proposed Bioregional Plan for the Overberg district.

The Overstrand Municipality's role in the EMP is greater than any other institution, both in terms of what they need to contribute and with regards the benefits that could be derived from the many opportunities that the estuary presents. One of the most urgent tasks for the Municipality is the Clean-up Campaign (MAP 2.2:

Safe for swimming) – to locate and rehabilitate the point sources of pollution that are the cause of the currently hazardous levels of pollution in the lagoon. They also have a significant role in enhancing the way that users value the estuary, through the development and maintenance of recreational infrastructure and facilities (MAPs 3.1 and 3.3: *Amenity and Confidence*) – requiring some capital works budget allocations – and potentially reaping some benefits from the Sustainable Resource Use initiative (MAP 3.2: *Economy*). Finally, all of the Land Use Management interventions will involve the Overstrand Municipality (MAPs 4.1, 4.2 and 4.3) and the assistance of DEA&DP will be required at certain stages.

In terms of the ICM Bill, the District Municipality (Overberg) is responsible for Coastal Management functions (including preparation of Coastal Zoning Scheme, which has to be inserted into the Local Municipality’s LUMS). The potential delegation of this function to Overstrand will be investigated (MAP 4.2: *Making it enforceable*).

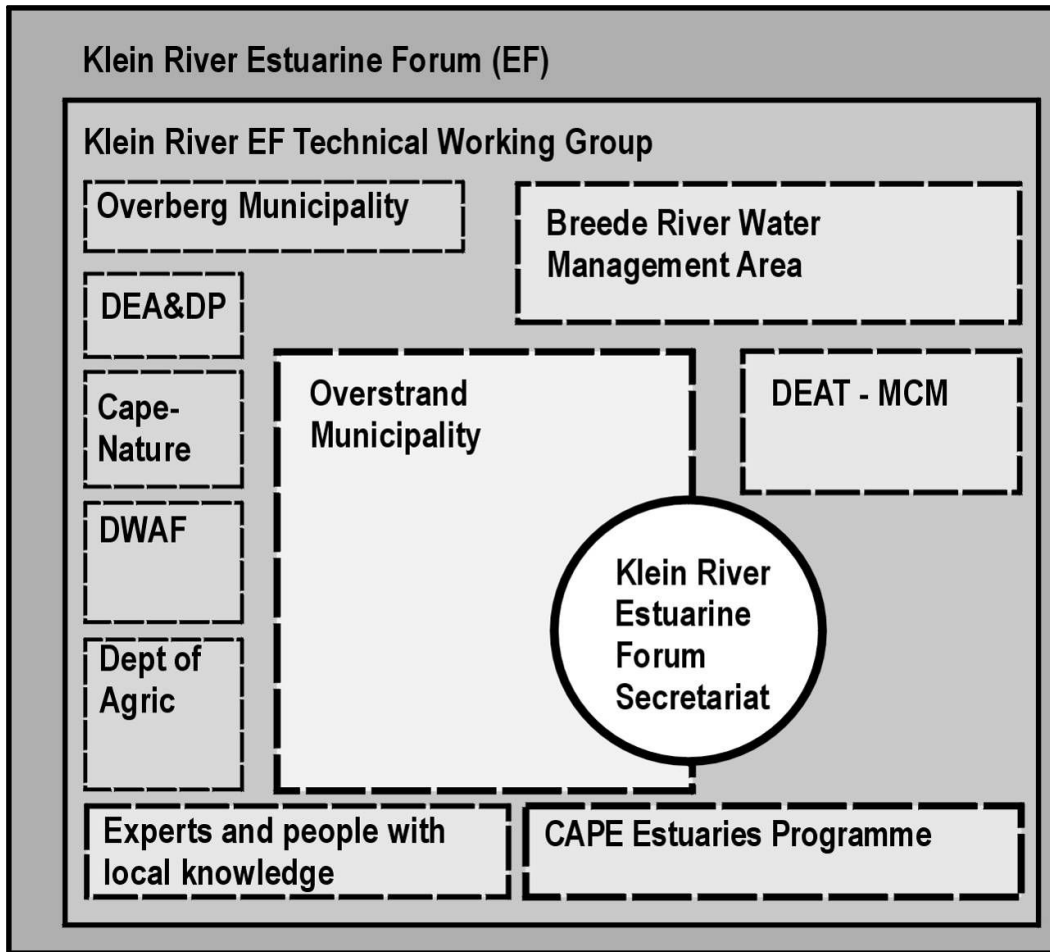


Figure 4 Concept diagram of the EMP co-management arrangement showing nested accountability and an indication of the balance of roles and responsibilities

Monitoring, evaluation and reporting system

The LFA Matrix (Part C) and MAPs (Part B) provide the basis for the Monitoring and Evaluation Plan. Each of the Outcomes is matched by a target, each of the Outputs has indicators, and the activities described in the MAPs have milestone deliverables that can be used to monitor progress. The EF Secretariat will be responsible for setting up a system for assembling and storing the monitoring information, preparing quarterly progress reports, conducting annual internal evaluations and compiling annual reports.

Each EMP implementing agent will gather the information needed for monitoring purposes and forward it to the EF Secretariat prior to the date for compilation of the Quarterly Report, at the latest. Quarterly reports will be prepared and circulated to TWG members at least 2 weeks prior to TWG meetings (held quarterly).

For the purpose of the final evaluation of the First Generation EMP implementation phase, the services of an external evaluator will be procured. The CAPE EP will provide funds for this, as well as for the review and drafting of the Second Generation EMP (2013-2018). The external evaluation must commence 9 months prior to the end of the First Generation EMP and be completed within 3 months to allow a 6-month period of EMP drafting to follow.

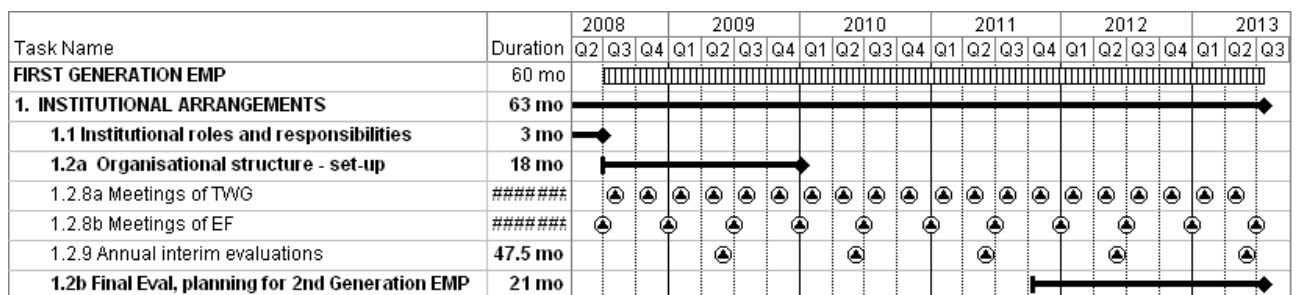


Figure 5 Monitoring and evaluation milestones

Management Action Plans (MAPs) for institutional arrangements

Targeted Outcome:

By the end of the five-year period, participants are engaged in an organisational structure for implementation of the Klein EMP. They have the necessary institutional capacity for effective delivery.

invoking four of twelve Management Strategies and their Outputs:

INSTITUTIONAL ARRANGEMENTS

1.1 Institutional Roles and Responsibilities	<i>Who does what</i>
Institutional roles and responsibilities for planning, management and enforcement are agreed	
1.2 Sustainable Organisational Structure	<i>Someone to hold it all together</i>
An effective and sustainable organisational structure is facilitating and co-ordinating implementation of the EMP	
1.3 Estuarine Management Capacity Building	<i>Knowing what's important</i>
Institutions and individual roleplayers have the necessary capacity and resources to engage in estuarine management	
1.4 Enforcement Capacity	<i>Understanding and respecting the law</i>
There is improved compliance, from citizens and officials, with the provisions of the legislation relating to resource use in and around the estuary	

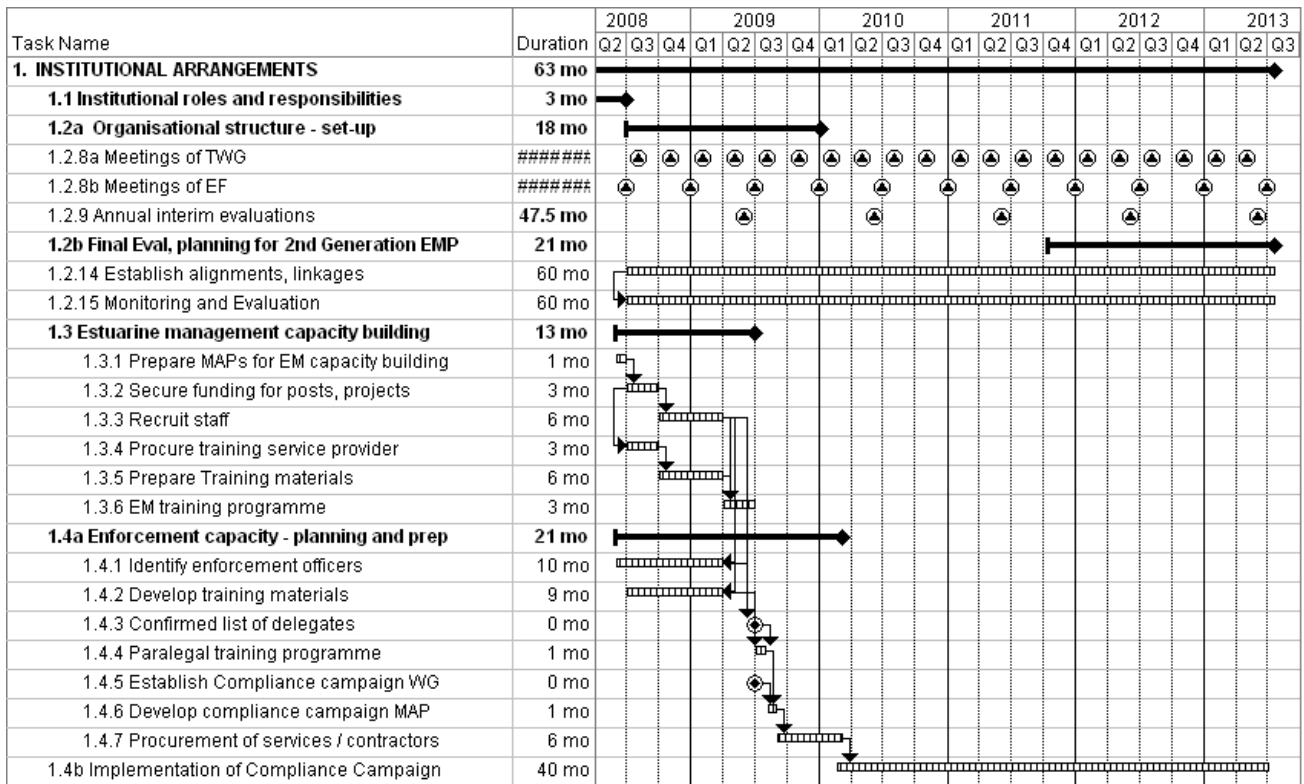


Figure 6 Time frames for Institutional Arrangements strategies

1.1 INSTITUTIONAL ROLES AND RESPONSIBILITIES

Output 1.1

Institutional roles and responsibilities for planning, management and enforcement are agreed

Contributing to Outcome 1:

By the end of the five-year period, participants are engaged in an organisational structure for implementation of the Klein EMP. They have the necessary institutional capacity for effective delivery.

Output indicators:

- All participant institutions accept the responsibilities identified in the adopted EMP document.
- Any necessary delegations of mandates and/or responsibilities are confirmed.

Means of verification:

Memorandum of Agreement for the implementation of the First Generation EMP. Memoranda of Agreement / Understanding for delegations.

Enabling Factors / Risks:

CAPE EP facilitates the process. Representatives of all target group institutions timeously provide considered comments on the Draft EMP. Timeous conclusion of all the necessary MOUs/MOAs

Responsible entity for start-up action:

Klein River EF TWG, facilitated by CAPE EP

Target Start Date (constraints):

3 mths prior to commencement of EMP implementation phase
2008-Q2

Target Finish Date (constraints):

Commencement of Implementation Phase of EMP
2008-Q3

Projects:

PR-1.1.1 Support to CAPE EP in mobilising participating institutions to adopt the EMP.

Who does what

Participant Analysis

BENEFICIARIES	Government and citizens of South Africa
TARGET GROUP	Local Municipality, DWAF (Breede WMA), DEAT-MCM, Dept of Agriculture, CapeNature, DEADP(IEM), DEADP(DP)), District Municipality
IAPs:	Estuarine Forum, EF TWG
REGULATORS	Local Municipality, DEAT-MCM, DWAF(Breede WMA), District Municipality, Dept of Agriculture, DEADP(DP)), DEADP(IEM)
RESOURCE SUPPLIERS	HR: CAPE EP, Overstrand Municipality, DEAT-MCM, DWAF (Breede WMA), Overberg Municipality, DEADP(DP)), DEADP(IEM), Dept of Agriculture. Funds: CAPE EP PR-1.1.1 R35,000.
IMPLEMENTING AGENT	CAPE Estuaries Programme
SERVICE PROVIDERS	PR-1.1.1 EMP Management action planner
OPERATOR	Participating institutions

MAP 1.1 INSTITUTIONAL ROLES AND RESPONSIBILITIES

Activities	Result / deliverable	Responsible entity	Partner(s)	Significant Inputs	Time frame
1.1.1 TWG members review the draft EMP and provide written comment on a) the accuracy and comprehensiveness of the Participant analysis provided in the EMP. b) the accuracy and comprehensiveness of Table 1 in Annexure 2 – Mandates applicable to the study area c) any delegations currently in effect regarding the mandates d) the accuracy of the interpretation of responsibilities as assigned to their institutions in the MAPs e) any delegations to be negotiated in respect of these responsibilities. (MAP 1.3 addresses the issue of building the required capacity through recruitment or redeployment of staff, and training)	Feedback from TWG target group members	EF TWG	CAPE EP, Service providers	Institutional representatives as nominated to the Klein River EF TWG at the meeting in Hermanus on 13-11-07 (C12+). CAPE EP – PR-1.1.1: R35,000. PR-1.1.1 Service providers.	(1 mth)
1.1.2 Revision of the EMP to take account of any inaccuracies or required changes.	Final EMP document including agreed MAPs that provide clarity on who is responsible for what	CAPE EP	Service providers, EF TWG	CAPE EP Manager (C14). PR-1.1.1 Service providers.	1 mth
1.1.3 All participant institutions sign the MOA confirming that they accept the responsibilities identified in the revised EMP document	EMP Implementation MOA	EF TWG	CAPE EP, CapeNature,	CapeNature – Legal adviser (C12). TWG members (C12+). Departmental heads.	1 mth
1.1.4 Draw up MOUs/MOAs to confirm any delegation of mandates and/or responsibilities	Draft MOUs/MOAs for delegations	Mandated institution	CAPE EP	Departmental Legal adviser (MOU/MOA documentation) (C12). TWG members (C12+).	* 1 mth parallel with 1.1.3
1.1.5 Signing of the delegation MOUs/MOAs	Signed MOUs/MOAs for delegations	Parties to MOUs/MOAs	CAPE EP	TWG members (C12+). Departmental heads.	* 1 mth parallel
			MAP TIME FRAMES		3 mths
1.1.6 Activate linkages between EMP activities and aligned programmes and projects, through awareness raising in the course of all job description activities, and through direct interventions where such opportunities arise	Alignment achieved, linkages with supporting programmes activated	TWG members of participating institutions		TWG members (C12+).	ONGOING

MAP 1.1 INSTITUTIONAL ROLES AND RESPONSIBILITIES

	Activities	Result / deliverable	Responsible entity	Partner(s)	Significant Inputs	Time frame
1.1.7	Gather information required for monitoring of any MAPs identified as the respective institution's responsibilities and forward this timeously to the EF secretariat for the purpose of compiling Quarterly and Annual Reports, and the External Evaluation of the First Generation EMP	Monitoring and Evaluation information made available to EF Secretariat	TWG members of participating institutions	EF Secretariat	TWG members (C12+).	ONGOING
1.1.8	Participate in the evaluation of the First Generation EMP (Output 1.2.11)	Integrated evaluation of First Generation EMP	TWG members of participating institutions	EF Secretariat, PR-1.2.10 External evaluator	TWG members (C12+).	2012-Q4
1.1.9	Participate in the development of the Second Cycle EMP	Integrated plan for Second Generation EMP	TWG members of participating institutions	EF Secretariat, PR-1.2.12 Service provider	TWG members (C12+).	2013-Q1 – 2013-Q3

1.2 SUSTAINABLE ORGANISATIONAL STRUCTURE

Output 1.2

An effective and sustainable organisational structure is facilitating and co-ordinating implementation of the EMP

Contributing to Outcome 1:

By the end of the five-year period, participants are engaged in an organisational structure for implementation of the Klein EMP. They have the necessary institutional capacity for effective delivery.

Output indicators:

- By Y3Q1 (18 months after implementation commenced), a secretariat is producing quarterly progress reports on the implementation of the EMP.
- At least two meetings of the Estuarine Forum are held annually
- The Technical Working Group meets quarterly. An authorised representative of every participating institution attends the meetings.
- Annual progress reports on implementation of the EMP are produced.
- An external evaluation is carried out in the final year of implementation of the First Generation EMP.

Means of verification:

EF Secretariat distribution of Quarterly Progress Reports to TWG.
Estuarine Forum Meeting minutes, attendance register.
TWG Meeting minutes, attendance register.
EF Secretariat distribution of Annual Progress Reports to TWG.
First Generation EMP Final Evaluation Report

Enabling Factors / Risks:

The Estuarine Forum adopts the First Generation EMP and issues a mandate to the TWG.

Agreement of TWG and Overstrand Municipality to establish the EF Secretariat in the Overstrand Municipality Infrastructure and Planning Directorate.

Operating budget is secured for the EF Secretariat.

A suitably skilled Project Officer is appointed to the EF Secretariat.

Funds are secured for appointment of necessary service providers.

Responsible entity for start-up action:

Klein River Estuarine Forum (meeting) facilitated by CAPE EP and Overstrand Municipality

Target Start Date (constraints):

2008-Q3 - Estuarine Forum meeting

Target Finish Date (constraints):

2013-Q3 (commencement of Second Cycle EMP)

Someone to hold it all together

Participant Analysis

BENEFICIARIES

All EMP participants

TARGET GROUP

Technical Working Group of the Estuarine Forum
EMP implementing agents

IAPS

Overstrand Municipality, CAPE EP, Estuarine Forum and TWG

REGULATORS

RESOURCE SUPPLIERS

HR: Overstrand Municipality and other participating institutions, CAPE EP.
Funds: CAPE EP PR-1.2.10 R530,000.
Funds: CAPE EP + Overstrand Municipality PR-1.2.12 R450,000.

IMPLEMENTING AGENT

EF TWG supported by EF secretariat

SERVICE PROVIDERS

PR-1.2.10 External evaluator – auditor, social scientist, estuarine planner
PR-1.2.12 EMP development team

OPERATOR

EF TWG supported by Overstrand Municipality

Projects:

PR-1.2.10 External evaluation of implementation of First Generation EMP.

PR-1.2.12 Development of Second Generation EMP.

MAP 1.2 SUSTAINABLE ORGANISATIONAL STRUCTURE

Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant Inputs	Time frame
<p>1.2.1</p> <p>The Klein River Estuarine Forum</p> <p>a) resolves to act as the vehicle for co-operative management of the estuary, representing governmental and non-governmental organisations and civil society interest groups;</p> <p>b) adopts the EMP, following the incorporation of its comments (based on the draft EMP) into the final documentation;</p> <p>c) elects office-bearers;</p> <p>c) mandates the Technical Working Group to act as the co-ordinating body for implementation of the EMP.</p>	Estuarine Forum established as owner of the EMP	Estuarine Forum	CAPE EP, Overstrand Municipality (host).	CAPE EP Manager (C14)	1 mth
<p>1.2.2</p> <p>The EF TWG</p> <p>a) elects office bearers</p> <p>b) adopts its Terms of Reference</p>	TWG established as co-ordinating body for implementation of the EMP	EF TWG	Overstrand Municipality (host).	EF TWG members (C12+)	1 mth
<p>1.2.3</p> <p>Secure authorisation and budget for any new posts and/or redeploy and/or revise job descriptions of existing posts, to create a secretariat to support the work of the Estuarine Forum, EF TWG and any special focus working groups, to be housed in the office of the Infrastructure and Planning Directorate of the Overstrand Municipality</p>	EF and TWG Secretariat established in the office of the Infrastructure and Planning Directorate of the Overstrand Municipality	Overstrand Municipality	CAPE EP, EF TWG, Estuarine Forum	Overstrand Municipality Infrastructure & Planning Director (C14). CAPE EP Manager (C14). TWG members (C12+).	4 mths
<p>1.2.4</p> <p>Establish systems for facilitating communication between the TWG and EF, and between members of the TWG, and between any special focus working groups and the TWG</p>	Communication network established	EF TWG	EF Secretariat, Overstrand Municipality, CAPE EP	EF Secretariat Project Officer (C8), EF Secretariat Adviser (C10).	*1 mth in parallel with beginning of 1.2.5
<p>1.2.5</p> <p>Establish systems for assembling and storing monitoring information gathered through the various MAPs associated with the EMP</p>	Monitoring information storage system established	EF TWG	EF Secretariat, Overstrand Municipality, CAPE EP	EF Secretariat Project Officer (C8), EF Secretariat Adviser (C10).	12 mths
<p>1.2.6</p> <p>Establish systems for monitoring progress and efficiency of the various EMP MAPs and their associated projects</p>	Outputs monitoring system established	EF TWG	EF Secretariat, Overstrand Municipality, CAPE EP	EF Secretariat Project Officer (C8), EF Secretariat Adviser (C10).	*12 mths in parallel with 1.2.5

MAP 1.2 SUSTAINABLE ORGANISATIONAL STRUCTURE

	Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant Inputs	Time frame
1.2.7	Establish systems for compiling quarterly and annual progress reports on the implementation of the Klein EMP	Reporting system established	EF TWG	EF Secretariat, Overstrand Municipality, CAPE EP	EF Secretariat Project Officer (C8). EF Secretariat Adviser (C10).	*12 mths in parallel with 1.2.5
				MAP TIME FRAMES – SET UP PHASE		18 mths
1.2.8	Provide secretariat services for meetings of the Estuarine Forum (twice a year), the TWG (quarterly) and any special focus working groups (Compliance Campaign, Clean-up Campaign, etc – as required)	Meetings of EF, TWG and special focus WGs convened, held and recorded	EF TWG	EF Secretariat, Overstrand Municipality (host)	EF Secretariat Project Officer (C8).	ONGOING
1.2.9	Facilitate annual internal evaluations of EMP implementation, based on outputs (progress and efficiency)	Annual interim evaluations	EF TWG	EF Secretariat,	EF Secretariat Project Officer (C8). EF Secretariat Adviser (C10).	ANNUAL
1.2.10	Secure funds and procure services for external evaluation of the EMP Funds for PR-1.2.10 <i>External evaluation of First Generation EMP</i> at the end of its 4 th year of implementation	Contracted external evaluator	EF TWG	EF Secretariat, CAPE EP	TWG chairperson (C12+). EF Secretariat Project Officer (C8). EF Secretariat Adviser (C10). CAPE EP – PR-1.2.10: R530,000.	12 mths
1.2.11	Evaluate implementation of the First Generation EMP	Evaluation report on EMP 2008-2013	External evaluator	EF Secretariat TWG CAPE EP	EF Secretariat Project Officer (C8). EF Secretariat Adviser (C10). PR-1.2.10 Service provider – auditor, social scientist, estuarine planner	3 mths
1.2.12	Secure funds and procure services for PR-1.2.12 <i>Development of Second Generation EMP</i> , taking into account the analysis and decisions arising from the evaluation of the First Generation EMP.	Contracted service provider	EF TWG	EF Secretariat, Overstrand Municipality, CAPE EP	TWG chairperson (C12+). EF Secretariat Project Officer (C8). CAPE EP + Overstrand Municipality – PR-1.2.12: R450,000.	12 mths
1.2.13	Develop MAPs for the Second Generation EMP (next five years), taking into account the analysis and decisions arising from the evaluation of the First Generation EMP.	EMP adopted for 2013-2018	EF TWG	EF Secretariat. CAPE EP. Overstrand Municipality. Service provider.	TWG chairperson, EF Secretariat Project Officer (C8), EF Adviser (C10). PR-1.2.12 Service provider.	6 mths
				MAP TIME FRAMES – EVALUATION & REVIEW		24 mths

1.3 ESTUARINE MANAGEMENT CAPACITY BUILDING

Output 1.3

Institutions and individual roleplayers have the necessary capacity and resources to engage in estuarine management.

Output indicators:

By the end of Y2Q2, staff required i.t.o. MAP 1.1 have been deployed in participating institutions and trained in estuarine management.

Means of verification:

- i) Training course attendance records;
- ii) Evaluation of delegates' feedback on the usefulness of the training course.

Enabling Factors / Risks:

Institutional support is forthcoming and funds are secured for the creation of new posts or redeployment of existing staff to estuarine management. Funds are secured for development of training materials and facilitation of training course.

Knowing what's important

Participant Analysis

BENEFICIARIES

Government institutions and citizens of South Africa
Individuals who further their careers by receiving training in estuarine management

TARGET GROUP

Institutions and individuals participating in estuarine management

IAPS

Klein River Estuarine Forum Technical Working Group

REGULATORS

HR departments of participating institutions

RESOURCE SUPPLIERS

HR: CAPE EP, Participating institutions.
Funds: DEAT-MCM PR-1.3.4 R150,000.

IMPLEMENTING AGENT

CAPE EP, Participating institutions as identified in MAP 1.1

SERVICE PROVIDERS

PR-1.3.4: Learning materials developer, training facilitator, Specialist adviser: Estuarine Manager.

OPERATOR

Participating institutions as identified in MAP 1.1
CAPE EP – ongoing training

Responsible entity for start-up action:

Participating institutions – prepare action plans

Target Start Date (constraints):

1 month prior to commencement of EMP implementation – Institutions prepare action plans.

Target Finish Date (constraints):

2009-Q3

Projects:

PR-1.3.4 *Needs analysis, development of training materials and training: Estuarine Management.*

MAP 1.3 ESTUARINE MANAGEMENT CAPACITY BUILDING

Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant Inputs	Time frame
1.3.1 Participating institutions (identified through the process described in MAP 1.1) prepare action plans for building the capacity that is needed within their institution in order to fulfill their responsibilities as agreed in the Klein EMP	Estuarine Management capacity building MAPs	Participating institutions (EF TWG)	CAPE EP.	TWG members (C12+). CAPE EP Manager (C14).	(1 mth)
1.3.2 Secure authorisation and budget for any additional posts and/or attendance at training courses	Funding available	Participating institutions (EF TWG)	CAPE EP	TWG members (C12+). CAPE EP Manager (C14).	3 mths
1.3.3 Fill new posts and/or redeploy and/or revise job descriptions of existing posts	Human resources available	Participating institutions (EF TWG)	CAPE EP	TWG members (C12+). CAPE EP Manager (C14).	6 mths
1.3.4 Secure funding and procure services for PR-1.3.4 Needs analysis, development of training materials, training: Estuarine Management	Contracted training service provider	CAPE EP.	DEAT-MCM.	CAPE EP Manager (C14). DEAT-MCM TWG member (C12+). PR-1.3.4: R150,000.	* 3 mths in parallel with 1.3.2
1.3.5 Development of a training course based on individual needs analysis of participating institutions in EMPs in the CFR	Training materials	CAPE EP	Service provider	CAPE EP Manager (C14) PR-1.3.4 Service provider.	* 6 mths in parallel with 1.3.3
1.3.6 Attendance at training course	Staff in participating institutions trained in estuarine management	Participating institutions (EF TWG)	CAPE EP PR-1.3.4 Service provider	Estuarine management staff of participating institutions (c10+). PR-1.3.4 Service provider team.	3 mths
			MAP TIME FRAMES		13 mths

1.4 ENFORCEMENT CAPACITY

Output 1.4

There is improved compliance, from citizens and officials, with the provisions of the legislation relating to resource use in and around the estuary

Verifiable indicator:

- a) By the end of Y2Q3, key members of Estuarine Forum and Overstrand Municipality, and designated enforcement officers from participating institutions, have received introductory training to estuarine management legislation.
- b) By the end of the five year period, implementation of Compliance Campaign projects are underway or completed

Means of verification:

- i) Training course attendance records;
- ii) Evaluation of delegates' feedback on the usefulness of the training course.

Enabling Factors / Risks:

Participating institutions identify and deploy enforcement officers
 Estuarine Forum identifies delegates for training and members of Compliance Campaign Working Group
 CAPE EP provides funds for training
 Compliance Campaign Working Group is established and maintained
 Overstrand Municipality supports and implements the recommendations of the Working Group

Responsible entity for start-up action:

Klein River EF TWG
 CAPE EP

Target Start Date (constraints):

1 month before commencement of EMP implementation – Activities 1.3.1 – 1.3.3

Target Finish Date (constraints):

Completion of training and planning – 2010-Q1
 Ongoing implementation and monitoring & evaluation

Projects:

PR-1.4.2 *Development of a training materials and training: para-legal aspects of estuarine management*
 PR-1.4.7 *Implementation of any outsourced aspects of the Compliance Campaign, e.g. posters, equipment, demolition, etcetera.*

Understanding and respecting the law

Participant Analysis

BENEFICIARIES

Residents of Overstrand Municipality and the Overberg, visitors to the estuary, SA fisheries industries

TARGET GROUP

Overstrand Municipality officials and others involved in enforcement, illegal users of estuarine resources

IAPs, Estuarine Forum

REGULATORS

Overstrand Municipality, DEADP(IEM), DEADP(DP)), DEAT-MCM, Breede WMA, Dept of Agriculture

RESOURCE SUPPLIERS

HR: Overstrand Municipality, CAPE EP, DEAT-MCM.
 Funds: DEAT-MCM PR-1.4.2 R150,000.
 Funds: DEAT-MCM PR-1.4.7 R360,000.

IMPLEMENTING AGENT

CAPE EP – training. Overstrand Municipality – Compliance Campaign implementation, supported by Compliance Campaign Working Group

SERVICE PROVIDERS

PR-1.4.2: Training course developer, Training facilitator, Subject advisers: Coastal Management, Land Use Management, Legal.

OPERATOR

Overstrand Municipality supported by Compliance Campaign Working Group

MAP 1.4 ENFORCEMENT CAPACITY

Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant Inputs	Time frame
1.4.1 Participating institutions (identified through the process described in MAP 1.1) identify the individuals within their organisation responsible for enforcement (through the process described in MAP 1.3, as far as Activity 1.3.3)	Enforcement officers identified	Participating institutions	CAPE EP EF TWG	TWG members (C12+). CAPE EP Manager (C14).	10 mths
1.4.2 Secure funds, procure services and prepare material for PR-1.4.2 <i>Development of training materials and training: paralegal aspects of Estuarine Management</i> - framing legislation relevant to resource use (including land use) – ICM Bill, MLRA, NWA, EIA regulations, CARA	Training materials	CAPE EP	EF TWG. DEAT-MCM. Service provider.	CAPE EP Manager (C14). DEAT-MCM TWG member (C12+). PR-1.4.2: R150,000. PR-1.4.2 Service provider.	* 9 mths in parallel with 1.4.1
1.4.3 Identification of delegates – including enforcement officers, other municipal officials, representatives of riparian land owners, recreational and subsistence fishers, boat owners, boat house lessees, water users	List of delegates	Estuarine Forum	Klein River EF TWG. Overstrand Municipality.	Estuarine Forum meeting. EF Secretariat Project Officer (C8). Overstrand Municipality Enforcement unit manager and Building inspectorate manager. DEAT-MCM and Breede WMA TWG members (C12+).	1 mth
1.4.4 Attend training programme	Key members of Estuarine Forum and Municipality have received introductory training to estuarine management legislation	Estuarine Forum Overstrand Municipality Other enforcement agencies	CAPE EP. Service provider.	Delegates identified in 1.4.3. EF Secretariat Project Officer (C8). PR-1.4.2 Service provider.	1 mth
1.4.5 Facilitate the identification of an Estuarine Forum Working Group to act as Reference Group for the Compliance Campaign.	Compliance campaign working group	Estuarine Forum	EF TWG	Estuarine Forum meeting. EF Secretariat Project Officer (C8).	* same meeting as 1.4.3
1.4.6 Meeting of working group to initiate Klein River estuary "Compliance campaign". Address, inter alia: a) Illegal harvesting of marine living resources, registration of boat launch sites, b) Possession of appropriate permits by fishers and all users of the boat launch sites, c) Improved enforcement of water use permit system (supporting attainment of RQOs),	Agreement on management action plan – activities, responsibilities and time frames	Compliance campaign working group	EF Secretariat	EF Secretariat Project Officer (C8). Compliance Campaign working group members.	1 mth (after training completed)

MAP 1.4 ENFORCEMENT CAPACITY

Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant Inputs	Time frame
d) Control over activities in the estuarine margins that are having a negative impact on the estuary (contraventions are being followed up), e) Enforcement of the provisions of the ICM Bill relating to structures in the coastal public property zone					
1.4.7 Secure funds and procure services required for PR-1.4.7 <i>Implementation of any outsourced aspects of the Compliance Campaign</i> , e.g. posters, equipment, demolition etc	Contracted service providers / contractors	DEAT - MCM	Compliance campaign working group. Overstrand Municipality.	Overstrand Municipality Project Manager (C10). DEAT-MCM TWG member (C12+). PR-1.4.7 R360,000.	6 mths
1.4.8 Manage implementation of services, contracts	Milestones achieved	Overstrand Municipality	MAP TIME FRAMES - PREPARATION DEAT – MCM. Compliance campaign working group.	Overstrand Municipality PM (C10). DEAT-MCM TWG member (C12+).	18 mths ONGOING
1.4.9 Carry out activities as per action plan and attend quarterly meetings to report on progress and adapt the management action plan as required	Quarterly progress reports	Compliance campaign working group	Overstrand Municipality. DEAT-MCM.	Compliance campaign working group members.	ONGOING

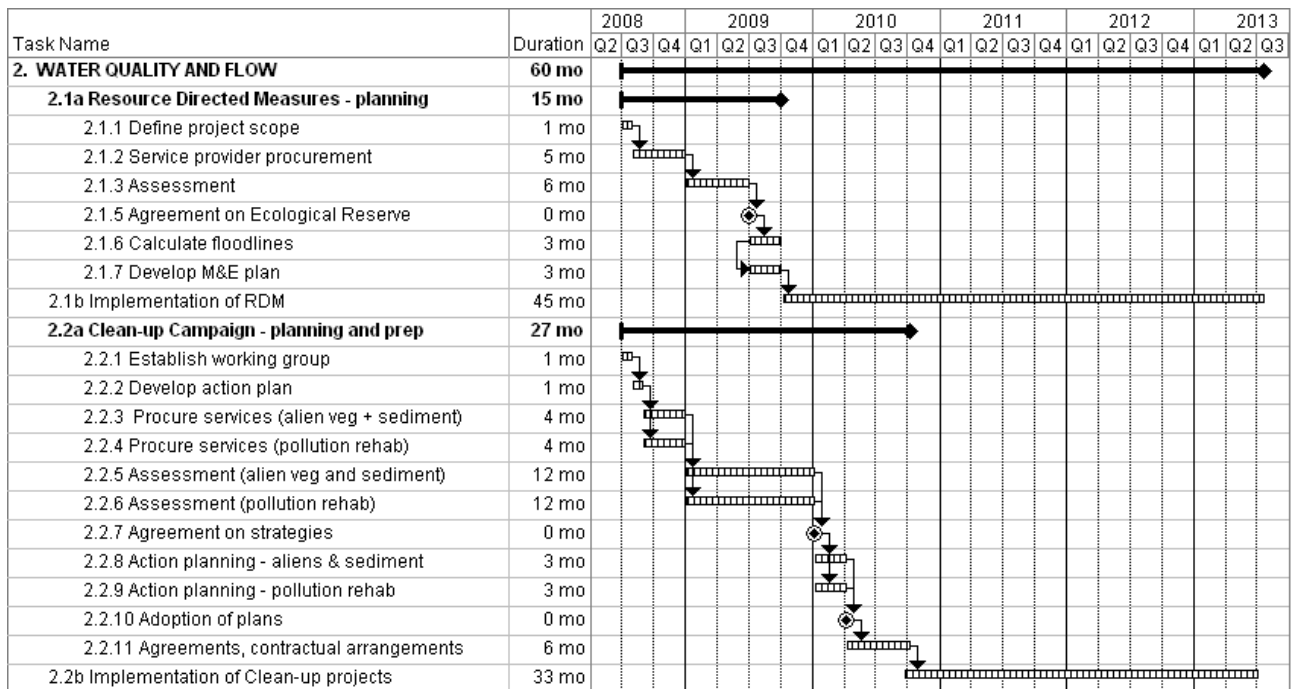


Figure 7 Time frames for Water Quality and Flow interventions

2 Water Quality and Flow

The EMP provides a strategy to secure estuarine health in the long-term as well as a short-term intervention to address the immediate pollution crisis that has forced the Municipality to prohibit bathing in the lagoon.

Resource Directed Measures (RDM) are a requirement introduced through the National Water Act (1998) to secure the country's scarce freshwater resources. The Department of Water Affairs and Forestry (DWA) is responsible for establishing Catchment Management Agencies to manage the use of freshwater and ensure that polluters and unauthorised users of freshwater sources are apprehended and punished. The National Water Act prescribes a method for calculating the amount of water being drawn for human consumption, requiring that all users apply for permits, and balancing this against what is required for the river and estuary to maintain its functional integrity. This is referred to as the 'Ecological Reserve', i.e. the amount of water that must be reserved in order to ensure that ecological systems continue to function. Ensuring adequate flow during all seasons, including the 'flushing' that is required during the high rainfall season, is one of the objectives of these Resource Directed Measures.

The Klein River's three quaternary catchments fall within the Breede River Water Management Area (WMA). The EMP's MAP 2.1 (*Setting the limits*) describes the activities required for RDM aimed at securing the Reserve needed to support the nursery function of the estuary, inter alia. The strategy includes a review of the current breaching policy for the Klein by the team of experts assembled for the Reserve determination. It also involves hydrological modeling of underground water resources that feed the estuary – both from the Kleinriviersberge on the north and on the south where the systems that recharge the aquifers are not yet identified (resulting in the need for a precautionary approach to development in this area). The Breede WMA is responsible for implementation of RDM (National Water Act, 1998). The process will involve all major water users in the Klein River catchment, e.g. the municipalities of Overstrand and Theewaterskloof, local farmers and other riparian property owners, and requires the participation of the Department of Agriculture.

MAP 2.2 (*Safe for swimming*) provides a two-pronged approach to a campaign to 'Clean up' the river and estuary:

- A co-ordinated effort to manage alien vegetation in the riparian reserve with the objective of improving flow rate, mitigating flood time impacts and reducing the amount of soil being carried down river from farm lands and being deposited in the estuary;
- An Overstrand Municipality-driven initiative to locate and eliminate point and diffuse sources of pollution in the estuarine management area.

The measure of success of these interventions will be judged by whether, during the final year of the First Generation EMP, the water in the Klein River estuary is safe for swimming all year round.

Management Action Plans (MAPs) for improving water quality and flow

Targeted Outcome:

By 2013, water in the Klein River estuary is safe for swimming all year round.

invoking two of twelve Management Strategies and their Outputs:

WATER QUALITY AND FLOW

2.1	Resource Directed Measures	<i>Setting the limits</i>
	District and Local Municipalities and the Breede Water Management Agency co-operate to develop and implement Resource Directed Measures (RDM)	
2.2	Clean-up Campaign	<i>Safe for swimming</i>
	Water quality is improved, and flow is maintained or improved, through prioritised riparian restoration initiatives and an intensive local municipality-driven campaign to 'clean up' polluting activities and installations	

2.1 RESOURCE DIRECTED MEASURES

Output 2.1

District and Local Municipalities and the Breede Water Management Agency co-operate to develop and implement Resource Directed Measures (RDM)

Verifiable indicator:

- a) By the end of Y2Q2 Resource Quality Objectives (RQOs), including limits for abstraction of surface and ground water resources, RQO targets, and mouth management strategies, are agreed.
- b) By the end of Y2Q3 a system for monitoring water quality and flow has been activated.
- c) By the end of Y2Q3 a GIS dataset of floodlines for the estuarine quaternary catchment has been integrated into the Overstrand Municipality's Land Use Management GIS.
- d) At the end of the five year period, agreed RQO targets are attained.

Means of verification:

Estuarine Forum resolution, recorded in minutes of Estuarine Forum meeting. Collection and analysis of samples reported in Quarterly Reports. Response to information requests lodged at Overstrand Municipality Town Planning office.

Monitoring and evaluation of water quality and flow samples reported in the First Generation EMP Final Evaluation Report.

Enabling Factors / Risks:

Funds are secured for appointment of service providers. Agreement of Water Courts and DWAF on limits of abstraction. Impact of seasonal factors on baseline data collection and assessment.

Entity Responsible for start-up action:

Breede WMA

Target Start Date (constraints):

2008-Q3 Month 1 – hold meeting

Target Finish Date (constraints):

2009-Q4 for priority intervention
Ongoing maintenance

Projects:

PR-2.1.2 Ecological Reserve Determination for the Klein River and design of a monitoring and evaluation system for water quality and flow.
PR-2.1.6 Calculation and development of a GIS dataset for the 1:100 and 1:50 year floodline in the Klein River Rural Development Area.

Setting the limits

Participant Analysis

BENEFICIARIES

Riparian property owners, residents of Overstrand Municipality and the Overberg, tourists to the area, people who use the estuary for recreation and subsistence purposes, SA fisheries industries

TARGET GROUP: Breede River Water Management Agency, Overstrand and Theewaterskloof Municipalities, Overberg Municipality

IAPS

Estuarine Forum, Klein River Catchment Committee, riparian property owners associations, farmers associations, service providers appointed to investigate new water sources for Overstrand Municipality (Stanford groundwater investigation, desalination investigation); Dept of Agriculture

REGULATORS

DWAF – water user registration, permits for abstraction (National Water Act)

RESOURCE SUPPLIERS

HR: Breede WMA PM. Monitoring information gatherers.
PR-2.1.2 Breede WMA/DWAF R800,000
PR-2.1.6 Breede WMA/DWAF R350,000

IMPLEMENTING AGENT: Breede WMA (i.t.o. National Water Act)

SERVICE PROVIDERS

PR-2.1.2: Hydrologist; Estuarine specialists: hydrodynamics, sediment dynamics, water quality, microalgae, macrophytes, invertebrates, fish, birds.
PR-2.1.6: Hydrologist; GIS technician.

OPERATOR : Breede WMA (i.t.o. National Water Act).

Overstrand Municipality: Development control below 1:100 year floodline.

MAP 2.1 RESOURCE DIRECTED MEASURES

	Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant Inputs	Time frame
2.1.1	Meeting of key stakeholders (members of TWG) to initiate Klein River RDM study, verify resource unit definition	Agreed project scope	Breede WMA	Overstrand, Theewaterskloof, Overberg Muni's, Dept of Agric, DEAT-MCM, CAPE EP, CapeNature	TWG members (C12+). Breede WMA RDM Proj Co-ordinator (C12). Overstrand + Overberg Senior project managers: water services (C10).	1 mth
2.1.2	Secure funding and procure services for PR-2.1.2 Ecological reserve determination and PR-2.1.6 Calculation of floodlines	Contracted service provider	Breede WMA	DWAF	Breede WMA Proj Co-ord'tor (C12). PR-2.1.2 R800,000. PR-2.1.6 R350,000	5 mths
2.1.3	Assemble available data, conduct any baseline studies and/or field studies/assessments, including hydrological modeling, aquifer recharging on the area to the south and review current breaching policy.	Assessment report and hydrological data	Breede WMA	Service providers, Overstrand Municipality, CapeNature, Dept of Agriculture	Breede WMA Proj Co-ord'tor (C12). Overberg + Overstrand Muni Senior PM: water services (C10). Overstrand project co-ordinator for groundwater investigation project. PR-2.1.2 Service provider team led by hydrologist	6 mths
2.1.4	Hold workshop to define recommended ecological category, quantify water requirement scenarios and identify strategies for mouth management	Recommended ecological category, quantification of water requirement scenarios and mouth management strategies	Breede WMA	Service providers	Breede WMA Proj Co-ord'tor (C12). PR-2.1.2 Service provider team	* at the conclusion of 2.1.3
2.1.5	Meeting with Klein River Estuarine Forum to report on findings and recommendations and agree on RDM, including limits for abstraction of ground water and surface water within the estuarine quaternary, and mouth management	Agreement on the Ecological Reserve Determination, limits for abstraction and mouth management	Breede WMA	Klein River EF, Overstrand Municipality, Theewaterskloof and Overberg Municipalities, Dept of Agriculture	Breede WMA Proj Co-ord'tor (C12). Overberg + Overstrand Muni Senior PM: water services (C10). PR-2.1.2 Service provider team	* at the conclusion of 2.1.3
2.1.6	PR-2.1.6 Calculation of the 1:100 and 1:50 year floodline in the Klein River Rural Development Area and integration of data into Overstrand Municipality's LUMS	GIS dataset of 1:100 and 1:50 floodlines	Breede WMA	Overstrand Municipality	Breede WMA Proj Co-ord'tor (C12). Overstrand Municipality officials (various inputs), GIS technician (C8). PR-2.1.6 Service provider hydrologist, GIS technician.	3 mths
2.1.7	Design of a monitoring and evaluation implementation plan to support strategic adaptive management in the implementation of the RDM	M&E plan; MOUs for implementation	Breede WMA	Service provider	Breede WMA Proj Co-ord'tor (C12). PR-2.1.2 Service provider hydrologist	* 3 mths in parallel with 2.1.6
				MAP TIME FRAMES – PLANNING		15 mths

MAP 2.1 RESOURCE DIRECTED MEASURES

	Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant Inputs	Time frame
2.1.8	Ongoing management and administration of M&E activities, water use licensing and enforcement	Implementation of RDM	Breede WMA	Implementation partners	Breede WMA Proj Co-ord'tor (C12). Breede WMA Enforcement Officer / water monitoring information gatherer (C4).	ONGOING

2.2 CLEAN-UP CAMPAIGN

Output 2.2

Water quality is improved, and flow is maintained or improved, through prioritised riparian restoration initiatives and an intensive local municipality-driven campaign to ‘clean up’ polluting activities and installations

Verifiable indicator:

- By Y3Q2, an integrated management plan for invasive alien vegetation and sediment transportation in the Klein River catchment is adopted.
- By Y3Q4, implementation of the integrated management plan for invasive alien vegetation and sediment transportation is activated.
- At the end of the five year period, targets established for the implementation of the invasive alien vegetation and sediment transportation plan are attained.
- By Y3Q2, a pollution rehabilitation management plan is adopted.
- By Y3Q4, implementation of the pollution rehabilitation management plan is activated.
- At the end of the five year period, targets for pollution rehabilitation are attained.

Means of verification:

Agreement to implement the plan, reported in minutes of working group meeting. Letters of award of contracts for implementation of interventions. Evaluation reported in the Project Co-ordinators Quarterly Reports. Agreement to implement the plan, reported in minutes of working group meeting. Letters of award of contracts for implementation of interventions. Sampling of estuarine water for *E.coli*. Inter alia, reported in Project Co-ordinator's Quarterly Reports.

Enabling Factors / Risks:

Funds are secured for appointment of service provider teams. Impact of seasonal factors on baseline data collection and assessment. Potential divergence of two project time frames (Alien vegetation/sediment loading and Pollution), with consequent loss of integration and efficiencies. Funds are secured for capital works projects.

Responsible entity for start-up action:

Estuarine Forum – identify members for a Clean-up Campaign Working Group

Target Start Date (constraints):

2008-Q3 Month 1 – Estuarine Forum meeting

Target Finish Date (constraints):

Planning phase: 2010-Q4; Implementation – ongoing

Safe for swimming

Participant Analysis

BENEFICIARIES: Riparian property owners, residents of Overstrand Municipality and the Overberg, tourists to the area, people who use the estuary for recreation and subsistence purposes, SA fisheries industries

TARGET GROUP: Overstrand Municipality; Riparian property owners; Department of Agriculture; DWAF

IAPs: Estuarine Forum

REGULATORS

Department of Agriculture (CARA); DWAF (National Water Act, Water Services Act); Overstrand Municipality (National Building Regulations)

RESOURCE SUPPLIERS:

HR: Riparian land owners; Breede WMA; Overstrand, Overberg Municipality; DWAF – Working for Water; Department of Agriculture.
Funds: Breede WMA PR-2.2.3 R280,000.
Funds: Overstrand Municipality PR-2.2.4 R280,000.
Funds: Overstrand Municipality PR-2.2.12 R3,600,000.

IMPLEMENTING AGENT: Breede WMA; Overstrand Municipality

SERVICE PROVIDERS

PR-2.2.3: plant ecologist, hydrologist, sedimentologist.
PR-2.2.4: sanitation engineer, hydrologist, geologist.

OPERATOR: Riparian land owners; Overstrand Municipality

Projects:

PR-2.2.3 *Investigation and preparation of an integrated management plan for alien clearing, riparian rehabilitation, erosion and run-off control in the Klein River catchment.*
PR-2.2.4 *Investigation and preparation of a rehabilitation management plan for point sources of pollution within the estuarine quaternary catchment of the Klein River.*
PR-2.2.12 *Implementation of any outsourced interventions identified through the Clean-Up Campaign (e.g. capital works, maintenance contracts, supplies purchases).*

MAP 2.2 CLEAN-UP CAMPAIGN

	Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant Inputs	Time frame
2.2.1	Facilitate the identification of an Estuarine Forum Working Group to act as Reference Group for the clean-up campaign	Clean-up campaign working group	Estuarine Forum	Overstrand Municipality Breede WMA	TWG Members: Overstrand Municipality, Breede WMA and Dept of Agric (C12+).	1 mth
2.2.2	Meeting of working group to initiate Klein River estuary "Clean-up campaign"	Agreement on action plan and time frames (i.e. adoption or alteration of MAP 2.2)	Clean-up campaign working group	Overstrand Municipality Breede WMA	Overstrand Muni Senior PM: water services (C10). Breede WMA Proj Co-ord'tor (C12).	1 mth
2.2.3	Secure funding and procure services for PR-2.2.3 <i>Alien Management plan</i> investigation and preparation of an integrated management plan for riparian invasive alien clearing, riparian rehabilitation, erosion and run-off control in the catchment.	Contracted service provider	Breede WMA	Working for Water Dept of Agriculture Clean-up campaign working group	Breede WMA Proj Co-ord'tor (C12). PR-2.2.3 R280,000. PR-2.2.3 Service provider team	4 mths
2.2.4	Secure funding and procure services for PR-2.2.4 <i>Pollution rehabilitation plan</i> investigation and preparation of a rehabilitation management plan for point and diffuse sources of pollution within the estuarine quaternary catchment of the Klein River (including surface water run-off, liquid waste disposal, leachate from solid waste sites).	Contracted service provider	Overstrand Municipality	Breede WMA Dept of Agriculture Clean-up campaign working group	Overstrand Muni Senior PM: water services (C10). PR-2.2.4 Service provider team. PR-2.2.4 R280,000.	* 4 mths in parallel with 2.2.3
2.2.5	Conduct PR-2.2.3 field-study investigation (including baseline survey) and assessment of riparian invasive alien vegetation and sediment transportation	Assessment report	Breede WMA	Dept of Agriculture Clean-up campaign working group Service provider team	Breede WMA Proj Co-ord'tor (C12). Dept of Agric extension officer (C8). PR-2.2.3 Service provider team.	12 mths
2.2.6	Conduct PR-2.2.4 field-study investigation (including baseline sampling) and prepare assessment report on point and diffuse sources of pollution	Assessment report	Overstrand Municipality	Clean-up campaign working group Service provider team	Overstrand Muni Senior PM: water services (C10). PR-2.2.4 Service provider team	* 12 mths in parallel with 2.2.5
2.2.7	Meeting of working group to review findings and agree on clean-up strategies, including an awareness-building campaign	Agreed strategies	Clean-up campaign working group	Overstrand Municipality Breede WMA	Breede WMA Proj Co-ord'tor (C12). Overstrand Muni Senior PM: water services (C10). PR-2.2.3 + PR-2.2.4 Service provider teams.	* 1 mth at end of above

MAP 2.2 CLEAN-UP CAMPAIGN

	Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant Inputs	Time frame
2.2.8	Development of PR-2.2.3 plan for managing invasive alien vegetation and sediment transportation in the catchment	Integrated management plan – alien vegetation and sediment	Breede WMA	Working for Water Dept of Agriculture Clean-up campaign working group Service provider team	Breede WMA Proj Co-ord'tor (C12). PR-2.2.3 Service provider team.	3 mths
2.2.9	Development of PR-2.2.4 rehabilitation management plan for eradicating point and diffuse sources of pollution in the estuarine quaternary catchment	Pollution rehabilitation management plan	Overstrand Municipality	Clean-up campaign working group Service provider team	Overstrand Muni Senior PM: water services (C10). PR-2.2.4 Service provider team.	* 3 mths in parallel with 2.2.8
2.2.10	Meeting to adopt plans PR-2.2.3 and PR-2.2.4	Adoption of plans	Clean-up campaign working group	Overstrand Municipality Breede WMA	Breede WMA Proj Co-ord'tor (C12). Overstrand Muni Senior PM: water services (C10). PR-2.2.3 + PR-2.2.4 Service provider teams.	* 1 mth at end of above
2.2.11	Secure funding commitment PR-2.2.12 <i>Clean-Up Campaign interventions</i> , conduct negotiations with land owners and/or procure contractors for implementation. Hold progress meetings of Clean-up campaign working group	Signed agreements, contracts for implementation	Breede WMA Overstrand Municipality	Working for Water Dept of Agriculture Clean-up campaign working group	Breede WMA Proj Co-ord'tor (C12). Overstrand Muni Senior PM: water services (C10). Dept of Agric / WfW extension officers (C8). Overstrand Municipality building inspectors (C8).	6 mths
				MAP TIME FRAMES - PLANNING PERIOD		27 mths
2.2.12	Implementation of prioritised interventions PR-2.2.12	Achievement of planned milestones	Breede WMA Overstrand Municipality	Working for Water Dept of Agriculture Clean-up campaign working group	Breede WMA Proj Co-ord'tor (C12). Overstrand Muni Senior PM: water services (C10). Dept of Agric / WfW extension officers (C8). Overstrand Municipality building inspectors (C8). PR-2.2.12 R3,600,000.	ONGOING

3 User value

Estuaries are high value environments that support a range of sometimes conflicting activities and biological processes. Estuarine ecosystems are among the most productive, in biological terms, and are economically important nursery environments for fish species that underpin the country's commercial fisheries. In South Africa, estuaries are traditionally the site of a range of recreational activities such as boating, skiing, and angling, and support a range of subsistence users whose activities include fish trapping, bait collection and the harvesting of reeds and sedges. One of the roles of estuarine managers is to identify and manage conflicting activities and those that threaten the long-term sustainability of estuarine value. The value that society awards to an estuary can be enhanced through development which supports existing livelihood strategies, creates new opportunities for subsistence or income generation, and which contributes generally to the developmental mandate of the municipality. Such development should enhance, not undermine, the value of the estuary, i.e. it should be sustainable.

The EMP provides mechanisms for the Municipality to investigate alternatives and initiate projects which support sustainable development of the estuary's abundant resources and attractions. The activities described in the MAPs build on work already done (e.g. Kleinriviersvlei Structure Plan, unpublished data on fish populations) in order to arrive at agreement on what needs to be done. It is achieved through a three-pronged approach:

- improving the physical infrastructure that supports and gives access to residents' and tourists' enjoyment of the estuarine environment (MAP 3.1 - *Amenity*)
- investigating and optimising the potential of the estuary to contribute to livelihood security and benefits for subsistence users and underemployed residents (MAP 3.2 – *Economy*)
- improving perceptions of the value of the resource (MAP 3.3 – *Confidence*).

There are insufficient data available at present to properly plan and manage extractive uses. Further research is needed on the impact of mouth management on the nursery function of the estuary – this will be done through strategy 2.1 where the necessary expertise will be assembled for the ecological reserve determination. More information is needed about existing exploitation of resources and the thresholds of concern regarding potential collapse of systems resulting from overexploitation of keystone species, and information on illegal activity, and its impact on the system, is needed for the Compliance Campaign (MAP 1.4). These are the kinds of issues that will be addressed through MAP 3.2 (*Economy*).

The health of the estuary and the persistence of the living resources that it supports are of national importance because they make a significant contribution to the sustainability South Africa's commercial fisheries. Enforcement and sustainable economic development need to be matched with social interventions that build a community of lawful users who, by virtue of their stake in the resource, contribute to its policing and conservation. Thus, the outcome of these MAPs is to do with perceived value rather than just the sum of goods and services that they deliver.

Management Action Plans (MAPs) for enhancing users' valuation of the estuary

Targeted Outcome:

By the end of the five year period, users attach greater social and economic value to the Klein River estuary than they do now.

invoking three of twelve Management Strategies and their Outputs:

USER VALUE

3.1	Sustainable Recreational Infrastructure	<i>Amenity</i>
	The social value of the estuary has been enhanced by the improvement of facilities for recreational users	
3.2	Sustainable resource use	<i>Economy</i>
	Sustainable utilisation of estuarine resources is contributing to livelihood security and development of subsistence users and underemployed residents	
3.3	Safety and Security	<i>Confidence</i>
	Measures have been introduced to improve the safety and security of people and infrastructure at agreed public recreation areas, launch sites and on the water body	

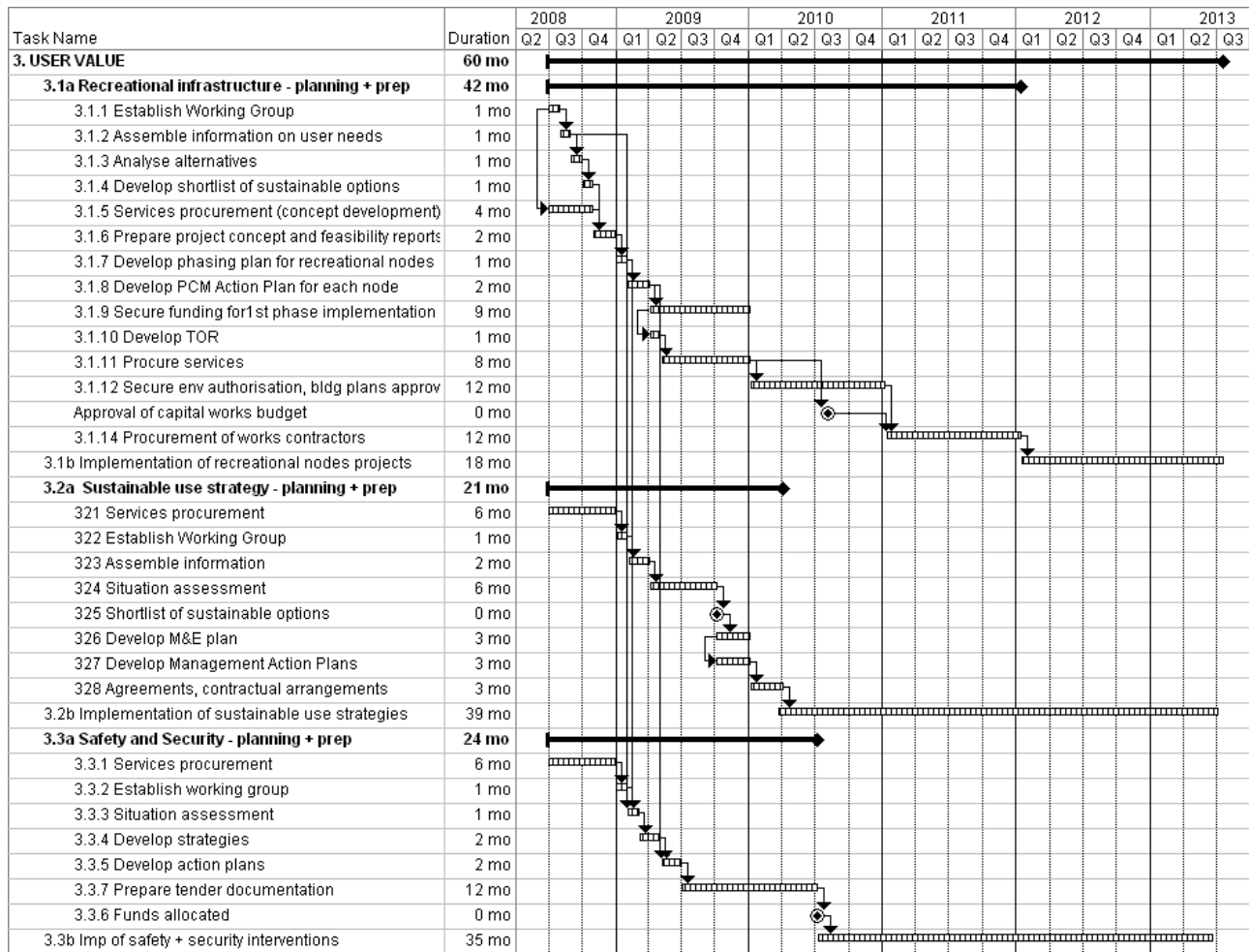


Figure 8 Time frames for strategies to enhance the value that users award to the estuary

3.1 SUSTAINABLE RECREATIONAL INFRASTRUCTURE

Output 3.1

The social value of the estuary has been enhanced by the improvement of facilities for recreational users

Contributing to Outcome 3:

By the end of the five year period, users attach greater social and economic value to the Klein River estuary than they do now.

Verifiable indicator:

- By Y2Q1, concept plans have been prepared for development of public recreation nodes on the shores of the Klein River estuary.
- By Y3Q1, preparation of a Basic Assessment/EIA, and building plans, for all of the selected nodes, have commenced.
- By Y4Q1, environmental authorisation and building plan approval for the selected nodes is secured.
- By Y5Q1, construction of facilities has begun.
- By Y6Q3, the completed facilities are operational.

Means of verification:

Phasing plan and Project Concept and Feasibility Reports for development of selected nodes; Letters of award of service provider contracts; Letters of environmental authorisation and building plan approval; Signed building contracts; Certificate of practical completion.

Enabling Factors / Risks:

Overstrand Municipality capacity to manage the nodal planning phase; Quality of information provided by estuarine user groups; Funds are secured for appointment of service provider teams; Recreational Infrastructure Working Group is established and sustained; Overstrand Municipality supports and implements the recommendations of the Working Group; Floodline data generated through MAP 2.1 is made available timeously; Funds for capital works projects are secured; Suitable municipal-owned sites are available for development of public infrastructure in suitable locations.

Responsible entity for start-up action:

Estuarine Forum – identify Recreational Infrastructure Working Group

Target Start Date (constraints):

2008-Q3 – Estuarine Forum meeting

Target Finish Date (constraints):

2012-Q1 – project preparation complete

2013-Q3 – construction of facilities complete

Participant Analysis

BENEFICIARIES: Residents of Overstrand Municipality, visitors to the estuary

TARGET GROUP: Recreational users, Overstrand Municipality

IAPs: Estuarine Forum

REGULATORS

DEAT-MCM – Land Use Management, Operation and Maintenance of recreation facilities on coastal public property (below h-w mark) (ICM Bill); DEAT-MCM – Use of ORVs in the coastal zone, licensing of boat launch sites (ORV Regulations); DEAT-MCM – Extraction of marine living resources (MLRA); DEADP(LEM) – Environmental authorisation within 100m of the high-water mark (NEMA regulations); Overstrand Municipality – Enforcement of municipal by-laws (including recreational use of the water body); Land Use Management (outside of coastal public property); Building Inspectorate

RESOURCE SUPPLIERS: HR: Overstrand Municipality, Recreational Infrastructure Working Group

Funds: Overstrand Municipality PR-3.1.5 R260,000.

Funds: Overstrand Municipality PR-3.1.11a R600,000.

Funds: Overstrand Municipality PR-3.1.11b R2,000,000.

Funds: Overstrand Municipality PR-3.1.14 R16,350,000.

IMPLEMENTING AGENT: Overstrand Municipality

SERVICE PROVIDERS

PR-3.1.5 Landscape architect, architect. PR-3.1.11b Landscape architect, architect, quantity surveyor, civil engineer, structural engineer.

PR-3.1.11a Environmental impact management and associated specialists.

OPERATOR: Overstrand Municipality

Projects:

PR-3.1.5 *Project preparation and packaging for development of public recreation nodes at agreed sites.*

PR-3.1.11a *Basic Assessment / EIA for recreational nodes.*

PR-3.1.11b *Design, building plan submission and tender documentation for development of recreational facilities.*

PR-3.1.14 *Construction and landscaping for development of public recreational nodes.*

MAP 3.1 SUSTAINABLE RECREATIONAL INFRASTRUCTURE

	Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant inputs	Time frame
3.1.1	Facilitate the identification of a Recreational Infrastructure Working Group to act as Reference Group for the recreational infrastructure intervention.	Recreational Infrastructure Working Group	Estuarine Forum	Overstrand Municipality	TWG member – Overstrand Municipality (C12).	1 mth
3.1.2	Focus group meetings with recreational estuarine users (consumptive and non-consumptive)	Information on user needs	Overstrand Municipality	Recreational Infrastructure Working Group (RIWG)	Overstrand Muni – Senior PM: Recreation (C10) and Senior Planner (C10). RIWG members.	1 mth
3.1.3	Analysis of user needs, spatial patterns and priorities. Review of EMP spatial management plans (MAPs 4.1 to 4.3). Identification of alternatives for location and type of node to satisfy the various user groups.	Alternatives analysis, including a map with a key that identifies the users accommodated	Overstrand Municipality		Overstrand Muni – Senior PM: Recreation (C10), Senior Planner (C10), GIS technician (C8), Manager: Infrastructure Dev (C12).	1 mth
3.1.4	Meetings with Recreational Infrastructure Working Group to present alternatives and prioritise. Agree on criteria for sustainability / development feasibility.	Shortlist of sustainable options	Overstrand Municipality	Recreational Infrastructure Working Group	Overstrand Muni – Senior PM: Recreation (C10), Senior Planner (C10), GIS technician (C8), Manager: Infrastructure Dev (C12).	1 mth
3.1.5	Secure funds and procure services for service provider team to assist with PR-3.1.5 <i>Project preparation and packaging for public recreation nodes</i>	Contracted service provider team (limited service)	Overstrand Municipality		Overstrand Muni – Senior PM: Recreation (C10), Manager: Infrastructure Dev (C12). PR-3.1.5 R260,000.	* 4 mths in parallel with above
3.1.6	Development of concepts for each of the short listed nodes: key attraction (concept), facilities provided, associated infrastructure requirements, including access way signage etc. Test for feasibility.	Project concept and feasibility report for each node	Overstrand Municipality	Service provider team	Overstrand Muni – Senior PM: Recreation (C10). PR-3.1.5 Service provider.	2 mths
3.1.7	Consultation with Recreational Infrastructure Working Group and Estuarine Forum. Prioritise nodes for implementation, discard any that are unfeasible. Refine concepts based on feedback.	Phasing plan for development of recreational nodes (Output required for MAP 3.3)	Overstrand Municipality	Recreational Infrastructure Working Group. Estuarine Forum. Service provider.	Overstrand Muni – Senior PM: Recreation (C10), Senior Planner (C10), Manager: Infrastructure Dev (C12). PR-3.1.5 Service provider.	1 mth

MAP 3.1 SUSTAINABLE RECREATIONAL INFRASTRUCTURE

	Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant inputs	Time frame
3.1.8	Preparation of a PCM Action Plan for development of each of the nodes, including actions relating to land availability, EIA, zoning, services provision, service provider and works procurement, identifying and contracting operators for the completed facility, obtaining all necessary approvals (including registration of launch sites). Prepare Project Descriptions for priority projects including an estimate of budget required in the next financial year for project preparation.	PCM Action Plan for each of the nodes	Overstrand Municipality	Service provider DEAT-MCM DEADP(IEM) DEADP(DP))	Overstrand Muni – Senior PM: Recreation (C10), Senior Planner (C10), Manager: Infrastructure Dev (C12). PR-3.1.5 Service provider	2 mths
3.1.9	Submit for Council approval.	Approval of funding for first stage of implementation	Overstrand Municipality		Overstrand Muni – Senior PM: Recreation (C10), Manager: Infrastructure Dev (C12).	3-9 mths
3.1.10	Prepare a Consultants Design and Development Brief for the nodes or infrastructure to be developed first, including an estimate of the annual budget allocations required for implementation (multi-year plan).	Design and development Terms of Reference	Overstrand Municipality	Service provider	Overstrand Muni – Senior PM: Recreation (C10), Senior PM: Infrastructure Development (C10). PR-3.1.5 Service provider	* 1 mth in parallel with 3.1.9
3.1.11	Procure services for PR-3.1.11a <i>Basic Assessment/EIA for public recreation nodes</i> , and PR-3.1.11b <i>Design and building plan submission for public recreation nodes design</i> . Apply for funding for further stages of implementation (PR-3.1.11b <i>Tender documentation, Contract administration</i>).	Contracted service providers	Overstrand Municipality		Overstrand Muni – Senior PM: Infrastructure Dev (C10). PR-3.1.11a R600,000. PR-3.1.11b R2,000,000.	* 2-8 mths in parallel with 3.1.8
3.1.12	Undertake a Basic Assessment/EIA. Prepare designs and submit building plans for approval. Facilitate consultation with the Recreational Infrastructure Working Group and Estuarine Forum. Secure budget approval for capital works. Provide monitoring information for Quarterly Reports.	Environmental authorisation, approved building plans for first phase of implementation. Funding for implementation.	Overstrand Municipality	Service providers Recreational Infrastructure Working Group Estuarine Forum	Overstrand Muni – Senior PM: Recreation (C10), Senior PM: Infrastructure Dev (C10). PR-3.1.11a and PR-3.1.11b Service providers	12 mths
3.1.13	Procure contractors for PR-3.1.14 <i>Construction of public recreation nodes</i> .	Award of building contracts	Overstrand Municipality	Service providers	Overstrand Muni – Senior PM: Infrastructure Dev (C10). PR-3.1.11b Service providers	12 mths
				MAP TIME FRAMES		42 mths
3.1.14	Implementation – construction and landscaping of public recreational nodes	Hand over of completed facilities	Overstrand Municipality	Service providers	Overstrand Muni – Senior PM: Infrastructure Dev (C10). PR-3.1.14 R16,350,000. PR-3.1.11b Service providers	18 mths

3.2 SUSTAINABLE RESOURCE USE

Output 3.2

Sustainable utilisation of estuarine resources is contributing to livelihood security and development of subsistence users and underemployed residents

Contributing to Outcome 3:

By the end of the five year period, users attach greater social and economic value to the Klein River estuary than they do now.

Verifiable indicator:

- By Y3Q2, Management Action Plans have been adopted for agreed strategies.
- At the end of the five year period, agreed targets for developmental sustainable resource use are attained.

Means of verification:

MOUs/MOAs for implementation of strategies

Monitoring and evaluation reports relating to Sustainable Resource Use strategy

Enabling Factors / Risks:

Funds are secured for appointment of service providers.

Availability of a suitably skilled team.

Willingness and availability of estuarine resource users to participate.

Quality of information obtained from estuarine resource users.

Unpublished data on the fishery is published or made available to the project.

Responsible entity for start-up action:

CAPE EP with support from DEAT-MCM

Target Start Date (constraints):

2008-Q3 – procure services

Target Finish Date (constraints):

Planning phase – 2010-Q2

Implementation – ongoing

Projects:

PR-3.2.1 *Development of a Sustainable Resource Use Action Plan and monitoring system for the estuarine management area.*

Economy

Participant Analysis

BENEFICIARIES

Residents of Overstrand Municipality and the Overberg, SA fisheries industry

TARGET GROUP

Estuarine resource users – overt and covert; Overstrand Municipality; Underemployed residents of Overstrand Municipality

IAPs: Estuarine Forum

REGULATORS

DEAT-MCM (Marine Living Resources Act)

Breede WMA (National Water Act)

CapeNature – resources within protected areas (NEM: Protected Areas Act)

DWAF(Forestry) – protected trees, e.g. milkwoods (National Forests Act)

DEAT(SANBI) – endangered ecosystems (NEM: Biodiversity Act)

RESOURCE SUPPLIERS:

HR: CAPE EP. Resource Use Working Group. Monitoring information gatherers.

Funds: DEAT-MCM PR-3.2.1 R170,000.

IMPLEMENTING AGENT: CAPE Estuaries Programme (as agent for MCM).

SERVICE PROVIDERS:

PR-3.2.1 Resource economist, estuarine ecologist, ichthyologist, marine scientist, integrated coastal manager, fishery manager, action planner.

OPERATOR: To be identified in the Management Action Plans that are generated through this intervention.

MAP 3.2 SUSTAINABLE RESOURCE USE

	Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant inputs	Time frame
3.2.1	Secure funds and procure services for development of PR-3.2.1 <i>Sustainable Resource Use Action Plan</i> for the estuarine management area	Contracted service provider	CAPE EP	DEAT-MCM	CAPE EP Manager (C14). DEAT-MCM TWG member. PR-3.2.1: R170,000.	6 mths
3.2.2	Facilitate the identification of a Sustainable Resource Use Working Group to act as reference group for the intervention	Sustainable Resource Use Working Group	Estuarine Forum	CAPE EP. DEAT-MCM. Service provider.	CAPE EP Manager (C14). DEAT-MCM Fishery adviser (C10). PR-3.2.1 Service provider team.	1 mth
3.2.3	Focus group meetings with estuarine resource users (subsistence, recreational and commercial fishers, any other sustainable livelihoods or commercial users)	Information on user behaviour, resources and levels of extraction	CAPE EP	Service provider. Sustainable Resource Use Working Group.	CAPE EP Manager (C14). DEAT-MCM Fishery adviser (C10). PR-3.2.1 Service provider team.	2 mths
3.2.4	Investigation and assessment of estuarine resource potential and current use (authorised and unauthorised), including baseline survey. Valuation of the resource, identification of underexploited opportunities and overexploited resources. Preparation of strategy alternatives for promoting sustainable use of resources.	Situation assessment report Strategy alternatives	CAPE EP	Service provider. DEAT-MCM. Sustainable Resource Use Working Group.	CAPE EP Manager (C14). DEAT-MCM Fishery adviser (C10). PR-3.2.1 Service provider team.	6 mths
3.2.5	Meetings with Estuarine Forum and TWG to present findings and select strategies.	Shortlist of sustainable options	CAPE EP	Service provider. Sustainable Resource Use Working Group. Estuarine Forum.	CAPE EP Manager (C14). DEAT-MCM Fishery adviser (C10). PR-3.2.1 Service provider team.	*1 mth at end of above
3.2.6	Design of a framework for ongoing monitoring and evaluation of the resources, aimed at supporting a strategic adaptive management approach	M&E plan	CAPE EP	Service provider. DEAT-MCM.	CAPE EP Manager (C14). DEAT-MCM Fishery adviser (C10). PR-3.2.1 Service provider team.	3 mths
3.2.7	Development of Management Action Plans for the strategies.	Management Action Plans	CAPE EP	Service provider. DEAT-MCM.	CAPE EP Manager (C14). DEAT-MCM Fishery adviser (C10). PR-3.2.1 Service provider team.	*3 mths in parallel with 3.2.6
3.2.8	Consultation with management agents regarding implementation. Revision of Action Plans as necessary and confirmation of agreements.	MOU/MOAs for implementation of agreed strategy(ies)	CAPE EP	Service provider Sustainable Resource Use Working Group	CAPE EP Manager (C14). DEAT-MCM Fishery adviser (C10). PR-3.2.1 Service provider team.	3 mths
				MAP TIME FRAMES – PLANNING		21 mths
3.2.9	Implementation of Action Plans. Monitoring and Evaluation, supply of Quarterly Reports for EMP monitoring purposes	Milestone achievements	Implementing agent(s) identified in plans	Sustainable Resource Use Working Group	Implementing agent(s) project manager(s) (C10). Monitoring information gatherers (C4).	ONGOING

3.3 SAFETY AND SECURITY

Output 3.3

Measures have been introduced to improve the safety and security of people and infrastructure at agreed public recreation areas, launch sites and on the water body

Contributing to Outcome 3:

By the end of the five year period, users attach greater social and economic value to the Klein River estuary than they do now.

Verifiable indicator:

a) By Y2Q3, Action Plans have been prepared for implementation of agreed strategies; b) By Y3Q3, funding has been allocated for implementation of agreed strategies; c) Implementation of strategies is underway.

Means of verification:

Action plan reports; Funding allocation in approved annual budget; Monitoring of milestone outputs identified in Safety and Security Action Plans.

Enabling Factors / Risks:

Funds are secured for appointment of service providers; Availability of a suitably skilled service providers; Willingness and availability of estuarine recreational users to participate; Quality of information obtained from estuarine recreational users. Overstrand Municipality supports and implements the recommendations of the Working Group; Funding is secured for capital works interventions; Timeous procurement of services and contractors.

Responsible entity for start-up action:

Overstrand Municipality – procure services; Estuarine Forum – identify reference group.

Target Start Date (constraints):

2008-Q3 – Service provider procurement
2009-Q1 – outputs from MAP 3.1 available as inputs for Activity 3.3.3

Target Finish Date (constraints):

Planning phase – 2011-Q2; Implementation – ongoing.

Projects:

PR-3.3.1 *Development of a Safety and Security Strategy Plan for the estuarine management area.*
PR-3.3.6 *Tender documentation associated with implementation of Safety and Security Strategies.*
PR-3.3.8 *Supplies and works contracts associated with implementation of Safety and Security Strategies.*

Confidence

Participant Analysis

BENEFICIARIES: Residents of Overstrand Municipality; visitors to the estuary

TARGET GROUP: Overstrand Municipality; Recreational users of estuarine facilities and amenities and tour boat operators; People who have leases for boat storage facilities at targeted launch sites; Perpetrators of vandalism and anti-social behaviour on the water body

IAPs: Estuarine Forum

REGULATORS: DEAT-MCM – Land Use Management, Operation and Maintenance of recreation facilities on coastal public property (below h-w mark) (ICM Bill); DEAT-MCM – Use of ORVs in the coastal zone, licensing of boat launch sites (ORV Regulations); DEAT-MCM – Extraction of marine living resources (MLRA); DEA&DP – Activities requiring environmental authorisation within 100m of the high-water mark (NEMA regulations); Overstrand Municipality – Enforcement of municipal by-laws (including recreational use of the water body); Land Use Management (outside of coastal public property).

RESOURCE SUPPLIERS:

HR: Safety and Security Working Group members. Overstrand Municipality.

Funds: Overstrand Municipality PR-3.3.1 R150,000.

Funds: Overstrand Municipality PR-3.3.6 R280,000.

Funds: Overstrand Municipality PR-3.3.8 R2,700,000.

IMPLEMENTING AGENT: Overstrand Municipality. (Organ of state responsible for developing and maintaining public recreation facilities above the h-w mark i.t.o. the Constitution and ICM Bill, and also the responsible entity for enforcing by-laws relating to use of the water body.¹)

SERVICE PROVIDERS:

PR-3.3.1 Strategic planning team focusing on safety + security, management action planning.

PR3.3.6 Professional team for tender documentation and implementation.

OPERATOR: Overstrand Municipality

¹ Data sheets no.4 and 12

MAP 3.3 SAFETY AND SECURITY

	Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant inputs	Time frame
3.3.1	Secure funds and procure services for development of PR-3.3.1 <i>Safety + Security Strategy Plan</i> for the estuarine management area	Contracted service provider	Overstrand Municipality	CAPE EP	Overstrand Municipality – TWG member, Director: Enforcement (C14), Senior PM: Recreation (C10). CAPE EP Manager (C14). PR-3.3.1 R150,000.	6 mths
3.3.2	Facilitate the identification of special focus reference group to act as Working Group for the safety and security intervention.	Safety and security Working Group	Estuarine Forum	Overstrand Municipality	Overstrand Municipality – TWG member, Director: Enforcement (C14), Senior PM: Recreation (C10).	1 mth
3.3.3	Desktop review, inter alia, of the outputs from MAP 3.1 (Information on recreational user needs, and Phasing plan for development of recreational nodes), and from the Kleinriviers/lei Structure Plan (recreational carrying capacity investigation and recommendations).	Draft situation assessment of safety and security	Overstrand Municipality	Service provider	Overstrand Municipality – Senior PM: Recreation (C10). PR-3.3.1 Service provider.	1 mth
3.3.4	Meetings with the Safety and Security Working Group. Identify key issues relating to safety and security at public recreation areas and launch sites, and on the water body. Identify strategy alternatives and priorities. Align with the Phasing plan for development of recreational nodes. Identify urgent interventions for immediate action.	Safety and security strategies identified and prioritised	Overstrand Municipality	Safety and Security Working Group Service provider	Overstrand Municipality – Director Enforcement (C14), Senior PM: Recreation (C10). PR-3.3.1 Service provider.	2 mths
3.3.5	Develop action plans for the strategies in consultation with the implementing agent(s). Integrate with MAP 3.1 – outputs of Activity 3.1.8 where possible.	Agreed action plans	Overstrand Municipality	Service provider DEAT-MCM DEA&DP	Overstrand Municipality – Director Enforcement (C14), Senior PM: Recreation (C10). PR-3.3.1 Service provider.	2 mths
3.3.6	Procure services for PR-3.3.6 <i>Tender documentation for implementation</i> , develop tender documentation for interventions identified in the strategy action plans	Priority interventions tenders advertised	Overstrand Municipality	Service provider	Overstrand Municipality – Senior PM: Recreation (C10). PR-3.3.6 R280,000.	12 mths
3.3.7	Secure funding for PR-3.3.8 <i>Implementation of urgent interventions</i> .	Funds allocated	Overstrand Municipality		Overstrand Municipality – Senior PM: Recreation (C10).	12 mths
				MAP TIME FRAMES - PLANNING		24 mths
3.3.8	Procure supplies and works contractors, manage installation and/or operation PR-3.3.8	Implementation milestones achieved	Overstrand Municipality	Service provider	Overstrand Municipality – Senior PM: Recreation (C10). PR-3.3.8 R2,700,000.	ONGOING
3.3.8	Maintain ongoing consultation with the Safety and Security Working Group and planning of further safety and security measures.	Sustained focus on managing for safety + security	Overstrand Municipality	Safety and Security Working Group	Overstrand Municipality – Director Enforcement (C14), Senior PM: Recreation (C10).	* in parallel with above activities

4 Land use management

The EMP makes provision, through MAPs 4.1 to 4.3, to refine and embed the spatial implications of the Plan into the local land use management system (LUMS).

The Overstrand Municipality holds the mandate, conferred through the Constitution, the Municipal Systems Act (2000) and Land Use Planning Ordinance (1985), for controlling new development and existing land use. Oversight of new development is provided by the provincial Department of Environmental Affairs and Development Planning (DEA&DP) through the processes applicable to SDF approval, re-zoning applications and activities subject to Environmental Impact Assessment. There are many more layers of regulation applicable to land use management and the management of the estuarine water body, administered by different entities, the most pertinent of which, in the Klein estuarine management area, are:

- Department of Agriculture – subdivision of agricultural land (Act 70 of 1970)
- DWAF – abstraction and pollution of water (National Water Act, 1998)
- DEAT MCM – exploitation of marine living resources (Marine Living Resources Act, 1998)
- DEAT MCM – structures in the Coastal Public Property Zone (ICM Bill, 2007)
- DWAF – protection of trees (National Forest Act, 1998)
- CapeNature – administration of provincial nature reserves and biodiversity conservation on privately owned land (Protected Areas Act, 2003; Western Cape Nature Conservation Laws Amendment Act, 2000)
- Overberg District Municipality – coastal management including preparation of Coastal Management Programme and Coastal Zoning Scheme (ICM Bill, 2007)
- DEA&DP – bioregional plan providing measures for management and monitoring of biodiversity in the region (NEM: Biodiversity Act, 2004)
- Overstrand Municipality – administration of local by-laws relating to the recreational use of the estuary in terms of Proclamation 357.

Most of the impacts which affect estuarine health are generated on land. The LUMS provides the mechanisms for managing these and for improving the accessibility of the estuary as a social and economic resource. The EMP provides the opportunity for integrating conservation and resource use measures into the land use management system in order to attain a holistic and aligned management framework. This will be achieved in the EMP through implementation of 3 MAPs.

Management Action Plans (MAPs) for land use management

Targeted Outcome:

By the end of the five year period, the Overstrand Municipality and land owners in the study area have introduced measures in their land use management practices to safeguard the health of the estuarine ecosystem.

invoking four of twelve Management Strategies and their Outputs:

LAND USE MANAGEMENT

4.1	Spatial Conservation and Development Framework	<i>Managing change</i>
	The spatial implications of the EMP have been integrated into the Overstrand Municipality's Spatial Development Framework in the 2011 review	
4.2	Coastal Zoning Scheme	<i>Making it enforceable</i>
	A Coastal Zoning Scheme has been adopted for the estuarine management area	
4.3	Biodiversity Management Plans	<i>Promoting stewardship</i>
	Public and privately owned land, and portions of the estuarine water body, are made available for management which prioritises biodiversity conservation	

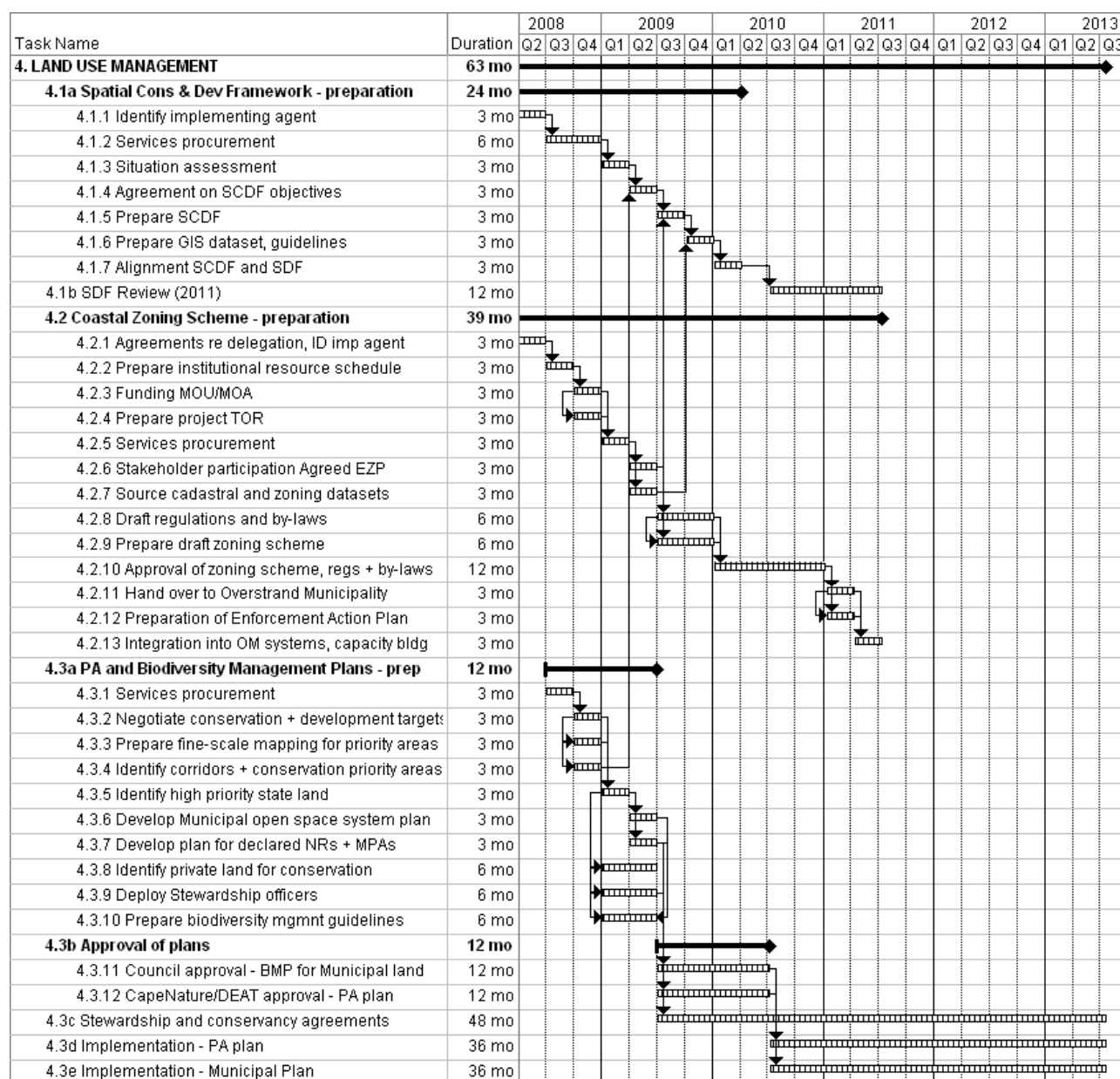


Figure 9 Time frames for land use management tools

MAP 4.1 (*Managing change*) produces a Spatial Conservation and Development Framework (SCDF) for the estuarine management area. An SDF is the strategic planning tool for guiding decisions on where development should be encouraged, where development may occur but with caution and where development should be discouraged in order to secure valuable natural resource areas. The SCDF goes one step further in addressing the biodiversity conservation aspects of the framework.

A *first draft* SCDF is included as a component of the EMP (Annexure 4.1) as a starting point for MAP 4.1 (*Managing change*) which will refine the framework for the estuarine management area, which largely coincides with the Overstrand Municipality's proposed Rural Development Area (RDA), and will be embedded into the Municipal SDF during the 2011 review process. The first draft has been generated from the desktop analysis associated with EMP preparation and hasn't yet been subjected to any participatory process. This is provided for in MAPs 4.1, 4.2 and 4.3.

MAP 4.2 (*Making it enforceable*) produces a Coastal Zoning Scheme for the area defined in terms of the ICM Bill as the Coastal Protection Zone. The Bill defines a Coastal Zoning Scheme as "a scheme that (a) reserves defined areas within the coastal zone to be used exclusively or mainly for specified purposes; and (b) prohibits or restricts any use of these areas in conflict with the terms of the scheme". The objectives of

the Zoning Scheme over an area of coastal public property is “to protect and control the use of marine living resources or to implement national norms or standards” (ICM Bill).

A *first draft* of the Coastal Zoning Scheme is included as a component of the EMP (Annexure 4.2) as a starting point for MAP 4.2 (*Making it enforceable*) which is a process of refining and testing the legal implications of the application of the ICM Bill (as a pilot case) as well as the drafting of any by-laws or amendments associated with its implementation, including the recreational use zones established in terms of Proclamation 357. Ultimately MAP 4.2 will embed the zoning scheme into the Overstrand Municipality’s town planning scheme.

MAP 4.3 (*Promoting stewardship*) generates a three-pronged strategy for securing the conservation of biodiversity priority areas within the estuarine area and connecting terrestrial, freshwater and marine systems. The objectives are:

- to identify municipal-owned land that is suitable for biodiversity conservation purposes and develop a plan for its management;
- to identify areas (land and water) that are suitable for incorporation into the formal protected areas network through their declaration as nature reserves, protected environments and marine protected areas, and develop a plan for action towards this goal;
- to identify privately owned land parcels that would contribute to the establishment of a system of linked conservation areas and to engage the land owners in implementing this plan.

A *first draft* of a biodiversity assessment is included as a component of the EMP (Annexure 4.3). This will need to be refined and developed through MAP 4.3, involving a participatory process, the addition of geohydrological and ownership data (currently not available) and the development of associated management and action plans.

There are *interdependencies* between the 3 MAPs as follows:

- Verification of the cadastral dataset, undertaken in MAP 4.2 (*Making it enforceable*), is required for the finalisation of the SCDF (MAP 4.1: *Managing change*) and for the cadastre-based ownership data required for MAP 4.3 (*Promoting stewardship*);
- Agreement on targets for conservation, to be brokered through the participatory process in MAP 4.3 (*Promoting stewardship*), are the foundation for identifying land to be managed for conservation purposes – an input to the SCDF (MAP 4.1: *Managing change*);

These relationships generate a critical path of activities that need to be prioritised in order to enable the inclusion of the SCDF for the estuarine management area in the Overstrand Municipality’s SDF review in 2011.

4.1 SPATIAL FRAMEWORK

Output 4.1

The spatial implications of the EMP have been integrated into the Overstrand Municipality's Spatial Development Framework in the 2011 review

Contributing to Outcome 4:

By the end of the five year period, the Overstrand Municipality and land owners in the study area have introduced measures in their land use management practices to safeguard the health of the estuarine ecosystem

Verifiable indicator:

- By 2009-Q3, conservation and development objectives for the estuarine management area / rural development area, have been agreed.
- By 2010-Q1, all the elements of the Spatial Conservation and Development Framework have been developed in a format that can be integrated into the Overstrand Municipality's Land Use Management System.
- The Overstrand Municipality's reviewed SDF (2011) carries forward the spatial priorities of the EMP.

Means of verification:

Estuarine Forum resolution recorded in meeting minutes.
Hand over of compatible GIS dataset and associated management guidelines to Overstrand Municipality.
Evaluation of Municipal SDF relative to EMP First Draft SCDF.

Enabling Factors / Risks:

Identification of an Implementing Agent.
Capacity is available at senior level and GIS technical level in Land Use Management and Spatial Planning at Overstrand Municipality.
Funds secured for service provider support.
Required outputs from MAPs 4.2 (cadastral data, draft zoning scheme) and 4.3 (agreements on targets for development and conservation, identification of corridors and conservation priority areas based on fine-scale mapping), are made available timeously.

Responsible entity for start-up action:

TWG (in terms of MAP 1.1)

Projects:

PR-4.1.2 *Develop and refine the Spatial Conservation and Development Framework for the estuarine management area.*

Managing change

Participant analysis

BENEFICIARIES

Riparian property owners, residents of Overstrand Municipality and the Overberg, tourists to the area, SA fisheries industries

TARGET GROUP: Overstrand Municipality (responsible for LUM in the target area); Riparian land owners

IAPs: Estuarine Forum; Overberg Fine-Scale Planning for biodiversity conservation; Agulhas Biodiversity Initiative; CapeNature

REGULATORS: DEADP(DP)) – approval of updated SDF

RESOURCE SUPPLIERS:

HR: Implementing agent, Overstrand Municipality, CapeNature, DEAT-MCM, Dept of Agric, DEA&DP, CAPE EP
Funds: Overstrand Municipality PR-4.1.2 R280,000.

IMPLEMENTING AGENT: To be identified through MAP 1.1

SERVICE PROVIDERS:

PR-4.1.2 Spatial development planner, Participatory planning facilitator, GIS spatial planning technician

OPERATOR: Overstrand Municipality

Target Start Date (constraints):

2008-Q2 – Identification of Implementing Agent through MAP 1.1 prior to EMP implementation commencing.
2009-Q2 – availability of conservation plan (MAP 4.3)
2009-Q3 – availability of up-to-date cadastral, land use / zoning data (MAP 4.2)
2010-Q1 – availability of draft coastal zoning scheme – verification of Coastal Protection Area boundaries (MAP 4.2)

Target Finish Date (constraints):

2010-Q2 (must be before SDF-2011 review commences)

MAP 4.1 SPATIAL FRAMEWORK

Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant inputs	Time frame
4.1.1 Identify the Implementing Agent for this MAP (output of MAP 1.1)	Implementing agent identified	TWG	CAPE EP Overstrand Municipality	CAPE EP Manager (C14) Overstrand Municipality TWG member (C12+).	3 mths
4.1.2 Secure funds and procure services for PR-4.1.2 <i>Spatial Conservation and Development Framework</i> to develop and refine the SCDF for the estuarine management area	Contracted service provider	Implementing agent	Overstrand Municipality	Implementing agent: Senior Project Manager (C10). PR-4.1.2 R280,000.	6 mths
4.1.3 Review the Overstrand Municipality RDA proposals as per the SDF (2006) and the spatial framework as per the Klein EMP.	Situation assessment	Implementing agent	Service provider	Implementing agent: Senior PM (C10). PR-4.1.2 Service provider.	3 mths
4.1.4 Facilitate a participatory process of IAPs to find consensus regarding any conflicting aspects of the RDA and EMP proposals. Requires input from MAP 4.3.	Agreement on SCDF objectives	Implementing agent	Service provider EF, TWG	Implementing agent: Senior PM (C10). PR-4.1.2 Service provider.	3 mths
4.1.5 Develop the SCDF for the estuarine management area / RDA (compatible with Overstrand Municipality LUMS GIS). Requires input from MAP 4.2.	An SCDF for the estuarine management area / RDA	Implementing agent	Service provider TWG Overstrand Municipality	Implementing agent: Senior PM (C10). PR-4.1.2 Service providers.	3 mths
4.1.6 Physical integration of the mediated EMP and RDA spatial development proposals into the Overstrand Municipality LUMS. Requires input from MAP 4.2.	Compatible GIS dataset, associated management guidelines handed over to Overstrand Municipality	Implementing agent	Overstrand Municipality Service provider	Implementing agent: Senior PM (C10). Overstrand Municipality: Senior Planner (C10), GIS Technician (C8). PR-4.1.2 Service provider.	3 mths
4.1.7 Incorporation of the product into the Overstrand Municipality's SDF review (2011)	Spatial implications of the EMP integrated into Overstrand Municipality SDF	Overstrand Municipality	Overstrand Municipality	Overstrand Municipality: Senior Planner (C10).	3 mths
			MAP TIME FRAMES		24 mths

4.2 COASTAL ZONING SCHEME

Output 4.2

A Coastal Zoning Scheme has been adopted for the estuarine management area

Contributing to Outcome 4:

By the end of the five-year period, the Overstrand Municipality and land owners in the study area have introduced measures in their land use management practices to safeguard the health of the estuarine ecosystem.

Verifiable indicator:

- By 2009-Q3, an up-to-date cadastral and zoning GIS dataset is available for use.
- By 2010-Q1, a draft Coastal Zoning Scheme is available for use.
- By 2011-Q1, the Coastal Zoning Scheme has been approved by regulators.
- By 2011-Q3, the Coastal Zoning Scheme is integrated into the Overstrand Municipality's Land Use Management System.

Means of verification:

Letters of approval of the Zoning Scheme.

Response to coastal boundary information requests lodged at Overstrand Municipality Town Planning office.

Enabling Factors / Risks:

CM Bill promulgated and effective as an Act, provisions for Coastal Zoning Scheme upheld; Delegation of responsibility for preparation of coastal zoning scheme to Overstrand Municipality (i.t.o. ICM Bill, this is a District Municipality mandate; Land Use Zoning is a Local Municipality function i.t.o. Land Use Planning Ordinance); Capacity is available at senior level and GIS technical level in Land Use Management and Spatial Planning at Overstrand Municipality; Funds available for service provider support; Up-to-date cadastral, rural land use zoning data can be sourced.

Responsible entity for start-up action:

TWG – identify Implementing Agent: Implementing Agent – project preparation

Target Start Date (constraints):

Identification of Implementing Agent through MAP 1.1 during 3mths prior to EMP Implementation commencement: Y1Q3 – Project preparation

Target Finish Date (constraints):

2011-Q3

Projects:

- PR-4.2.5a Preparation of a test case Coastal Zoning Scheme for the estuarine management area drafting of associated legal instruments.
- PR-4.2.5b Survey investigations and preparation of an up-to-date cadastral and zoning dataset for the estuarine portion of the Coastal Protection Zone.

Making it enforceable

Participant analysis

BENEFICIARIES:

Riparian property owners, residents of Overstrand Municipality and the Overberg, tourists to the area, SA fisheries industries

TARGET GROUP:

Overberg Municipality (mandate for Coastal Management i.t.o. the ICM Bill)
Overstrand Municipality (responsible for LUM in the target area)
Riparian land owners

IAPs: DEA&DP (IEM) – the outcome will have implications for EIAs
Klein River EF

REGULATORS: DEADP(DP)) – approval of updated Scheme in terms of LUPO
MCM (Legal section) – interpretation of intent of ICM Bill
Overberg Municipality – as the delegator of their legal mandate (if delegated)

RESOURCE SUPPLIERS:

HR: Implementing agent, DEAT-MCM, DEA&DP, Overstrand Municipality.

Funds: Overberg/Overstrand/DEAT-MCM PR-4.2.5a and PR-4.2.5b R1,250,000

IMPLEMENTING AGENT: To be identified through MAP 1.1

SERVICE PROVIDERS: PR-4.2.5a and PR-4.2.5b LUMS expert, Coastal planner, Legal support, Surveyor, Drafter of legal instruments, GIS technician

OPERATOR: Overstrand Municipality

MAP 4.2 COASTAL ZONING SCHEME

	Key activities	Result / deliverable	Resp. entity	Partner(s)	Significant inputs	Time frame
4.2.1	Define and agree on any delegation of Coastal Management functions. Identify the Implementing Agent for this MAP (Output of MAP 1.1)	Implementation MOU/MOA	TWG	Overberg + Overstrand Municipalities, DEAT-MCM.	DEAT-MCM – TWG member, Legal adviser (C12). Overberg, Overstrand Municipalities – Senior Managers: Land Use Management (C12). CAPE EP Manager (C14).	(3 mths)
4.2.2	Prepare outputs-based project resource schedule for governmental actions and pilot project	Institutional resource schedule. Estimate of project cost.	Implementing Agent	DEAT-MCM (Legal interpretation of ICM Bill)	Implementing agent: Senior Manager (C12). DEAT-MCM: Legal adviser (C12).	3 mths
4.2.3	Identify budget lines for departmental resources and project funding for pilot	Funding MOU/MOA	Implementing Agent	Overberg + Overstrand Municipalities, DEAT-MCM.	Implementing agent: Senior Manager (C12).	* 3 mths in parallel with 4.2.2
4.2.4	Prepare Terms of Reference for a project to develop PR-4.2.5 <i>Test case Coastal Zoning Scheme</i> for the estuarine area	Project TOR	Implementing agent	DEAT-MCM (ICM Bill intent)	Implementing agent: Senior Manager (C12). DEAT-MCM: Legal adviser (C12).	* 3 mths in parallel with 4.2.2
4.2.5	Procure and contract services for the development of PR-4.2.5 <i>Test case Coastal Zoning Scheme</i> for the estuarine management area	Contracted service provider	Implementing agent	Overberg Municipality	Implementing agent: Senior Manager (C12). PR-4.2.5a R700,000. PR-4.2.5b R550,000.	3 mths
4.2.6	Develop and activate a project participation plan Refinement of the CZS objectives in consultation with stakeholders and IAPs.	Stakeholder participation Agreed CZS	Implementing agent	Service provider; Estuarine Forum	Implementing agent: Senior Manager (C12). PR-4.2.5 service provider.	3 mths
4.2.7	Verify cadastral, scientific (extent of estuary) and survey data informing the delimitation of the coastal protection zone and GPS existing estuary beacons. Verify existing land use in the estuarine management area against zoning. GIS mapping of cadastral and land use zoning in the estuarine management area / RDA. (Output required for MAP 4.1 and 4.3)	Up-to-date cadastral and zoning dataset	Implementing agent	Service provider DEA&DP Overstrand Municipality	Implementing agent: Senior Manager (C12). PR-4.2.5 Service provider.	3 mths* concurrent with above activities
4.2.8	Verification of legal aspects and implications w.r.t. riparian rights, compliance with ICM Bill and other framing legislation, required amendments to regulations and by-laws. Drafting of amendments to regulations and by-laws.	Draft regulations and by-laws	Implementing agent	Service provider DEAT-MCM	Implementing agent: Senior Manager (C12). PR-4.2.5 Service provider.	6 mths

MAP 4.2 COASTAL ZONING SCHEME

	Key activities	Result / deliverable	Resp. entity	Partner(s)	Significant inputs	Time frame
4.2.9	Drafting of zoning scheme and any associated guidelines. (Output required for MAP 4.1 and 4.3)	Draft zoning scheme	Implementing agent	Service provider	Implementing agent: Senior Manager (C12). PR-4.2.5 Service provider.	* 6 mths in parallel with 4.2.8
4.2.10	Obtaining any necessary approvals from regulators.	Approved zoning scheme, regs and by-laws	Implementing agent	Service provider DEADP(DP))	Implementing agent: Senior Manager (C12). PR-4.2.5 Service provider.	12 mths
4.2.11	Finalise all documentation and datasets and hand over to Overstrand Municipality.	Hand over of datasets and documents to Overstrand Municipality	Implementing agent	Service provider Overstrand Municipality	Implementing agent: Senior Manager (C12). PR-4.2.5 Service provider.	3 mths
4.2.12	Identify any prerequisites for enforcement, including any training or mentoring. Prepare an implementation plan for same.	Enforcement Action Plan	Implementing agent	Service provider Overstrand Municipality	Implementing agent: Senior Manager (C12). PR-4.2.5 Service provider.	* 3 mths in parallel with above
4.2.13	Oversight of the integration of the Coastal Zoning Scheme into Overstrand Municipality's Land Use Management System	Spatial information on CZS can be accessed by the public	Implementing agent	Service provider Overstrand Municipality	Implementing agent: Senior Manager (C12). PR-4.2.5 Service provider. Overstrand Municipality – Senior Manager: Land Use Management (C12), GIS Technician (C8).	3 mths
				MAP TIME FRAMES		39 mths

4.3 BIODIVERSITY MANAGEMENT PLAN

Output 4.3

Public and privately owned land, and portions of the estuarine water body, are made available for management which prioritises biodiversity conservation

Contributing to Outcome 4:

By the end of the five-year period, the Overstrand Municipality and land owners in the study area have introduced measures in their land use management practices to safeguard the health of the estuarine ecosystem.

Verifiable indicator:

- Agreement between Overstrand Municipality and Estuarine Forum regarding targets for conservation and development in the EMA by 2009-Q3.
- By 2010-Q3 the Overstrand Municipality has adopted a Biodiversity Management Plan for the estuarine management area.
- By 2010-Q3 CapeNature and DEAT have adopted a Conservation plan for declared nature reserves and MPAs in the estuarine management area.
- By the end of the five-year period, agreed targets for protection of land and estuarine sanctuary areas are attained.

Means of verification:

Resolution recorded in minutes of Estuarine Forum meeting.
Council resolution recorded in Council meeting minutes.
Record of resolution of adoption of the plan Spatial monitoring and legal tracking of stewardship agreements.
Gazetted notices relating to declaration of protected areas.

Enabling Factors / Risks:

Overstrand Municipality and the Estuarine Forum reach agreement on conservation and development targets; Funds available for service provider support; Up-to-date data on land ownership and rural land use zoning can be sourced; Overstrand Municipality acts on the stated intentions in the SDF to make municipal land available for conservation; Participation of the CapeNature Conservation Stewardship programme; Support of CapeNature and DEAT in the preparation and implementation of the Protected Areas plan.

Responsible entity for start-up action:

CAPE Estuaries Programme – secure funds and procure service provider support.

Projects:

PR-4.3.1 *Development of a biodiversity management plan for the estuarine management area.*

Promoting stewardship

Participant analysis

BENEFICIARIES: Riparian property owners, residents of Overstrand Municipality and the Overberg, tourists to the area, SA fisheries industries

TARGET GROUP: Overstrand Municipality (responsible for LUM in the target area) CapeNature, Stewardship programme; Private land owners in the target area

IAPs: Klein Estuarine Forum; Overberg Fine-Scale Planning for biodiversity conservation; Agulhas Biodiversity Initiative; Breede WMA

REGULATORS

Overstrand Municipal Council (municipal owned land); Western Cape Nature Conservation Board (declared nature reserves); DEADP(DP)) in respect of any re-zoning (LUPO)

RESOURCE SUPPLIERS

HR: CAPE EP, CapeNature, Stewardship Programme, Overstrand Municipality, DEAT-MCM.
Funds: CAPE EP PR-4.3.1 R330,000.
Land: Overstrand Municipality, CapeNature, private landowners

IMPLEMENTING AGENT: CAPE Estuaries Programme

SERVICE PROVIDERS: PR-4.3.1 Conservation planner, Participatory planning facilitator, Spatial planner, GIS technician, Plant ecologist, Estuarine ecologist

OPERATORS: Overstrand Municipality, CapeNature, private land owners

Target Start Date (constraints):

2008-Q3

Target Finish Date (constraints):

2009-Q2 – output 4.3.4 required for MAP 4.1

2009-Q3 – completion of planning phase;

Ongoing – Municipal Council approval, negotiations with private land owners.

MAP 4.3 BIODIVERSITY MANAGEMENT PLAN

	Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant inputs	Time frame
4.3.1	Identify funds and procure service provider to develop PR-4.3.1 <i>Biodiversity Management Plan</i> for the EMA, based on the Klein EMP.	Contracted service provider	CAPE Estuaries Programme	SANBI CapeNature	CAPE EP Manager (C14). PR-4.3.1 R330,000.	3 mths
4.3.2	Facilitate in-principle agreement on targets, expressed as percentages of total area, based on the recommendations of the EMP, for: conservation and development of the terrestrial margin, recreational use and no-go zones (MLR sanctuaries) of the estuarine water body.	Social contract between Overstrand Municipality and Estuarine Forum regarding targets for conservation and development in the EMA	CapeNature	Service provider Estuarine Forum TWG Overstrand Municipality SANBI	CapeNature Senior Manager (C12). PR-4.3.1 Service provider. Overstrand Municipality – Senior Managers: Land Use Management (C12). Manager: Open space system (C10). Senior PM: Recreation (C10).	3 mths
4.3.3	Field survey verification of sensitivity analysis as provided in the KLEIN EMP, fine-scale mapping of sensitive areas within the terrestrial margin and water body (co-ordinated with Overberg fine-scale mapping project).	Fine-scale mapping for conservation priority areas	CapeNature	Service provider SANBI	CapeNature Senior PM (C10). PR-4.3.1 Service provider.	* 3 mths concurrent with 4.3.2
4.3.4	Identification and spatial representation of corridors and priority areas for conservation (Output required for MAP 4.1)	GIS dataset – spatial representation of corridors and priority areas for conservation	CapeNature	Service provider SANBI	CapeNature Senior PM (C10). PR-4.3.1 Service provider.	* 3 mths concurrent with above
4.3.5	Identification of all state owned land parcels that are suitable for inclusion in the conservation area network	GIS dataset – high priority state land	CapeNature	Service provider TWG	CapeNature Senior PM (C10). PR-4.3.1 Service provider.	6 mths
4.3.6	Development of a municipal conservation plan aimed at achieving zoning of all abovementioned municipal-owned land parcels as “Open Space I” or “Open Space III”	Plan for Municipal open space system	CapeNature	Service provider Overstrand Municipality	CapeNature Senior PM (C10). Overstrand Municipality – Senior Managers: Land Use Management (C12). Manager: Open space system (C10). PR-4.3.1 Service provider.	* 6 mths concurrent with 4.3.5
4.3.7	Development of a management action plan for expanding and consolidating the formal conservation area network – a protected area plan – encompassing land administered as nature reserves and the estuarine water body or portions thereof	Conservation plan for declared nature reserves and MPAs	CapeNature	Service provider CapeNature Overstrand Municipality DEAT-MCM	CapeNature Senior PM (C10). PR-4.3.1 Service provider.	* 6 mths concurrent with 4.3.5
4.3.8	Identification of all non-state-owned land parcels that are suitable for inclusion in the conservation area network	GIS dataset – private land	CapeNature	Service provider TWG	CapeNature Senior PM (C10). PR-4.3.1 Service provider.	* 6 mths concurrent with 4.3.5

MAP 4.3 BIODIVERSITY MANAGEMENT PLAN

	Key activities	Result / deliverable	Responsible entity	Partner(s)	Significant inputs	Time frame
4.3.9	Facilitate involvement of CapeNature's Conservation Stewardship programme i.r.o. privately-owned land	Deployment of Stewardship officers	CapeNature	CapeNature Stewardship Programme	CapeNature Senior PM (C10). Stewardship Project Coordinator (C12).	* 6 mths concurrent with 4.3.5
4.3.10	Development of guidelines for land use and management in biodiversity priority areas and corridors	Biodiversity management guidelines	CapeNature	Service provider SANBI TWG	CapeNature Senior PM (C10). PR-4.3.1 Service provider.	* 6 mths concurrent with 4.3.5
				MAP TIME FRAMES - PLANNING		12 mths
4.3.11	Approval in principle (Council resolution) of conservation plan for Municipal-owned land in the EMA	BMP for municipal-owned land	Overstrand Municipality	Service provider CapeNature	Overstrand Municipality – Manager: Open space system (C10).	12 mths
4.3.12	Approval in principle of conservation plan for declared nature reserves and MPAs in the EMA	Protected Area plan	CapeNature	CapeNature DEAT	CapeNature Senior PM (C10).	12 mths
4.3.13	Negotiation of agreements over privately owned land parcels for their inclusion in the conservation area network at an appropriate management level	Stewardship and conservancy agreements	CapeNature (Stewardship Programme)	CapeNature Landowners	Stewardship Project coordinator (C12). Stewardship extension officer (C8).	ONGOING

PART C : TECHNICAL SUMMARIES

This section of the document contains reference material of a technical nature that has relevance for participating institutions and for monitoring and evaluation purposes.

1 Mandates applicable to the study area

Table 3 is a revised version of Table 1 of the Draft Situation Assessment Report for the Klein EMP (December 2007), showing legal mandates for –

- policy and planning, licensing/permitting,
- authorisation, and
- compliance monitoring and enforcement.

This analysis forms the basis for the allocation of responsibilities in the EMP.

2 Roles and responsibilities checklist

Table 4 is an ‘at-a-glance’ summary of responsibilities assigned in the Management Action Plans for –

- providing resources (institutional and human resources, project funding and land),
- managing implementation (implementing agent role), and
- the ongoing maintenance and operation of goods, products or services introduced via the EMP (operators).

3 Rolled up time frames

Figure 10 provides an overview of the Gantt charts that are presented for each of the outcome areas, showing time frames for planning/preparation and implementation of the 12 strategies.

The rolled up Gantt chart provides an easy source of reference for checking medium-term time frames and critical dates for meeting, evaluation and reporting.

4 Indicative funding requirements for projects

Table 5 is provided for medium-term budgeting purposes. It provides indicative estimates of annual funding requirements for the projects that are included in the EMP.

5 LFA Matrix – Monitoring and Evaluation Framework

The Logical Framework matrix sets out the intervention hierarchy of outcomes and outputs and their associated targets and indicators. The outcomes represent the end-result, at the conclusion of the five year First Generation EMP, of the 12 strategies, achieved through the implementation of the Management Action Plans. The ‘output indicators’ in the Logical Framework matrix are intermediate milestone achievements that can be cross-referenced to the ‘result / deliverable’ column in the Management Action Plans.

The LFA matrix is useful as a baseline plan for

- evaluating the overall intervention logic of the Klein EMP as an integrated management plan,
- monitoring progress against baseline milestones,
- identifying instances where external factors are the cause of differences between planned and actual achievements, through monitoring of the underlying assumptions (risks / enabling factors),
- evaluating whether objectives have been attained so that adaptive action can be taken if needed.

Table 3 Mandates applicable to the study area

Functional area	Who makes policy/plans	Who issues licenses / permits / authorisations	Who monitors compliance / enforces
Estuary management	DEAT (ICM Bill, 2007: s33)	Activity dependent	Activity dependent
Water use / abstraction / RDM / RQOs Water flow / dam management	Breede Catchment Management Agency (National Water Act, 1998: s13, 16, 17, 80)	Breede Catchment Management Agency (National Water Act, 1998: s39, 40)	Breede Catchment Management Agency (National Water Act, 1998: s53)
Estuarine pollution resulting from human waste (sewage, urban surface water, solid waste)	DEAT (ICM Bill, 2007: s69) (WC Nature Conservation Laws Amendment Act, 2000: s48)	Discharges: DEAT in consultation with DWAF (ICM Bill, 2007: s69). Development related infrastructure: Overstrand Municipality (National Building Regulations)	Breede Catchment Management Agency (National Water Act, 1998: s53) DEAT, DEA&DP, Municipality (ICM Bill, 2007: s59, 82). CapeNature or Municipal Nature Conservation Officer (WC Nature Conservation Laws Amendment Act, 2000: s20, 21, 23). Overstrand Municipality Building Inspectorate (National Building Regulations).
Marine pollution	DEAT (ICM Bill, 2007: s69)	DEAT (ICM Bill, 2007: s69, 71)	DEAT (ICM Bill, 2007: s59 - weak) DEAT, DEA&DP, Municipality (ICM Bill, 2007: s82).
Estuarine pollution and siltation resulting from run-off in agricultural areas	Breede Catchment Management Agency (National Water Act, 1998: s13, 16, 17, 80) Dept of Agriculture (CARA, 1983: s6)	N/A	Breede Catchment Management Agency (National Water Act, 1998: s19). DEAT (ICM Bill, 2007: s59). May be delegated to DEA&DP/Municipality (s59).
System for monitoring water quality and quantity	DWAF (National Water Act, 1998: s137) (Can be assigned to CMA)	N/A	DWAF (National Water Act, 1998: s137) (Can be assigned to CMA)
Protection of milkwoods (as listed in Government Notice No.30253 of 7/9/07)	DWAF (Forestry) (National Forests Act, 1998: s12)	DWAF (Forestry) (National Forests Act, 1998: s15)	Forest Officer (National Forests Act, 1998: s66)
Invasive alien vegetation clearing	Dept of Agriculture (CARA, 1983: s6) DEAT (Biodiversity Act, 2004: s75)	N/A	Dept of Agriculture (CARA, 1983: s11(5))
Invasive species monitoring, control and eradication	Policy (listing of species) – DEAT, DEA&DP (Biodiversity Act, 2004: s70). Planning – all organs of state, including the local Municipality, as part of its IDP, and CapeNature i.r.o. protected areas under its management (Biodiversity Act, 2004: s76)	Competent authority designated by DEAT (Biodiversity Act, 2004: s88). DEAT (Biodiversity Act, 2004: s66).	Competent authority designated by DEAT (Regulations made i.t.o. Biodiversity Act, 2004: s97)
Noxious aquatic growth	CapeNature (WC Nature Conservation Laws Amendment Act, 2000: s60, List of species in Schedule 5).	N/A	CapeNature or Municipal Nature Conservation Officer (WC Nature Conservation Laws Amendment Act, 2000: s20, 21, 23).

Functional area	Who makes policy/plans	Who issues licenses / permits / authorisations	Who monitors compliance / enforces
Regional planning for biodiversity conservation	DEA&DP assisted by SANBI (Biodiversity Act, 2004: s40, 48)	Bioregional plans to be integrated into municipal SDFs (Biodiversity Act, 2004: s48)	DEA&DP (Biodiversity Act, 2004: s49)
Conservation of biodiversity on privately owned land	Any willing person, organisation or organ of state (Biodiversity Act, 2004: s43). Land owner (WC Nature Conservation Laws Amendment Act, 2000: s12).	Agreements between landowners and CapeNature facilitated by the CAPE Stewardship Programme (Biodiversity Act, 2004: s44)	Stewardship agreements monitored by CapeNature
Conservation of biodiversity on publicly owned land	Any willing person, organisation or organ of state (Biodiversity Act, 2004: s43). Municipality (WC Nature Conservation Laws Amendment Act, 2000: s7)	DEA&DP – provincial and local nature reserves (Protected Areas Act, 2003, WC Nature Conservation Laws Amendment Act, 2000: s7)	Designated managing authority of the land parcel (CapeNature or local municipality)
Flooding – risk management	Disaster Management: Overberg District Municipality (Constitution, 1996: s156) Calculation of 1:100 year floodlines: DWAF (National Water Act, 1998: s144, 145); Developer (National Water Act, 1998: s144); Breede WMA (National Water Act, 1998: s145 – indirect, weak).	Development applications: Overstrand Municipality (LUPO, 1985)	Development applications: Overstrand Municipality (LUPO, 1985)
Land use, infrastructure on coastal public property (below the high-water mark)	“The State” (implicitly DEAT, weak) (ICM Bill, 2007: s12)	DEAT (ICM Bill, 2007: s65). May be delegated to DEA&DP/Municipality (s67). DEA&DP (ICM Bill, 2007: s63)	DEAT (ICM Bill, 2007: s59, 96). May be delegated to DEA&DP or Municipality (s59). DEAT, DEA&DP, Municipality (ICM Bill, 2007: s82)
Operation and maintenance of recreation facilities on coastal public property (below the high-water mark)	Overstrand Municipality (Constitution, 1996: s156, Parts B of Schedules 4 and 5)	DEAT (ICM Bill, 2007: s65). May be delegated to DEA&DP/Municipality (s67). DEA&DP (ICM Bill, 2007: s63)	DEAT, DEA&DP, Municipality (ICM Bill, 2007: s82). DEAT (ICM Bill, 2007: s59). May be delegated to DEA&DP or Municipality (s59).
Operation and maintenance of public recreation facilities on municipal land that is not coastal public property	Overstrand Municipality (Constitution, 1996: s156, Parts B of Schedules 4 and 5)	If subject to EIA authorisation, e.g. within 100m of high-water mark: DEA&DP (R386 and R387 i.t.o. NEMA, 1998: s24; ICM Bill, 2007: s63)	If subject to environmental authorisation: self-monitoring (e.g. Overstrand Municipality), DEA&DP (NEMA, 1998: s28)
Designation of access ways to provide public access to coastal public property	Overstrand Municipality (ICM Bill, 2007: s18)	Overstrand Municipality (ICM Bill, 2007: s18)	Overstrand Municipality (ICM Bill, 2007: s18)
Land use management in the coastal protection zone	Overstrand Local Municipality (LUPO, 1985; ICM Bill, 2007: s62)	Overstrand Local Municipality (LUPO, 1985; ICM Bill, 2007: s62, 63)	Overstrand Local Municipality (LUPO, 1985; ; ICM Bill, 2007: 62); DEAT (ICM Bill, 2007: s59). May be delegated to DEA&DP or Municipality (s59).

Functional area	Who makes policy/plans	Who issues licenses / permits / authorisations	Who monitors compliance / enforces
Applications for new development involving certain activities or change of use / rezoning	PGWC DEA&DP and DEAT (LUPO, 1985; NEMA, 1998: s24)	PGWC DEA&DP (LUPO, 1985; R386 and R387 i.t.o. NEMA, 1998: s24)	PGWC DEA&DP and Overstrand Local Municipality (LUPO, 1985) Self-monitoring (e.g. Overstrand Municipality), DEA&DP (NEMA, 1998: s28)
Applications for new development involving subdivision of agricultural land	PGWC DEA&DP and DoA (LUPO, 1985; Subdivision of Agricultural Land Act, 1970: s3)	PGWC DEA&DP and DoA (LUPO, 1985; R386, 2006 i.t.o. NEMA, 1998 s24: Activity No.18; Subdivision of Agricultural Land Act, 1970: s4)	PGWC DEA&DP and Overstrand Local Municipality (LUPO, 1985) Self-monitoring (e.g. Overstrand Municipality), DEA&DP (NEMA, 1998: s28)
Activities in the coastal protection zone	Activity dependent	Activity dependent	Activity dependent
Recreational use of the water body surface	Western Cape Nature Conservation Board and Overstrand Municipality (Proclamation 357, 1972; Municipal By-law, Provincial Gazette No.6147, 9 July 2004)	Overstrand Municipality (Municipal By-law, Provincial Gazette No.6147, 9 July 2004: s2)	Authorised officer of the Overstrand Municipality, SAPS (Municipal By-law, Provincial Gazette No.6147, 9 July 2004: s1, 9)
Use of ORVs in the coastal zone	DEAT (ORV Regulations, 2001: s5)	DEAT (ORV Regulations, 2001: s6)	Fishery Control Officer, Honorary Marine Conservation Officer, any other Peace Officer (ORV Regulations, 2001: s14)
Boat launch site	DEAT (ORV Regulations, 2001: s7)	DEAT, DEA&DP(EA) (ORV Regulations, 2001: s7)	No provision for monitoring/ enforcement of this aspect of the regulations (assuming that ORV Regulations, 2001: s14 is inappropriate for this purpose)
Harvesting of marine living resources (e.g. shellfish, bait, fish)	DEAT (Marine Living Resources Act, 1998: s14-17, 18-19, 21-22, 24, 43, 77) CapeNature (WC Nature Conservation Laws Amendment Act, 2000: s51-59)	DEAT (Marine Living Resources Act, 1998: s13) CapeNature (WC Nature Conservation Laws Amendment Act, 2000: s51-59)	Fishery Control Officer (Marine Living Resources Act, 1998: 51) CapeNature or Municipal Nature Conservation Officer (WC Nature Conservation Laws Amendment Act, 2000: s20, 21, 23).
Harvesting of other resources on coastal public property	Identification of activities that require environmental authorisation: DEAT, DEA&DP (NEMA, 1998: s24)	DEA&DP if the activity requires a Basic Assessment or EIA authorisation (R386 of 2006, Activities No.4-6, 8, 12 and R387 of 2006, Activities No.4, 7, 10 i.t.o. NEMA, 1998: s24; ICM Bill, 2007: s65)	DEAT (ICM Bill, 2007: s59). May be delegated to DEA&DP or Municipality (s59). DEAT, DEA&DP, Municipality (ICM Bill, 2007: s82). Self-monitoring, DEA&DP (NEMA, 1998: s28)
Marine Protected Areas	DEAT (Marine Living Resources Act, 1998: s43)	DEAT (Marine Living Resources Act, 1998: s13)	Fishery Control Officer (Marine Living Resources Act, 1998: s51)

Table 5 Indicative funding requirements for EMP projects

MAP	Proj Ref	Project Description	Prop source of funds	Indicative funding requirements - financial year					Total estimated budget
				2008-09	2009-10	2010-11	2011-12	2012-13	
1.1	1.1.1	Support to CAPE EP in mobilising participating institutions to adopt the EMP	CAPE EP	35,000					35,000
1.2	1.2.10	External evaluation of implementation of First Generation EMP	CAPE EP				530,000		530,000
1.2	1.2.12	Development of Second Generation EMP	CAPE EP + Overstrand Municipality				450,000		450,000
1.3	1.3.4	Needs analysis, development of training materials and training: estuarine management	DEAT-MCM	150,000					150,000
1.4	1.4.2	Development of training materials and training: paralegal aspects of estuarine management	DEAT-MCM	150,000					150,000
1.4	1.4.7	Implementation of any outsourced aspects of the Compliance Campaign, e.g. posters, equipment, demolition, etc.	DEAT-MCM		30,000	80,000	110,000	140,000	360,000
2.1	2.1.2	Ecological Reserve Determination for the Klein River and design of a M&E system	DWAF (Breede WMA)	600,000	200,000				800,000
2.1	2.1.6	Calculation and development of a GIS dataset for the 1:100 and 1:50 year floodline in the Klein River Rural Development Area	DWAF (Breede WMA)	250,000	100,000				350,000
2.2	2.2.3	Investigation and preparation of an integrated management plan for alien clearing, riparian rehabilitation, erosion and run-off control in the Klein River catchment.	DWAF (Breede WMA)	140,000	140,000				280,000
2.2	2.2.4	Investigation and preparation of a rehabilitation management plan for point sources of pollution within the estuarine quaternary catchment of the Klein River.	Overstrand Municipality	140,000	140,000				280,000
2.2	2.2.12	Implementation of any outsourced interventions identified through the Clean-Up Campaign (e.g. capital works, maintenance contracts, supplies purchase)	Overstrand Municipality			1,000,000	1,200,000	1,400,000	3,600,000
3.1	3.1.5	Project preparation and packaging for development of public recreation nodes at agreed sites	Overstrand Municipality	260,000					260,000

MAP	Proj Ref	Project Description	Prop source of funds	Indicative funding requirements - financial year					Total estimated budget	
				2008-09	2009-10	2010-11	2011-12	2012-13		
3.1	3.1.11a	Basic Assessment / EIA for recreational nodes	Overstrand Municipality		250,000	350,000				600,000
3.1	3.1.11b	Design, building plan submission and tender documentation for development of public recreational facilities	Overstrand Municipality		600,000	850,000	350,000	200,000		2,000,000
3.1	3.1.14	Capital works: Construction and landscaping for development of public recreational nodes	Overstrand Municipality				5,000,000	11,350,000		16,350,000
3.2	3.2.1	Development of a Sustainable Resource Use Action Plan for the estuarine management area.	DEAT-MCM	70,000	100,000					170,000
3.3	3.3.1	Development of a Safety and Security Strategy Plan for the estuarine management area.	Overstrand Municipality	150,000						150,000
3.3	3.3.6	Tender documentation associated with implementation of Safety and Security Strategies.	Overstrand Municipality		280,000					280,000
3.3	3.3.8	Supplies and works contracts associated with implementation of Safety and Security Strategies.	Overstrand Municipality			800,000	900,000	1,000,000		2,700,000
4.1	4.1.2	Develop and refine the Spatial Conservation and Development Framework for the estuarine management area.	Overstrand Municipality	100,000	180,000					280,000
4.2	4.2.5a	Preparation of a test case Coastal Zoning Scheme for the estuarine management area, including legal investigations.	Overberg Municipality Overstrand Municipality DEAT-MCM	100,000	400,000	200,000				700,000
4.3	4.3.1	Development of a biodiversity management plan for the estuarine management area	Cape EP	330,000						330,000

Table 6 Klein EMP Logical Framework – Outcomes level

Long-term goal statement	Targeted Outcome	Means of verification	Assumptions – Risks / enabling factors
Estuarine biodiversity and ecosystem functions (integrity) in the Cape Floristic Region are secured	All estuaries in the CFR are being managed in accordance with plans that prioritise biological diversity and ecosystem functionality.	CAPE Estuaries Programme M&E system.	Ongoing support and funding for the CAPE Estuaries Programme as a co-ordinating mechanism.
Strategic purpose (short-term impact)	Purpose indicators (targets)	Means of verification	Assumptions – Risks / enabling factors
The Estuarine Management Plan for the Klein River is adopted and its implementation is underway	<p>1. By the end of the five year period, participants are engaged in an organisational structure for implementation of the Klein EMP. They have the necessary institutional capacity for effective delivery. Tag: <i>Institutional arrangements</i></p> <p>2. By 2013, water in the Klein River estuary is safe for swimming all year round. Tag: <i>Water Quality and Flow</i></p> <p>3. By the end of the five-year period, users attach greater social and economic value to the Klein River estuary than they do now. Tag: <i>User value</i></p> <p>4. By the end of the five-year period, the Overstrand Municipality and land owners in the study area have introduced measures in their land use management practices to safeguard the health of the estuarine ecosystem. Tag: <i>Land Use Management</i></p>	<p>EMP quarterly progress reports compiled by EF Secretariat, oversight monitoring by CAPE Estuaries Programme.</p> <p>Water quality and flow monitoring reported in EF Secretariat's Quarterly Reports.</p> <p>Interviews conducted as part of the First Generation Klein EMP Final Evaluation.</p> <p>i) Integration of EMP products into Overstrand Municipality land use management system; ii) Re-zoning of Overstrand Municipality land to Open Space III; iii) Spatial and legal tracking of conservation stewardship agreements.</p>	<p>Ongoing support and funding for the CAPE Estuaries Programme as a co-ordinating mechanism. Ongoing prioritisation of the Klein River as a pilot site for implementation of an EMP.</p> <p>Ecosystem functionality has not irreversibly damaged. Adoption and implementation of Klein EMP five-year plan. DWAF prioritises and provides resources for RDM and improved regulation. Overstrand Municipality prioritises a 'clean-up' programme.</p> <p>Overstrand Municipality has resources and political will to implement projects identified in the EMP. Adoption and implementation of Klein EMP five-year plan.</p> <p>Conservation targets established by the CAPE Estuaries Programme are defensible and accepted by all stakeholders as the basis for determining the limit for development in the proposed Klein River, Stanford/Wortelgat RDA. Participation of the CAPE Conservation Stewardship programme in implementation of the Klein EMP. The promulgation and early effective date for the NEM:ICM Bill.</p>

Table 7 Klein EMP Logical Framework – Outputs level

Outputs	Output indicators	Means of Verification	Assumptions – Risks / enabling factors
PURPOSE 1: INSTITUTIONAL ARRANGEMENTS			
<p>Strategy 1.1 Institutional roles and responsibilities for planning, management and enforcement are agreed. Tag: <i>Who does what</i></p>	<p>1.1 a) All participant institutions accept the responsibilities identified in the adopted EMP document. 1.1 b) Any necessary delegations of mandates and/or responsibilities are confirmed.</p>	<p>Memorandum of Agreement for the implementation of the First Generation EMP. Memoranda of Agreement / Understanding for delegations.</p>	<p>CAPE EP facilitates the process. Representatives of all target group institutions timeously provide considered comments on the Draft EMP. Timeous conclusion of all the necessary MOUs/MOAs.</p>
<p>Strategy 1.2 An effective and sustainable organisational structure is facilitating and co-ordinating implementation of the EMP. Tag: <i>Someone to hold it all together</i></p>	<p>1.2 a) By 2010-Q1 (18 months after implementation commenced), a secretariat is producing quarterly progress reports on the implementation of the EMP. 1.2 b) At least two meetings of the Estuarine Forum are held annually. 1.2 c) The EF TWG meets quarterly. An authorised representative of every participating institution attends the meetings. 1.2 d) Annual progress reports on implementation of the EMP are produced. 1.2 e) An external evaluation is carried out in the final year of implementation of the First Generation EMP.</p>	<p>EF Secretariat distribution of Quarterly Progress Reports to TWG. Estuarine Forum Meeting minutes, attendance register. TWG Meeting minutes, attendance register. EF Secretariat distribution of Annual Progress Reports to TWG. First Generation EMP Final Evaluation Report.</p>	<p>The Estuarine Forum adopts the First Generation EMP and issues a mandate to the TWG. Agreement of TWG and Overstrand Municipality to establish the EF Secretariat in the Overstrand Municipality Infrastructure and Planning Directorate. Operating budget is secured for the EF Secretariat. A suitably skilled Project Officer is appointed to the EF Secretariat. Funds are secured for appointment of necessary service providers.</p>
<p>Strategy 1.3 Institutions and individual roleplayers have the necessary capacity and resources to engage in estuarine management. Tag: <i>Knowing what's important</i></p>	<p>By the end of 2009-Q2, staff required i.t.o. MAP 1.1 have been deployed in participating institutions and trained in estuarine management.</p>	<p>i) Training course attendance records; ii) Evaluation of delegates' feedback on the usefulness of the training course.</p>	<p>Institutional support is forthcoming and funds are secured for the creation of new posts or redeployment of existing staff to estuarine management. Funds are secured for development of training materials and facilitation of training course.</p>
<p>Strategy 1.4 There is improved compliance, from citizens and officials, with the provisions of the legislation</p>	<p>1.4 a) By the end of 2009-Q3, key members of Estuarine Forum and Overstrand Municipality, and designated enforcement officers from participating institutions, have received introductory training to estuarine management legislation.</p>	<p>i) Training course attendance records; ii) Evaluation of delegates' feedback on the usefulness of the training course.</p>	<p>Participating institutions identify and deploy enforcement officers. The Estuarine Forum identifies delegates for training and nominates members for a Compliance Campaign Working Group.</p>

Outputs	Output indicators	Means of Verification	Assumptions – Risks / enabling factors
<p>relating to resource use in and around the estuary. Tag: <i>Understanding and respecting the law</i></p>	<p>1.4 b) By the end of the five year period, implementation of Compliance Campaign projects are underway or completed.</p>	<p>Letters of award of contracts for implementation of interventions; Number of signed off contracts.</p>	<p>CAPE EP provides funds for training. Compliance Campaign Working Group is established and sustained. Overstrand Municipality supports and implements the recommendations of the Working Group.</p>
PURPOSE 2: WATER QUALITY AND FLOW			
<p>Strategy 2.1 District and Local Municipalities and the Breede Water Management Agency co-operate to develop and implement Resource Directed Measures (RDM). Tag: <i>Setting the limits</i></p>	<p>2.1 a) By the end of 2009-Q2 Resource Quality Objectives (RQOs), including limits for abstraction of surface and ground water resources, RQO targets, and mouth management strategies, are agreed. 2.1 b) By the end of 2009-Q3 a system for monitoring water quality and flow has been activated. 2.1 c) By the end of 2009-Q3 a GIS dataset of floodlines for the estuarine quaternary catchment has been integrated into the Overstrand Municipality's Land Use Management GIS. 2.1 d) At the end of the five-year period, agreed RQO targets are attained.</p>	<p>Estuarine Forum resolution, recorded in minutes of Estuarine Forum meeting. Collection and analysis of samples reported in Quarterly Reports. Response to information requests lodged at Overstrand Municipality Town Planning office. Monitoring and evaluation of water quality and flow samples reported in the First Generation EMP Final Evaluation Report. Agreement to implement the plan, reported in minutes of working group meeting.</p>	<p>Funds are secured for appointment of service providers. Agreement of Water Courts and DWAF on limits of abstraction. Impact of seasonal factors on baseline data collection and assessment.</p>
<p>Strategy 2.2 Water quality is improved, and flow is maintained or improved, through prioritised riparian restoration initiatives and an intensive local municipality-driven campaign to 'clean up' polluting activities and installations. Tag: <i>Safe for swimming</i></p>	<p>2.2 a) By 2010-Q2, an integrated management plan for invasive alien vegetation and sediment transportation in the Klein River catchment is adopted. 2.2 b) By 2010-Q4, implementation of the integrated management plan for invasive alien vegetation and sediment transportation is activated. 2.2 c) At the end of the five-year period, targets established for the implementation of the invasive alien vegetation and sediment transportation plan are attained. 2.2 d) By 2010-Q2, a pollution rehabilitation management plan is adopted. 2.2 e) By 2010-Q4, implementation of the pollution rehabilitation management plan is activated. 2.2 f) At the end of the five-year period, targets for pollution rehabilitation are attained.</p>	<p>Letters of award of contracts for implementation of interventions. Evaluation reported in the Project Co-ordinators Quarterly Reports. Agreement to implement the plan, reported in minutes of working group meeting. Letters of award of contracts for implementation of interventions. Sampling of estuarine water for <i>E.coli</i> inter alia, reported in Project Co-ordinator's Quarterly Reports.</p>	<p>Funds are secured for appointment of service provider teams. Impact of seasonal factors on baseline data collection and assessment. Potential divergence of two project time frames (Alien vegetation/sediment loading and Pollution), with consequent loss of integration and efficiencies. Funds are secured for capital works projects.</p>

Outputs	Output indicators	Means of Verification	Assumptions – Risks / enabling factors
<p>PURPOSE 3: USER VALUE</p> <p>Strategy 3.1 The social value of the estuary has been enhanced by the improvement of facilities for recreational users. Tag: <i>Amenity</i></p>	<p>3.1 a) By 2009-Q1, concept plans have been prepared for development of public recreation nodes on the shores of the Klein River estuary.</p> <p>3.1 b) By 2010-Q1, preparation of a Basic Assessment/EIA, and building plans, for all of the selected nodes, have commenced.</p> <p>3.1 c) By 2011-Q1, environmental authorisation and building plan approval for the selected nodes is secured.</p> <p>3.1 d) By 2012-Q1, construction of facilities has begun.</p> <p>3.1 e) By 2013-Q3, the completed facilities are operational.</p>	<p>Phasing plan and Project Concept and Feasibility Reports for development of selected nodes.</p> <p>Letters of award of service provider contracts.</p> <p>Letters of environmental authorisation and building plan approval.</p> <p>Signed building contracts.</p> <p>Certificate of practical completion.</p>	<p>Overstrand Municipality capacity to manage the nodal planning phase.</p> <p>Quality of information provided by estuarine user groups.</p> <p>Funds are secured for appointment of service provider teams.</p> <p>Recreational Infrastructure Working Group is established and sustained.</p> <p>Overstrand Municipality supports and implements the recommendations of the Working Group.</p> <p>Floodline data generated through MAP 2.1 is made available timeously.</p> <p>Funds for capital works projects are secured.</p> <p>Suitable municipal-owned sites are available for development of public infrastructure in suitable locations.</p>
<p>Strategy 3.2 Sustainable utilisation of estuarine resources is contributing to livelihood security and development of subsistence users and underemployed residents. Tag: <i>Economy</i></p>	<p>3.2 a) By 2010-Q2, Management Action Plans have been adopted for agreed strategies.</p> <p>3.2 b) At the end of the five-year period, agreed targets for developmental sustainable resource use are attained.</p>	<p>MOUs/MOAs for implementation of strategies.</p> <p>Monitoring and evaluation reports relating to Sustainable Resource Use strategy</p>	<p>Funds are secured for appointment of service providers.</p> <p>Availability of a suitably skilled team.</p> <p>Willingness and availability of estuarine resource users to participate.</p> <p>Quality of information obtained from estuarine resource users.</p> <p>Unpublished data on the fishery is published or made available to the project.</p>
<p>Strategy 3.3 Measures have been introduced to improve the safety and security of people and infrastructure at agreed public recreation areas, launch sites and on the water body. Tag: <i>Confidence</i></p>	<p>3.3 a) By 2009-Q3, Action Plans have been prepared for implementation of agreed strategies.</p> <p>3.3 b) By 2010-Q3, funding has been allocated for implementation of agreed strategies.</p> <p>3.3 c) Implementation of strategies is underway.</p>	<p>Action plan reports.</p> <p>Funding allocation in approved annual budget.</p> <p>Monitoring of milestone outputs identified in Safety and Security Action Plans.</p>	<p>Funds are secured for appointment of service providers.</p> <p>Availability of a suitably skilled service providers.</p> <p>Willingness and availability of estuarine recreational users to participate.</p> <p>Quality of information obtained from estuarine recreational users.</p> <p>Overstrand Municipality supports and implements the recommendations of the Working Group.</p> <p>Funding is secured for capital works interventions.</p> <p>Timeous procurement of services and contractors.</p>

Outputs	Output indicators	Means of Verification	Assumptions – Risks / enabling factors
PURPOSE 4: LAND USE MANAGEMENT			
<p>Strategy 4.1 The spatial implications of the EMP have been integrated into the Overstrand Municipality's SDF in the 2011 review. Tag: <i>Managing change</i></p>	<p>4.1 a) By 2009-Q3, conservation and development objectives for the estuarine management area / rural development area, have been agreed. 4.1 b) By 2010-Q1, all the elements of the Spatial Conservation and Development Framework have been developed in a format that can be integrated into the Overstrand Municipality's Land Use Management System. 4.1 c) The Overstrand Municipality's reviewed SDF (2011) carries forward the spatial priorities of the EMP.</p>	<p>Estuarine Forum resolution recorded in meeting minutes. Hand over of compatible GIS dataset and associated management guidelines to Overstrand Municipality. Evaluation of Municipal SDF relative to EMP 1st Draft SCDF.</p>	<p>Identification of an Implementing Agent. Capacity is available at senior level and GIS technical level in Land Use Management and Spatial Planning at Overstrand Municipality. Funds secured for service provider support. Required outputs from MAPs 4.2 (cadastral data, draft zoning scheme) and 4.3 (agreements on targets for development and conservation, identification of corridors and conservation priority areas based on fine-scale mapping), are made available timeously.</p>
<p>Strategy 4.2 A Coastal Zoning Scheme has been adopted for the estuarine management area. Tag: <i>Making it enforceable</i></p>	<p>4.2 a) By 2009-Q3, an up-to-date cadastral and zoning GIS dataset is available for use. 4.2 b) By 2010-Q1, a draft Coastal Zoning Scheme is available for use. 4.3 c) By 2011-Q1, the Coastal Zoning Scheme has been approved by regulators. 4.2 d) By 2011-Q3, the Coastal Zoning Scheme is integrated into the Overstrand Municipality's Land Use Management System.</p>	<p>Confirmation of receipt of dataset by Project Co-ordinators of MAPs 4.1 and 4.3. Confirmation of receipt of dataset by Project Co-ordinators of MAPs 4.1 and 4.3. Letters of approval of the Zoning Scheme. Response to information requests lodged at Overstrand Municipality Town Planning office.</p>	<p>ICM Bill promulgated and effective as an Act, provisions for Coastal Zoning Scheme upheld. Delegation of responsibility for preparation of coastal zoning scheme to Overstrand Municipality (i.t.o. ICM Bill, this is a District Municipality mandate. Land Use Zoning is a Local Municipality function i.t.o. Land Use Planning Ordinance). Capacity is available at senior level and GIS technical level in Land Use Management and Spatial Planning at Overstrand Municipality. Funds available for service provider support. Up-to-date cadastral and rural land use zoning data can be sourced.</p>
<p>Strategy 4.3 Public and privately owned land, and portions of the estuarine water body, are made available for management which prioritises biodiversity conservation. Tag: <i>Promoting stewardship</i></p>	<p>4.3 a) Agreement between Overstrand Municipality and Estuarine Forum regarding targets for conservation and development in the EMA by 2009-Q3. 4.3 b) By 2010-Q3 the Overstrand Municipality has adopted a Biodiversity Management Plan for the estuarine management area. 4.3 c) By 2010-Q3 CapeNature and DEAT have adopted a Conservation plan for declared nature reserves and MPAs in the estuarine management area. 4.4 d) By the end of the five-year period, agreed targets for protection of land and estuarine sanctuary areas are attained.</p>	<p>Resolution recorded in minutes of Estuarine Forum meeting. Council resolution recorded in Council meeting minutes. Record of resolution of adoption of the plan. Spatial monitoring and legal tracking of stewardship agreements. Gazetted notices relating to declaration of protected areas.</p>	<p>Overstrand Municipality and the Estuarine Forum reach agreement on conservation and development targets. Funds available for service provider support. Up-to-date data on land ownership and rural land use zoning can be sourced. Overstrand Municipality acts on the stated intentions in the SDF to make municipal land available for conservation. Participation of the CapeNature Conservation Stewardship programme. Support of CapeNature and DEAT in the preparation and implementation of the Protected Areas plan.</p>

PART D : LAND USE MANAGEMENT TOOLS

Introduction

The application and enforcement of many of the measures proposed in the EMP, by virtue of their environmental nature, have a spatial dimension. The EMP offers an integrated approach to land use management, environmental management and conservation, through the use of a GIS.

GIS enables the analysis of process elements and mapping of features such as hydrological sensitivity. This type of analysis is a useful informant in compiling a spatial development framework but it also has an application at a finer scale: it enables analysis at cadastre level to inform decision-making in a reactive context, as is the case when the Municipality is processing a development application. It is usually the developer's responsibility to do this type of analysis as part of an environmental authorisation application. If, however, the Municipality's GIS is equipped with the data, members of the public could potentially access the information *before* embarking on plans for development. A flood line is a typical example. Sensitive and dynamic environments, such as the Klein River estuarine management area, require "specific attention in management and planning procedures" (NEMA, 1998) which justifies the acquisition of such data and making it available in the public domain.

The mechanism for application and enforcement of land use management policies, objectives, strategies and guidelines is the planning or zoning scheme (formerly referred to as a Town Planning Scheme and now required to include rural areas). Planning schemes provide the Municipality with the tools for managing development through the application of zone- or overlay-based rules that are based on a national protocol.

The EMP therefore addresses land use management, and management of the use of the water body for recreational purposes, through two mechanisms traditionally associated with land use management at Category B (local) municipalities:

- a Spatial Development Framework, also incorporating spatial elements of a conservation plan, hence referred to as a Spatial Conservation and Development Framework (SCDF)
- the estuarine component of a Coastal Zoning Scheme, to be integrated into the Municipality's planning Scheme

A third component, the Biodiversity Assessment, provides a GIS-based analysis of process elements and sensitivity, for the purpose described above and to inform the development of a biodiversity management and protected areas plan for the estuarine management area.

1 First Draft of the Spatial Conservation and Development Framework for the Klein River Estuarine Management Area

1.1 Introduction

This First Draft of the spatial conservation and development framework for the estuarine management area, comprising a map and associated management guidelines, has been developed as a starting point for MAP 4.1 described in the Klein River Estuarine Management Plan (Klein EMP). Further information underpinning this proposal is provided in the Klein EMP Situation Assessment report (December 2007).

1.2 Objectives

Outcome 4: The Overstrand Municipality and land owners are prioritising biodiversity conservation in their use of the estuarine water body and terrestrial margins.

Output 4.1: The spatial implications of the EMP are integrated into the Overstrand Municipality's SDF in the 2011 review.

The planning framework provided here for the estuarine management area is intended to capture the spatial implications of the First Draft EMP. Whilst Spatial Development Frameworks (SDFs) are usually prepared at the scale of the Province or a District or Local Municipality, they are a useful tool for planning spatial development and conservation at any scale.

The Overstrand Municipality, in its SDF (2006), identifies the Klein River, Stanford/Wortelgat area as a priority to be considered for designation as a Rural Development Area (RDA). Implementation of the strategy requires a "multi-disciplinary planning/environmental analysis and assessment" to provide guidelines for the RDA as a basis for guiding "the location, nature, scale and design" of development.

The extent of the RDA is largely coincidental with the estuarine management area. The First Draft, provided here, is therefore a useful starting point for mobilising stakeholders around the decision-making process for development and conservation planning in the RDA and estuarine management area.

1.3 Study area

The study area includes elements that have a direct environmental impact on the estuary: the catchment of the Kleinriviersberge on the north side of the estuary, from which run-off enters directly into the system, the settlement of Stanford directly upstream, and the largely undeveloped plain of limestone fynbos and dune Strandveld to the south of the estuary which sits within the catchment and is assumed to drain into the estuary via an underground system of aquifers.

1.4 Limitations, assumptions and strategic decisions

The proposal is based on the Situation Assessment (December 2007) and observations in the field. It has yet to be discussed with key stakeholders. Some of the spatial data require verification, viz:

- Cadastral information;
- Transformed areas;
- Position of the beacons used for zoning of the water body i.t.o. Proclamation 357 of 1972.

The western delimitation of estuary zone 16E does not appear to include the full extent of the sediment deposition area at the head of the lagoon, possibly due to this having shifted westwards. A decision was made to extend the boundary of the proposed sanctuary area in zone 16E approximately 440 metres to the west of the existing beacon line.

Little is known about processes for recharging aquifers on the plain to the south of the estuary, nor how these might drain into the estuary. Until more is known about these geohydrological processes, a precautionary approach to managing development is recommended.

Decisions regarding the location of sanctuary areas in the estuary have been based on available data and observation, and these need to be assessed through further research.

1.5 Spatial conservation and development framework informants

The proposals are presented in Figure 11 and Table 9. A summarised version of the guidelines associated with estuarine zoning is presented in a poster format on page 97.

The approach aims to integrate priorities for estuarine, terrestrial and freshwater biodiversity conservation by securing protection of diverse, high-value or sensitive habitats, and connectivity, and directing development and recreational activities to areas that have higher resilience or are already transformed.

Within the **estuarine water body**, there are two areas that contain the greatest diversity of habitats and thereby offer the greatest potential for attaining the target of conserving 33% of all estuarine habitats (Turpie & Clark, 2007). These are located towards the mouth, and at the head of the lagoon where sediment deposition occurs. The two areas, which together support the habitats reported in Table 8, are proposed as no-take sanctuary zones, supporting low impact recreational activities. They are separated by a large body of open water that is proposed for recreational use, supporting the existing established use of this estuary for water sport.

Table 8 Extent of habitats in proposed sanctuary areas of the Klein River estuary

Habitat Types	Total Area (ha)	Area in Sanctuary Zones (ha)	% In Sanctuary Zones
Open water	249.22	704.11	35.4
Phragmites	30.40	57.58	52.8
Reeds and sedges	27.28	40.08	68.1
Rocky bank	3.84	4.33	88.8
Salicornia and Sarcocornia	8.31	8.45	98.3
Saltpan	1.55	1.55	100.0
Sand banks	78.25	159.18	49.2
Submerged vegetation	74.45	202.49	36.8
Supratidal saltmarsh	137.63	161.03	85.5

The Western Sanctuary area is immediately east of the marine environment and abuts the Walker Bay Nature Reserve on the south. It includes areas of rocky banks and *Salicornia – Sarcocornia*, some supratidal saltmarsh and submerged vegetation. The area north of the channel is characterised by extensive sand banks and is closest to the urban area of Hermanus. For this reason, it was decided to exclude this from the Sanctuary zone so that livelihood strategies dependent on bait collection and fishing in this area are not compromised. Undeveloped land adjoining this Restricted area is proposed for conservation in order to establish an ecological corridor that links marine systems, Walker Bay Nature Reserve, the Western Sanctuary zone, and Fernkloof / Vogelgat Nature Reserves.

Turpie & Clark (2007) set a target for securing habitats in the **terrestrial margin** at 50%. The extent of transformed land in an area defined by a one kilometre offset from estuarine habitats, extending as far as 1km beyond the R43 bridge, is currently approximately 50%. The approach to the terrestrial margin in this first draft SCDF was to identify transformed areas that are suitable for development and to limit development in other areas around the lagoon to the existing footprint. The latter is achieved through application of a set of management guidelines referred to as Spatial Planning Category (SPC) 'Conservation 2'.

In the central area of the lagoon, the northern bank of the estuary is already fairly densely developed. It's recommended that pressure for development be accommodated through densification of this 'RDA development node' rather than allowing it to spread, linear fashion, along the length of the estuary. This also improves the viability of extending municipal services to the area. Piped sewerage is an urgent necessity in order to address the impacts of septic tanks on estuarine water quality. The development of public recreation facilities, aimed at enhancing the social and economic value of the estuary, is supported in this area that has frontage on to the Recreational zone of the estuary. On the south shore, a pocket of transformed area has been included in the development node although it is likely that this will be lower density and slower to develop than the north shore.

As a mechanism for managing the uncertainty around hydrological sensitivity, described above and in Section, a temporary moratorium on any new boreholes, in situ sewerage and waste disposal is recommended on the south shore. This is represented in the SCDF as 'Management Overlay 1' covering the extent of the Agulhas Limestone Fynbos vegetation, which is indicative of wet limestone substrata, within the Coastal Protection Zone on the southern side of the estuary. On the north side of the estuary, hydrological sensitivity must be taken into account through the application of the guidelines in the buffer zones that have been identified in the Biodiversity Assessment (Figure 14).

The area to the north of the Eastern Sanctuary zone is relatively untransformed and presents opportunities for creating linkages between the sanctuary and the Kleinriviersberge through existing private nature reserves and conservancies, and other areas holding potential for biodiversity prioritisation, to be explored through MAP 4.3.

There is a high proportion of transformation in the area east of the lagoon primarily under agricultural use. The benefits to retaining farmland around Stanford relate to the productivity potential of the land as well as securing the village's character as a rural village. A riparian buffer of 100m from the banks of the main stem of the river is proposed as a precautionary measure in the absence of flood line information. Use of the buffer is limited to existing footprints, as described in the guidelines for Conservation 2.

1.6 Recommendations

This spatial conservation and development framework serves as the product that kick-starts a process described in MAP 4.1 of the EMP. The framework will be refined through participation of stakeholders. These activities should be co-ordinated with the Overstrand Municipality's Spatial Development Framework and the timing of the next SDF review process (2011), as well as intermediate outputs of MAPs 4.2 and 4.3.

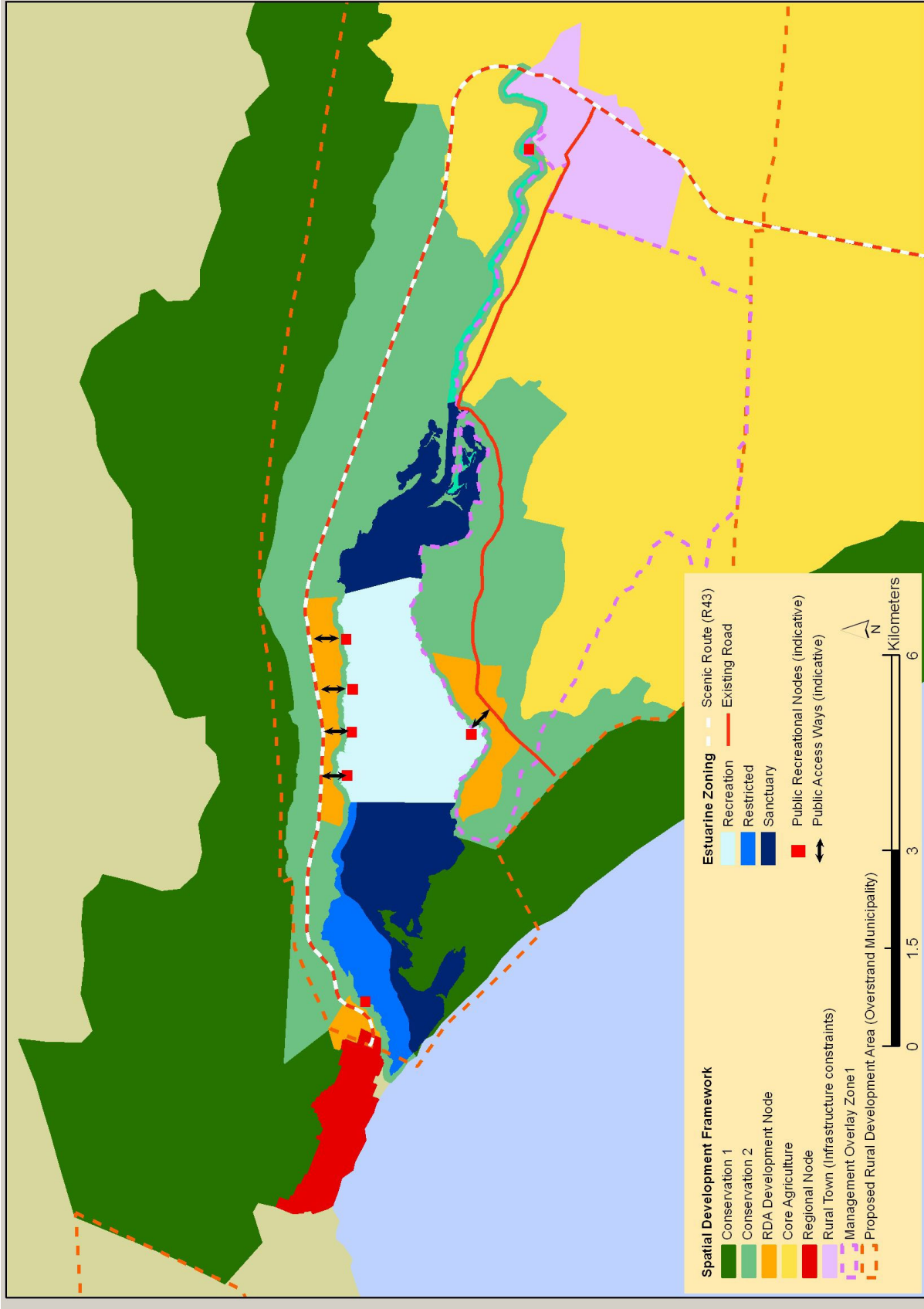


Figure 11 First Draft Spatial Conservation and Development Framework for the Klein River estuarine management area

Table 9 Operational objectives and management guidelines for the Klein River estuarine management area

SPATIAL PLAN- NING CATEGORY	DESCRIPTION / LOCATION	SPECIFIC INTENT	ESTUARINE AND LAND USE MANAGEMENT GUIDELINES
ESTUARINE SANCTUARY ZONE (WATER BODY)	<p>Western estuarine sanctuary zone: south of the main channel (dynamic delimiter), extending over zones 16A, 16B, 16C as defined in Proclamation 357, and including the full extent of estuarine habitats on the south bank.</p>	<p>a) <i>In situ</i> conservation of biodiversity, serving to attain the minimum target for conservation of 33% of all estuarine habitats, as established in the Conservation Plan for Temperate South African Estuaries (Turpie & Clark, 2007);</p> <p>b) Sanctuary area for birds, fish and invertebrates, and the protection of habitats;</p> <p>b) Monitoring undisturbed ecosystems and undertaking non-destructive research;</p> <p>c) Environmental education;</p> <p>d) Low impact, non-motorised recreational uses;</p> <p>e) Limited duration periodic sailing events.</p>	<p>Supported uses and activities: Canoes, kayaks, paddle skis, row boats and other low impact non-motorised craft. Sailing and para-sailing – only registered participants during authorised regattas Bird watching, hiking, swimming, non-destructive scientific research. Licensed guided catch-and-release enterprises. Release of concessions to be managed in compliance with open and transparent procurement processes.</p> <p>Non-supported uses and activities: No bait collecting. No killing or removal of fish or invertebrates at any time by any means except permitted scientific research. No motorised boats. No sail craft (except as supported). No jet skis. No planting, no harvesting of plant material (with the exception of rehabilitation activity relating to invasive alien vegetation). No aquaculture. No sand mining.</p> <p>Infrastructure and municipal services: No bridges or causeways. No launching. No jetties. No wharfs or edge hardening.</p> <p>Management interventions – refer Section D2.5</p>
	<p>Eastern estuarine sanctuary zone: full extent of zone 16E as defined in Proclamation 357 and an extension westwards of beacons PA126-PA127, measuring approximately 440m at the mid-point (to be verified) and including the full extent of estuarine habitats on the north and south banks.</p>		<p>Supported uses and activities: Canoes, kayaks, paddle skis, rowing boats and other low impact non-motorised craft excluding sails. Bird watching, hiking, swimming, non-destructive scientific research. Sustainable levels of harvesting of plant material from estuarine habitats to support job creating enterprises and livelihood strategies. Rehabilitation of the riparian reserve.</p> <p>Non-supported uses and activities: No bait collecting. No killing or removal of fish or invertebrates at any time by any means except permitted scientific research.. No removal of indigenous vegetation, no planting of any material (except where rehabilitation is underway), no fertilisers or pesticides in the riparian reserve. No motorised boats. No sail craft. No jet skis. No sand mining.</p> <p>Infrastructure and municipal services: No bridges or causeways. No launching. No jetties. No wharfs or edge hardening.</p> <p>Management interventions – refer Section D2.5</p>

SPATIAL PLAN- NING CATEGORY	DESCRIPTION / LOCATION	SPECIFIC INTENT	ESTUARINE AND LAND USE MANAGEMENT GUIDELINES
ESTUARINE RESTRICTED ZONE (WATER BODY)	North of, and including the main channel (dynamic delimiter), and including the full extent of estuarine habitats on the north bank, extending over zones 16A, 16B and 16C (as defined in Proclamation 357), restricted to a limit of 100m from the bank at Maanskynbaai.	<p>a) Restricted use to support adjacent estuarine and terrestrial conservation areas;</p> <p>b) Low impact recreational uses;</p> <p>c) Subsistence and recreational fishing and bait collection;</p> <p>d) Limited duration periodic sailing events;</p> <p>e) Sustainable use of estuarine resources for livelihood strategies and job creation purposes.</p>	<p>Supported uses and activities: Line fishing from the shore or from a boat or craft in compliance with MLRA permitting system and bag limits. Bait collecting, subject to periodic review, in compliance with MLRA permitting system and bag limits. Collection of mud prawn, sand prawn, bloodworm, pencil bait and tapeworm restricted to daylight hours, using legal implements. Canoes, kayaks, paddle skis, rowing boats and other low impact non-motorised craft. Motorised boats < 7Hp in transit only. Sailing and para-sailing – only registered participants during authorised regattas. Bird watching, hiking, swimming, non-destructive scientific research. Aquaculture enterprises, subject to EIA, licensing and concessions awarded through open and transparent procurement processes. Sustainable levels of harvesting of plant material from estuarine habitats to support job creating enterprises and livelihood strategies. Rehabilitation of the riparian reserve. Non-supported uses and activities: No capturing or removal of fish during mouth breaching events. No capturing of linefish species with cast nets, seine nets, gill nets or traps. No removal of indigenous vegetation, no planting of any material (except where rehabilitation is underway), no fertilisers or pesticides in the riparian reserve. No jet skis. No motorised boats > 7HP. No skiing. No sail craft except as supported. No sand mining. Infrastructure and municipal services: No bridges or causeways. Limit of one only licensed launch site and jetty. No other wharfs or edge hardening. Management interventions – refer Section D2.5</p>
ESTUARINE RECREATION ZONE (WATER BODY)	Zone 16D as established in Proclamation 357, excluding the sanctuary zone extension westwards of Beacons PA126-127, including the full extent of estuarine habitats on north and south banks.	<p>a) Accommodate water sport activity, angling, and other water-based recreational activities that provide amenity for residents and tourists.</p> <p>b) A focus for nodal development and use of water-related</p>	<p>Supported uses and activities: Line fishing from the shore or from a boat or craft in compliance with MLRA permitting system and bag limits. Bait collecting, subject to periodic review, in compliance with MLRA permitting system and bag limits. Collection of mud prawn, sand prawn, bloodworm, pencil bait and tapeworm restricted to daylight hours, using legal implements. Rehabilitation of the riparian reserve. Canoes, kayaks, paddle skis, rowing boats, motorised boats, sail craft, power boats, subject to periodic review of guidelines, by-laws and public notices aimed at ensuring safety and security of all users. Bird watching, hiking, swimming, scientific research.</p>

SPATIAL PLAN- NING CATEGORY	DESCRIPTION / LOCATION	SPECIFIC INTENT	ESTUARINE AND LAND USE MANAGEMENT GUIDELINES
		<p>shoreside facilities.</p> <p>c) Adaptive management of recreational activities to stay within physical and social carrying capacity using spatial and temporal sub-zones and permitting system.</p> <p>d) Sustainable use of estuarine resources for livelihood strategies and job creation purposes.</p>	<p>Aquaculture enterprises, subject to licensing and concessions awarded through open and transparent procurement processes.</p> <p>Sustainable levels of harvesting of plant material from estuarine habitats to support job creating enterprises and livelihood strategies.</p> <p>Non-supported uses and activities:</p> <p>No capturing of linefish species with cast nets, seine nets, gill nets or traps.</p> <p>No capturing or removal of fish during mouth breaching events.</p> <p>No jet skis.</p> <p>No sand mining.</p> <p>No removal of indigenous vegetation, no planting of any material (except where rehabilitation is underway) in the riparian reserve.</p> <p>Infrastructure and municipal services:</p> <p>No bridges or causeways.</p> <p>Launch sites, jetties, wharfs and edge hardening, subject to compliance with ICM Bill (Coastal Public Property), ORV Regulations (licensing of launch sites) and EIA regulations (structures below high water mark, activities within 100m of high water mark).</p> <p>Cleaning services to address water-borne waste at public recreational nodes.</p> <p>Management interventions:</p> <p>Safety and security guidelines to be developed through MAP 3.3 to establish spatial and temporal separation of conflicting activities. Ongoing monitoring, evaluation and adaptive management action, where indicated, to address issues relating to physical and social carrying capacity.</p> <p>Management interventions – refer Section D2.5</p>
<p>CONSERVATION</p> <p>1</p> <p>(TERRESTRIAL)</p> <p>Bioregional Spatial Planning Category “A,b Other Statutory Conservation Areas”</p>	<p>Statutory conservation areas: provincial, local and registered private nature reserves (Open Space III).</p> <p>Kleinriviersberge – areas above the 120m contour (recommendation of the Kleinriviersvlei Structure Plan and consistent with Overstrand Municipality proposal to establish the R43 as a scenic route)</p>	<p>a) <i>In situ</i> conservation of biodiversity, serving to attain the minimum target for conservation of 50% of the estuarine margin, as established in the Conservation Plan for Temperate South African Estuaries (Turpie & Clark, 2007);</p> <p>b) Monitoring undisturbed ecosystems and undertaking non-</p>	<p>Supported uses:</p> <p>Day visitor facilities, walking, horse-riding trails. No private ownership of tourist infrastructure – any developments by concession or lease. The release of concessions to be managed in compliance with open and transparent procurement processes.</p> <p>Existing and sustainable harvesting of natural resources such as medicinal plants, wild flowers, etcetera.</p> <p>Infrastructure and municipal services:</p> <p>Existing roads only. No new roads permitted without an EIA. Pedestrian pathways, hiking trails, bicycle paths, horse trails, designed to minimise impact on estuarine and other special habitats.</p> <p>No overhead lines or masts. Use of solar panels encouraged.</p> <p>Sewerage: septic tank or approved VIP system, subject to approved design and geohydrological report.</p> <p>Solid waste – Temporary storage on site in room or containers that are inaccessible to foraging animals. Transported to a municipal transfer station and / or a licensed disposal site.</p> <p>Management interventions:</p> <p>Fire management – compliance with Veld and Forest Fires Act.</p> <p>Invasive alien vegetation – compliance with CARA, Biodiversity Act.</p>

SPATIAL PLANNING CATEGORY	DESCRIPTION / LOCATION	SPECIFIC INTENT	ESTUARINE AND LAND USE MANAGEMENT GUIDELINES
		<p>destructive research.</p> <p>c) Environmental education.</p> <p>d) <i>Non-consumptive</i> land-uses (e.g. eco-tourism).</p> <p>e) Providing a broader spectrum of outdoor recreation opportunities as opposed to Category A.a, e.g. opportunities for mechanised activities, such as 4X4 access.</p> <p>f) Sustainable resource uses, such as game capturing and harvesting of plant products, e.g. buchu.</p>	<p>No clearing of coastal vegetation or disturbance of dunes or dune vegetation.</p> <p>Any development or infrastructure installations subject to full EIA.</p> <p>Investigate potential for declaration of statutory protection in terms of Mountain Catchment Areas Act of the area above the 120m contour.</p>
<p>CONSERVATION 2 (TERRESTRIAL) Bioregional Spatial Planning Category "B: Buffer areas"</p>	<p>Areas of private or municipal-owned land that are relatively untransformed and serve to connect Conservation I category areas to the Western and Eastern Sanctuary Zones of the estuary.</p> <p>Relatively untransformed privately owned land on the south side of the estuary, adjoining the Eastern Sanctuary Zone, containing high value wetlands.</p> <p>100m buffer offset</p>	<p>a) <i>In situ</i> conservation of biodiversity, serving to attain the minimum target for conservation of 50% of the estuarine margin, as established in the Conservation Plan for Temperate South African Estuaries (Turpie & Clark, 2007);</p> <p>b) Halt transformation of remaining untransformed natural environments in high-value, high-sensitivity biodiversity areas;</p> <p>c) Ecological corridors</p>	<p>Supported uses:</p> <p>Continued use of existing infrastructure and farm lands, within the existing footprint of transformed areas.</p> <p>Change of use, or consent use, of existing infrastructure for agri-tourism or eco-tourism purposes. No new development or cultivation outside the existing footprint of transformed areas.</p> <p>Stewardship agreements, financial incentives to owners who implement biodiversity prioritisation management interventions.</p> <p>Designation of formal protected areas. Day visitor facilities, walking, horse-riding trails.</p> <p>Development or continuation of enterprises involving the sustainable harvesting of natural resources such as medicinal plants, wild flowers etcetera.</p> <p>Subdivision of agricultural land, if it supports the intentions of this SPC, subject to authorisation in terms of LUPO and Act 70 of 1970, and EIA if a listed activity.</p> <p>Gardens planted with local indigenous vegetation. Maintain existing indigenous vegetation, rehabilitate transformed areas. Limited extent of lawn.</p> <p>Infrastructure and municipal services:</p> <p>No <i>in situ</i> sewerage discharge or disposal of solid waste within 100m of the bank of any river or water course.</p> <p>Management interventions:</p> <p>Promote stewardship and protected area designation (MAP 4.3).</p>

SPATIAL PLAN- NING CATEGORY	DESCRIPTION / LOCATION	SPECIFIC INTENT	ESTUARINE AND LAND USE MANAGEMENT GUIDELINES
	from the banks of the estuary and river within the Coastal Protection Zone.	linking core conservation areas.	Fire management – compliance with Veld and Forest Fires Act. Invasive alien vegetation – compliance with CARA, Biodiversity Act.
CORE AGRICULTURE	Southern part of the estuarine management area, and area surrounding Stanford, including a portion on the north side of the Klein River.	<ul style="list-style-type: none"> a) Maintain the agricultural reserve of farmland required for food production purposes; b) Protection of prime or unique agricultural land; c) Maintain a rural or pastoral character for tourism purposes. d) Promote LandCare and Area Wide Planning 	<p>Supported uses: Extensive and intensive agriculture (Agriculture I) excluding intensive feed farming and other consent uses which are supported in other spatial planning categories within the estuarine management area. Maintenance of corridors of natural vegetation between and around fields. Water-wise practices. Subdivision not supported, to be managed as provided for in Overstrand Municipality SDF Policy No.5 (Section 5: p49). Infrastructure and municipal services: No <i>in situ</i> sewerage discharge or disposal of solid waste within 100m of the bank of any river or water course. Management interventions: Compliance with, and monitoring and enforcement of, restrictions and responsibilities applicable to the riparian reserve (30m on either side of major rivers, 20m on smaller rivers and 10m on streams, according to DWAF's guidelines on demarcation of Riparian Reserves). 100m precautionary riparian buffer on the main stem and estuary of the Klein River, due to no floodlines information being available, managed in accordance with guidelines for Conservation 2. Integrated farm planning. Crop rotation. Fire management – compliance with Veld and Forest Fires Act. Invasive alien vegetation, erosion control – compliance with CARA, Biodiversity Act. MAP 2.2.</p>
RURAL DEVELOPMENT AREA (RDA) DEVELOPMENT NODE	Area south of the current alignment of the R43 on the north side of the estuary, with frontage on to the estuarine Recreational Zone. Area of transformed land on the south side of the estuary, with frontage on to the estuarine Recreational Zone.	<ul style="list-style-type: none"> a) Designated node for non-agricultural development within the Rural Development Area; b) Opportunities for diversification of activities on farmland; c) Efficiency of municipal services through clustered compact development; d) Enhancing the social and economic value of the estuary; 	<p>Supported uses: Roadside tourist facilities in accordance with Overstrand Municipality SDF Policy No.10 (Section 5: p58). Extensive and intensive agriculture (Agriculture I) excluding intensive feed farming. On-the-farm agri-tourism consent uses: guest farms, bed-and-breakfast enterprises, in accordance with Overstrand Municipality SDF Policy No.11 (Section 5: p59). Eco-tourism developments: guest houses, resorts, camping, hotels, in accordance with Overstrand Municipality SDF Policy No.12 (Section 5: p61). Public recreation nodes that enhance the social and economic value of the estuary, and related access ways. Subdivision of agricultural land, if it supports the intentions of this SPC, subject to authorisation in terms of LUPO and Act 70 of 1970, and EIA if a listed activity. Gardens planted with local indigenous vegetation. Maintain existing indigenous vegetation, rehabilitate transformed areas. Limited extent of lawn. Non-supported uses and activities: Golf courses, polo estates or other land uses that are water intensive and generate contaminated or nutrient rich run-off.</p>

SPATIAL PLAN- NING CATEGORY	DESCRIPTION / LOCATION	SPECIFIC INTENT	ESTUARINE AND LAND USE MANAGEMENT GUIDELINES
			<p>Canalisation of water courses, streams and rivers.</p> <p>Construction or infrastructure within the 1:100 year floodline. Precautionary principle to be applied until such time as floodlines have been calculated. 100m precautionary riparian buffer on the main stem and estuary of the Klein River, managed in accordance with guidelines for Conservation 2.</p> <p>Privatisation of Coastal Public Property (area below the high-water mark).</p> <p>Infrastructure and municipal services:</p> <p>Piped sewerage and water supply, and refuse collection service, is a pre-requisite to any new development in these areas.</p>
PUBLIC ACCESS WAYS	<p>On north side of estuary, to provide access from R43 at safe locations, to public recreation areas.</p> <p>On south side of the estuary, to provide access from the unsurfaced public road to a communal launch site.</p>	<p>a) Provide public access to the estuary at suitable locations (Requirement of the ICM Bill).</p> <p>b) Provide safe access to recreational nodes developed through MAP 3.1.</p> <p>c) Improve security by increasing visibility of estuarine recreational areas.</p>	<p>Supported uses (north side of the estuary):</p> <p>Vehicular access roads, subject to compliance with ICM Bill (access to Coastal Public Property), and EIA regulations (construction of roads, activities within 100m of high water mark) and appropriate engineering standards.</p> <p>Pedestrian pathways, hiking trails, bicycle paths, horse trails, designed to minimise impact on estuarine and other special habitats.</p> <p>Landscaping with indigenous materials, protection of water courses in their natural (un-canalised) state. Highly visible signposting on the R43.</p> <p>Supported uses (south side of the estuary):</p> <p>Vehicular access road, subject to compliance with ICM Bill (access to Coastal Public Property), and EIA regulations (construction of roads, activities within 100m of high water mark) and appropriate engineering standards.</p> <p>Management interventions:</p> <p>MAPs 3.1 and 3.3 and ongoing associated operation and maintenance.</p>
PUBLIC RECREATIONAL NODES	<p>Location of public recreational nodes to be identified through MAP 3.1.</p> <p>Limit of one node only in the area bordering the Restricted zone of the estuary.</p> <p>Limit of one node only in the Recreational/Resort area on the south side of the estuary.</p>	<p>a) Support nodal development of public recreational facilities that enhance the social and economic value of the estuary.</p> <p>b) Indicate where development contemplated in terms of MAP 3.1 might be located.</p>	<p>Supported uses (north side of the estuary):</p> <p>Launch sites, jetties, limited extend of edge hardening or wharfs, subject to compliance with ICM Bill (Coastal Public Property), ORV Regulations (licensing of launch sites) and EIA regulations (structures below high water mark, activities within 100m of high water mark).</p> <p>Sports clubs that provide boat mooring and storage facilities and otherwise cater to the needs of members who make use of the estuary for recreational purposes.</p> <p>Public facilities for day visitors, including parking, toilets and picnic sites.</p> <p>Phased release of a limited number of concessions for development of restaurants and other facilities that reserve right of admission to paying customers and that serve to enhance the social value of the estuary.</p> <p>Supported uses (south side of the estuary):</p> <p>Communal launch site and associated parking, servicing residents, subject to compliance with ICM Bill (Coastal Public Property), ORV Regulations (licensing of launch sites) and EIA regulations (structures below high water mark, activities within 100m of high water mark).</p> <p>Infrastructure and municipal services:</p> <p>Access – as per Public Access Way category;</p> <p>Piped sewerage and water supply, and refuse collection service, is a pre-requisite to any new development.</p>

SPATIAL PLAN- NING CATEGORY	DESCRIPTION / LOCATION	SPECIFIC INTENT	ESTUARINE AND LAND USE MANAGEMENT GUIDELINES
			<p>in these areas.</p> <p>Any development or infrastructure installations subject to full EIA.</p> <p>Landscaping of recreational facilities providing opportunities for environmental education. Use of non-indigenous vegetation limited to lawns.</p> <p>Buildings associated with recreational facilities providing shelter from wind, shaded summer areas, sunny winter areas, and optimising surveillance as a security strategy.</p> <p>Management interventions:</p> <p>MAPs 3.1 and 3.3 and ongoing associated operation and maintenance.</p>
RURAL TOWN	Stanford	Support the function of this settlement node as a rural village and tourist attraction	<p>Limits to growth determined by the capacity of the environment to support and sustain it, i.r.o. potable water and liquid waste disposal.</p> <p>No development or infrastructure below the 1:100 year floodline. Precautionary principle to be applied until such time as floodlines have been calculated.</p> <p>Urgent intervention required i.r.o. pollutants entering the estuary from Stanford via sewerage pump station overflow and <i>leiwater</i>, possibly also from septic tanks via underground hydrological system. Addressed through MAP 2.2.</p>
REGIONAL NODE	Hermanus	Support the function of this settlement node as an administrative and tourist centre	<p>Growth management via application of the urban edge and estuarine management area Spatial Conservation and Development Framework as presented herein.</p> <p>Potential leachate entering the estuary from the old Hermanus dumpsite, and possible leak or overflow from sewerage pumping station, requires investigation through MAP 2.2.</p> <p>Extension of piped services – water and sewerage – to the RDA Development Node on the north side of the estuary.</p>
MANAGEMENT OVERLAY ZONE 1	Limestone fynbos area south of the estuary	Application of the precautionary principle in this area where geohydrological processes associated with aquifer recharging are not yet known	<p>Interim management intervention, pending completion of geohydrological modelling for this area:</p> <ul style="list-style-type: none"> - No new boreholes; - No new in situ sewerage disposal; - No in-situ solid waste disposal.
ROAD NETWORK	General	Control impacts of ORVs	No new roads or tracks without a full EIA
SCENIC ROUTE	R43	Support the designation of the R43 as a Scenic Route (Overstrand Municipality proposal)	Visual impact assessment required as a component of the EIA for all activities that require an EIA

SPATIAL PLAN- NING CATEGORY	DESCRIPTION / LOCATION	SPECIFIC INTENT	ESTUARINE AND LAND USE MANAGEMENT GUIDELINES
RIPARIAN RESERVE	Impact zone adjacent to Klein River and minor tributaries and streams	<ul style="list-style-type: none"> a) Reduce sediment load, surface run-off of pollutants, and leachate into the river and estuary; b) Control of invasive alien vegetation; c) Flood attenuation and minimisation of flood damage 	<p>No cultivation or clearing of indigenous vegetation within 30m of the bank of a major river, 20m on smaller rivers and 10m on streams (DWA's guidelines on demarcation of Riparian Reserves).</p> <p>100m buffer for geohydrological processes, i.e. no septic tank soakaway solid waste disposal within 100m of a river, stream or water course.</p> <p>Invasive alien vegetation management programme developed through MAP 2.2.</p> <p>No development or infrastructure below the 1:100 year floodline. Precautionary principle to be applied until such time as floodlines have been calculated. 100m buffer to be managed according to guidelines for Conservation 2.</p>

2 First Draft of the Coastal Zoning Scheme for the Klein River Estuarine Management Area

2.1 Introduction

This First Draft of the Coastal Zoning Scheme for the estuarine management area, comprising a map and associated management guidelines, has been developed as a starting point for MAP 4.2 described in the Klein River Estuarine Management Plan (Klein EMP). Further information underpinning product is provided in the Klein EMP Situation Assessment report (December 2007).

2.2 Objectives

Outcome 4: The Overstrand Municipality and land owners are prioritising biodiversity conservation in their use of the estuarine water body and terrestrial margins.

Output 4.2: A coastal zoning scheme for the estuarine management area has been prepared and adopted by the Overstrand Municipality in compliance with the Integrated Coastal Management Bill.

The Bill defines a Coastal Zoning Scheme as “a scheme that (a) reserves defined areas within the coastal zone to be used exclusively or mainly for specified purposes; and (b) prohibits or restricts any use of these areas in conflict with the terms of the scheme”. The objectives of the Zoning Scheme over an area of coastal public property is “to protect and control the use of marine living resources or to implement national norms or standards” (ICM Bill).

It is intended that Coastal Zoning Schemes should be integrated into the planning Schemes of local municipalities in order to ensure that land use managers, developers and the public have access to the information.

2.3 Study area

The study area is defined by the extent of the largest of the coastal boundary areas applicable to the Klein River estuary, being the Coastal Protection Zone. This includes the full extent of any cadastre which is located within 1 km of the high water mark of the estuary.

2.4 Limitations, assumptions and strategic decisions

The Coastal Zoning Scheme (CZS) has been prepared for the estuarine area and does not show the extent of boundaries and zones that are generated by the adjacent marine area. Hence, whereas the definition of Coastal Public Property extends to the outer limit of the Exclusive Economic Zone (200 nautical miles off the coast), in the CZS provided here, for mapping convenience, it is shown as terminating at the estuary mouth.

Application of the provisions of the ICM Bill has yet to be tested. The interpretation presented here is largely that of the consultant, verified in certain respects through communication with the Marine and Coastal Management directorate of DEAT.

Data on the location of the high water mark for the estuary is not available. The outer extent of the estuarine habitats dataset has been used for the purpose of this map. The absence of this data, as well as information on the upper reach of saline intrusion, meant that it is not possible to conclusively define the extent of the estuary in legal terms. It has been assumed, for the purpose of preparing the First Draft map, based on anecdotal information, that the head of the estuary is at the R43 road bridge at Stanford.

An up-to-date cadastral dataset was not available and hence the extent of the Coastal Protection Zone may not be accurately depicted in this First Draft.

2.5 Coastal zoning scheme informants

The Coastal Zoning Scheme provides a vehicle for statutory zoning of the use of the estuarine water body, and also potentially for introducing regulations applicable to land use around the estuary where this is

considered to be necessary. Details on the purpose of the Coastal Protection Zone, definitions of the various coastal boundaries and information about Coastal Zoning Schemes is provided in the Situation Assessment Report – Appendix 1, Data Sheet No.11.

Figure 12 represents the spatial depiction of a basic Coastal Zoning Scheme generated by the Klein River estuary:

- The map shows the implications of including the full extent of any land parcel which falls within 1 kilometre of the high water mark, in the Coastal Protection Zone.
- Coastal Public Property comprises the water body of the estuary and any intertidal habitats, being defined as the area below the high-water mark.
- The map shows the zone defined by a 100 metre offset from the high-water mark, this being the area that is subject to requirements in terms of the EIA Regulations, described in the Situation Assessment Report – Appendix 1, Data Sheet No.7.
- It includes the proposed new zoning of the estuarine water body, to replace existing zones established in terms of Proclamation 357 of 1972 and confirmed in Municipal By-laws. The operational objectives and management guidelines for the Sanctuary, Restricted and Recreational Zones are described in Table 9, and are summarised in a popular poster format on page 97.

The management interventions for enforcement of these estuarine zoning conditions are:

- Patrolling and enforcement of MLRA regulations and local by-laws.
- Monitoring, evaluation, and adaptive management action where indicated, relating to:
 - » Impacts of bait collection on habitats. Interventions may include annual rotation of bait collection areas, boardwalk access.
 - » Individual species' stock status. Interventions may include reduced bag limits, reduced number of fishing competitions, upgrading of patrols and enforcement effort.
 - » harvesting of plant material. Interventions may include seasonal rotation of harvesting areas.
 - » disturbance or invasive alien plants or animals.

Provision is made for these in the EMP through MAPs 1.4 and 1.5 (development of estuarine management capacity, para-legal training for enforcement) and MAP 3.2 (monitoring of living resources).

2.6 Recommendations

The First Draft Coastal Zoning Scheme for the estuarine management area is included as a component of the EMP as a starting point for MAP 4.2 which is a process of refining and testing the legal implications of the application of the ICM Bill (as a pilot case) as well as the drafting of any by-laws or amendments associated with its implementation, including the review of the recreational use zones established in terms of Proclamation 357. Ultimately MAP 4.2 will embed the zoning scheme into the Overstrand Municipality's town planning scheme.

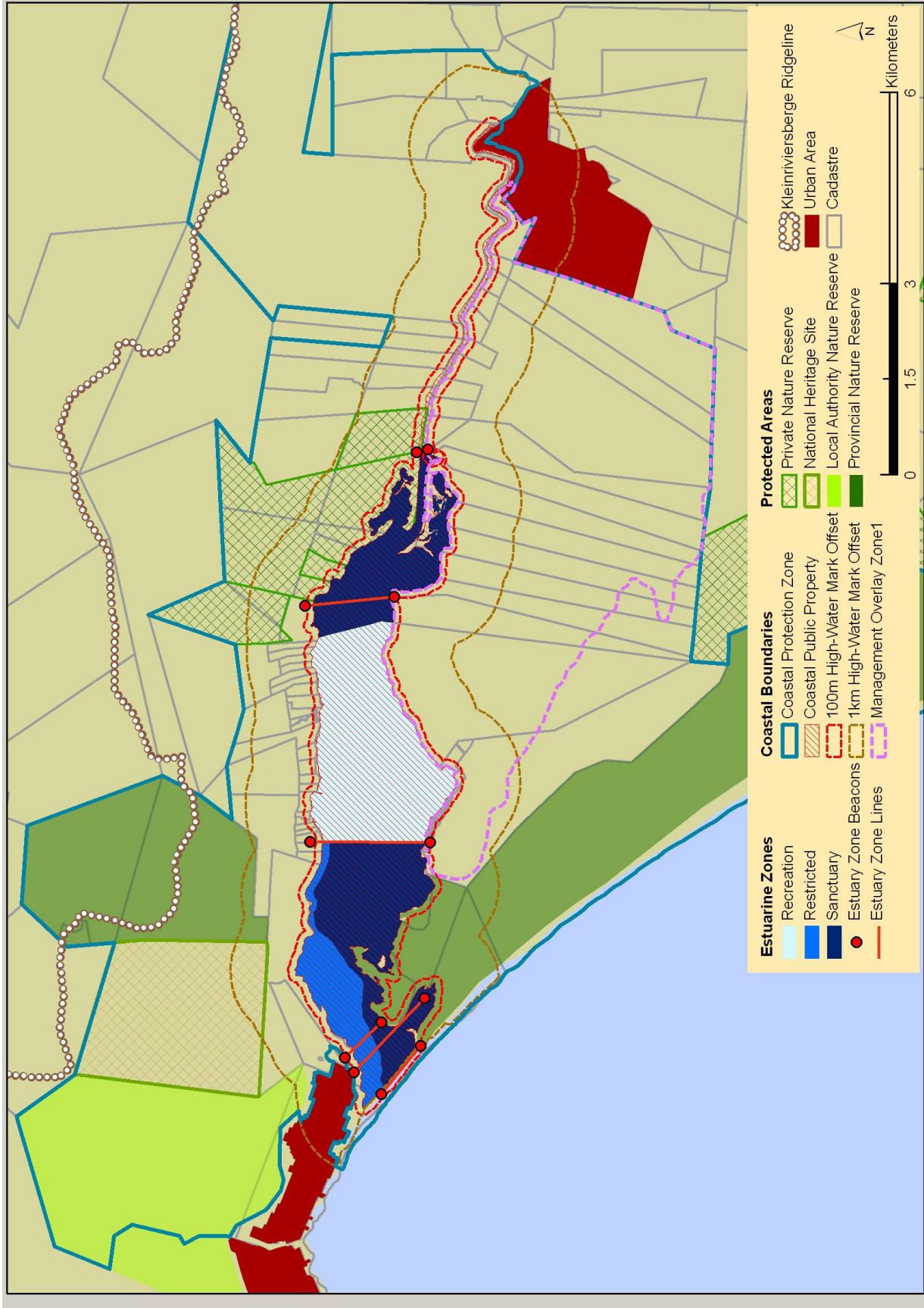
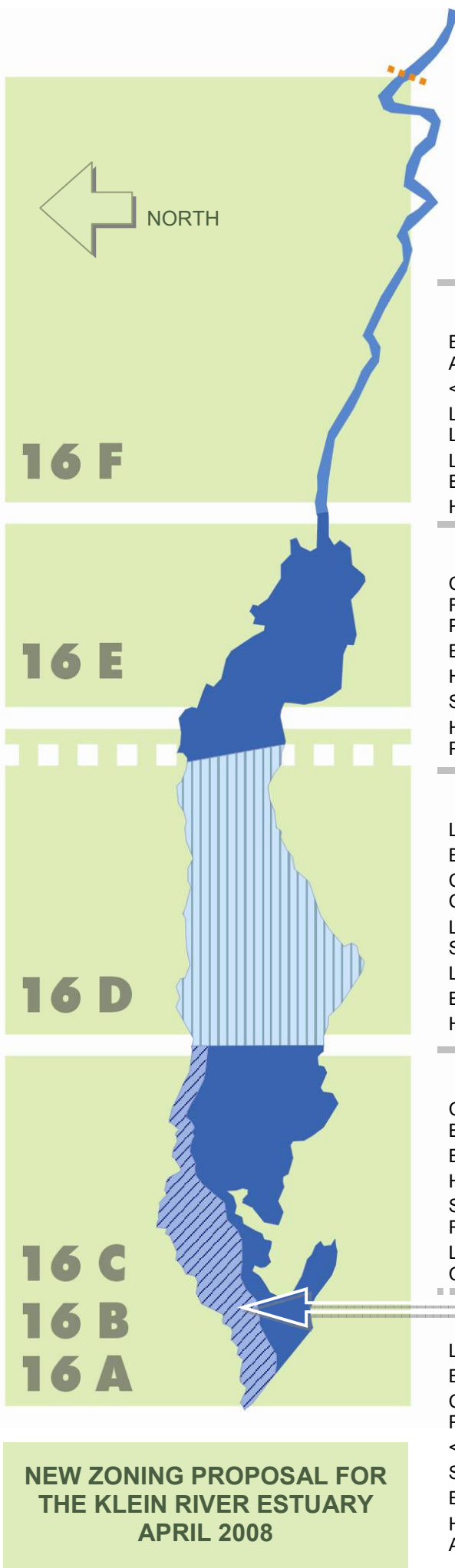


Figure 12 First draft Coastal Zoning Scheme for the Klein River estuarine management area



SUPPORTED

NOT SUPPORTED

UPPER REACHES

BIRDWATCHING, CANOEING,
 ANGLING
 < 7HP MOTORISED BOATS
 LAUNCHING FROM LICENSED
 LAUNCH SITES, JETTIES
 LICENSED TOURBOAT
 ENTERPRISES
 HARVESTING OF PLANTS

MOTORISED BOATS >
 7HP, JET SKIS, SKIING
 REMOVAL OF
 INDIGENOUS
 VEGETATION
 SEDIMENT LOADING
 FERTILISER AND
 PESTICIDES RUN-OFF

EASTERN SANCTUARY ZONE

CANOES, KAYAKS,
 ROW BOATS,
 PADDLE CRAFT
 BIRDWATCHING
 HIKING
 SWIMMING
 HARVESTING OF
 PLANTS

MOTORISED BOATS, JET SKIS, SAIL
 CRAFT
 BAIT COLLECTING, FISHING
 FISH NETS AND TRAPS
 LAUNCHING, JETTIES
 SAND MINING
 CLEARING OF INDIGENOUS
 VEGETATION, AQUACULTURE

RECREATION ZONE

LINE FISHING
 BAIT COLLECTING
 CANOES, KAYAKS, ROW BOATS, PADDLE
 CRAFT, SAILING, MOTORISED BOATS
 LAUNCHING FROM LICENSED LAUNCH
 SITES, JETTIES
 LICENSED TOURBOAT ENTERPRISES
 BIRDWATCHING, HIKING SWIMMING
 HARVESTING OF PLANTS, AQUACULTURE

FISH NETS
 FISH TRAPS
 JET SKIS
 SAND MINING
 CLEARING OF
 INDIGENOUS
 VEGETATION

WESTERN SANCTUARY ZONE (SOUTH OF THE CHANNEL)

CANOES, KAYAKS, ROW
 BOATS, PADDLE CRAFT
 BIRDWATCHING
 HIKING, SWIMMING
 SAILING DURING
 REGATTAS ONLY
 LICENSED GUIDED
 CATCH-AND-RELEASE

BAIT COLLECTING, FISHING
 FISH NETS AND TRAPS
 LAUNCHING, JETTIES
 MOTORISED BOATS, JET SKIS
 SAND MINING
 CLEARING, HARVESTING OF
 PLANTS, AQUACULTURE

RESTRICTED ZONE (NORTH OF THE CHANNEL)

LINE FISHING
 BAIT COLLECTING
 CANOES, KAYAKS, ROW BOATS,
 PADDLE CRAFT
 < 7HP MOTORISED BOATS IN TRANSIT
 SAILING DURING REGATTAS ONLY
 BIRDWATCHING, HIKING, SWIMMING
 HARVESTING OF PLANTS,
 AQUACULTURE

FISH NETS
 FISH TRAPS
 CLEARING OF
 INDIGENOUS
 VEGETATION
 WATER SKIING
 JET SKIS
 SAND MINING
 EDGE HARDENING

**NEW ZONING PROPOSAL FOR
 THE KLEIN RIVER ESTUARY
 APRIL 2008**

3 First Draft of the Biodiversity Assessment for the Klein River Estuarine Management Area

3.1 Introduction

This First Draft of the Biodiversity Assessment has been developed as a starting point for MAP 4.3 described in the Klein River Estuarine Management Plan (Klein EMP). Further information underpinning this assessment is provided in the Klein EMP Situation Assessment report (December 2007).

3.2 Objectives

Outcome 4: The Overstrand Municipality and land owners are prioritising biodiversity conservation in their use of the estuarine water body and terrestrial margins.

Output 4.3: The Overstrand Municipality, WC Nature Conservation Board and private land owners make land and portions of the estuarine water body available for management which prioritises biodiversity conservation.

The biodiversity assessment supports the objectives for the preparation of the Biodiversity Management Plan, as described in MAP 4.3, to secure the conservation of biodiversity priority areas in the estuarine management area viz:

- to identify municipal-owned land that is suitable for biodiversity conservation purposes and develop a plan for its management;
- to identify areas (land and possibly water) that are suitable for incorporation into the formal protected areas network through their declaration as nature reserves, protected environments and marine protected areas, and develop a plan for action towards this goal;
- to identify privately owned land parcels that would contribute to the establishment of a system of linked conservation areas and to engage the land owners in implementing this plan.

The First Draft assessment, provided here, is the starting point for mobilising stakeholders around targets for conservation of estuarine, freshwater and terrestrial biodiversity processes. The assessment will be refined through detailed survey, mapping and ground-truthing of areas identified for protection or special management. The targets relevant to the Klein River estuary and which have been defined in Turpie & Clark (2007), are:

- Estuarine water body: 33% under protection
- Terrestrial margin: 50% untransformed

Targets for conservation of the different vegetation types occurring within Klein River Catchment have been defined by the National Biodiversity Spatial Assessment.

3.3 Study area

The watersheds of the Klein River estuarine quaternary catchment, G40L, have been used to delimit the area for the First Generation EMP Biodiversity Management Plan.

3.4 Limitations, assumptions and strategic decisions

The key limitations to concluding a biodiversity assessment within the Klein River estuarine management area relate to data. Many of the GIS layers currently available are too coarse to enable detailed analysis and planning, and most of the biodiversity data and established assessment methodologies relate to the terrestrial ecosystems. Estuarine habitat mapping is available but value- and resilience- ratings, or alternative, habitat-based, approaches for prioritising estuarine areas, have not been developed.

In this assessment, we have identified geohydrological and coastal sediment processes in relation to indicator vegetation types due to the absence of data on other features. Geohydrological data, specifically identifying important areas for protection for aquifer recharge, are not available. Areas of Agulhas Limestone Fynbos are potentially significant for geohydrological processes.

The minor tributaries of the Klein River have not been assessed in terms of their river health or in terms of their biodiversity. However, the assessment has classified all mapped rivers and streams together with a river margin (width is dependent on slope) as hydrologically sensitive.

The biodiversity assessment presented here is a desktop study. Participating institutions now need to work together to develop the assessment, based on agreed targets for both representivity (biodiversity pattern) and persistence (biodiversity processes), and this will need to be rooted in the reserve determination for ecological requirements for the river and estuary. Decisions – regarding location of estuarine sanctuary areas and an expanded protected area network – will need to be based on improved data, analysis and consultation.

3.5 Biodiversity assessment informants

The overall approach in undertaking the biodiversity assessment has been to use existing spatial biodiversity data to derive terrestrial biodiversity value-sensitivity and hydrological sensitivity informants. The river corridors, the estuary and the marine ecosystems have been identified as important from biodiversity process perspectives. Areas assumed to be important for coastal sediment and geohydrological processes have also been identified.

The approach to this assessment has been to use existing spatial biodiversity data to derive an overall terrestrial biodiversity value-sensitivity and hydrological sensitivity. The available data layers for the Klein EMP have been presented in the Situation Assessment Report (December 2007) and are not repeated here. The following is a summary of the method employed to derive the First Draft Biodiversity Assessment.

Biodiversity Value-Sensitivity

A terrestrial *biodiversity value layer* was created by combining the analyses of the following factors and classes were assigned for terrestrial vegetation types and habitats in the following way:

- Habitat conservation status (critically endangered, endangered and least threatened);
- Habitat ecosystem status (not protected, hardly protected, poorly protected, moderately protected and well protected); and
- Special habitats (identified special habitats from Theewaterskloof, Overstrand and Renosterveld putting plans to work datasets and include, for example areas of milkwood forest).

A terrestrial biodiversity sensitivity layer was based on:

- Species sensitivity in terms of known locations of threatened species from the SANBI Threatened Species Programme.
- Topographic sensitivity (all areas >20 degrees were prioritised)
- Hydrographic sensitivity (all river reaches were classified in terms of landform and then a margin width was allocated accordingly with upper slopes having narrower margins than flat slopes or valleys)

The value and sensitivity layers were combined to derive a combined terrestrial biodiversity value-sensitivity layer with two key classes identified in Figure 14 as “low” and “moderate to high”.

Hydrological sensitivity

Areas delimited fall within the margins identified for all river reaches classified in terms of landform, as above.

Biodiversity processes

To accommodate biodiversity processes beyond the surface freshwater, estuarine and marine ecosystem processes, the team identified two key vegetation types: Overstrand Dune Strandveld and Agulhas Limestone Fynbos as surrogate features which are prioritised for coastal sediment processes and geohydrological processes.

3.6 Recommendations

This assessment serves as the product that kick-starts a process described in MAP 4.3 of the EMP: The Biodiversity Assessment will need to be refined through fine-scale habitat mapping and field survey verification of the sensitivity-value analysis. These activities should be co-ordinated with the Overberg fine-scale mapping project. The product will then be used in the development of a Biodiversity Management Plan. The addition of ownership data (currently not available) is required for the purpose of distinguishing between state-owned and privately owned land.

The biodiversity assessment has informed the development of the First Draft Conservation and Development Framework presented in Section D1. It can also be used at a finer scale of land use management, to inform decision-making relating to proposed land use changes, developments, upgrading of infrastructure and services, expansion of protected areas and rehabilitation efforts. Negative impacts to the areas identified as hydrologically sensitive, or having moderate to high biodiversity sensitivity, should be avoided. The cause of any existing negative impacts needs to be investigated and managed. This will be addressed in the EMP through MAP 2.2.

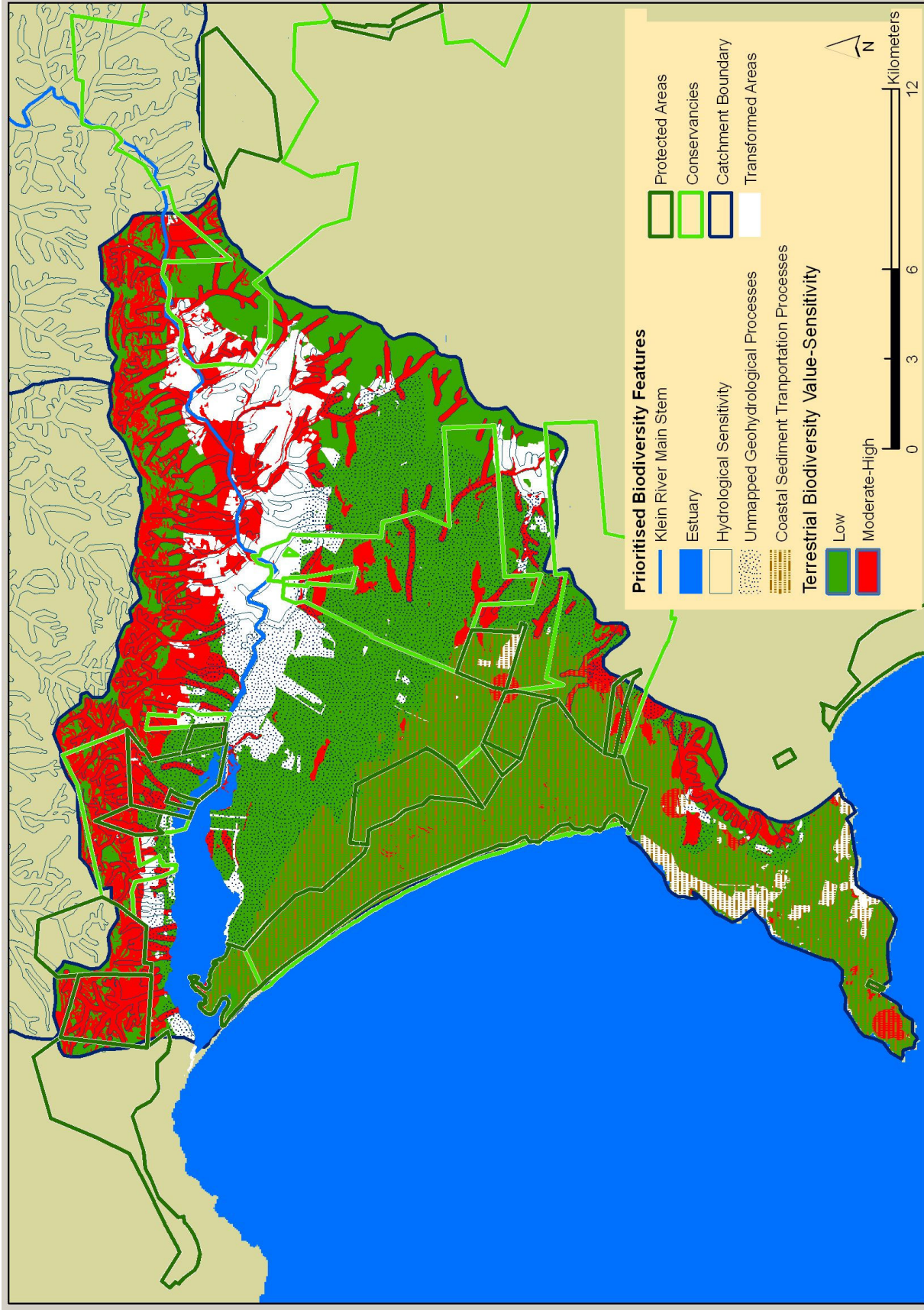


Figure 14 First Draft Biodiversity Assessment of the Klein River Estuarine Management Area

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