UNITED NATIONS ENVIRONMENT PROGRAMME
NAIROBI CONVENTION

WIOSAP FULL PROPOSALS TEMPLATE

Call title: Implementation of the Strategic Action Programme for the protection of the Western Indian Ocean from land-based sources and activities (WIO-SAP)

Participating countries: Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa, Tanzania [and France (not project beneficiary)]

Executing organization: Nairobi Convention Secretariat

Duration of demo projects: 2 years

Stage of the call: Full proposals

Submission dateline: 5th March 2019

INSTRUCTIONS

Organisation Name	Department of Environmental Affairs
Project Title	Improvements in Marine Water Quality through enhanced Estuarine Management
Address	1 East Pier Road, East Pier B
Website	www.environment.gov.za
Contact Person	Name: Bali Luvuyo Telephone: 021-405 9491 Mobile phone: 0741486476 Email: LBali@environment.gov.za
Registration Details	Type of organisation: Government Department Country: South Africa Registration Number: Year: 2019

EXECUTIVE SUMMARY:

Department of Environmental Affairs (DEA) in the pursuit of investigating the causes and impacts of impaired water quality on the living marine resources and associated dependent communities in order to uphold legal obligations and improve national standards and guidelines for water quality maintenance. This is done in line with SAP implementation and domesticating Nairobi Convention. The project envisages mitigation of impacts from land-based sources, activities and to sustainably manage critical coastal and marine ecosystems. South African national laws are cascaded from international agreements and hence this proposed project for WIOSAP funding consideration.

The envisaged rational this project is to 'ensure that marine water quality is 'fit for use' for different users with the possibility of setting thresholds for multi-users in a stressed environment'. This project will result in also providing a conducive environment in terms of good water quality for sustainable local economic development while minimizing environmental and social impacts associated with poor water quality resulting from discharge of untreated effluents into estuary waters. Special consideration will have been given to reducing increasing levels of pollution that are threatening human health, fish stocks contamination, monitoring sources and thus restoring sustainable integrity of coastal ecosystems goods and services.

The Project seeks to bring together all the stakeholders in ensuring that there is no duplication of in water quality conducted in the Estuaries, thus utilising resources efficiently and effectively. Both Buffalo and Swartkops are pristine Estuaries in the country. The project further will also focus on broad strategic issues such as ecological governance, shared responsibility and unambiguous water quality monitoring solutions which will be implementable, carefully planned, collectively managed by partners and impactful on Estuary river health.

This project is thus aligned with Nairobi Convention's (WIOSAP) project intention of improving and maintaining the environmental health of the region's coastal and marine ecosystems through enhanced management of land-based stresses. The South African project will fulfil component B which envisages improved water quality focuses on the need for the WIO Region's water quality to attain international standards by the year 2035. The accumulative adaptive management activities will ensure management structures, public education, enable shared accountability by partners, conscious actions, foster collaborations and capacitate government.

This process will result in the following:

- Situational analysis which draws from stakeholder inputs, literature review and consensus discussions on ecological system for socio-economic development.
- Provides for holistic implementation of corrective measure to be applied in addressing strategic issues, pollution challenges, mutual interests and compliance with legislation.
- Adaptive management towards the restoration of ecological infrastructure that sustain healthy estuaries which satisfy biodiversity value. Thus improving estuary management activities and deliver essential goods and services on a sustainable basis.
- Catalytic interventions, high impact projects and water quality monitoring protocols.
- Active stakeholder involvement and community participation in corrective measures.

This Proposal Outlines the Following Sections

i. Project Background and Justification

The situational analysis will also focus broad strategic issues, ecological governance, shared responsibility and unambiguous water quality monitoring solutions which will be implementable that are planned, manageable by partners and impactful on Estuary river health. The section will also provide South Africa's State of the environment, international, National and Local prescripts which inform the intervention in the only two Metropolitan cities of the Eastern Cape Province.

ii. Partnerships

The stratified stakeholders include National and Provincial government, Public Entities, Metropolitan Cities, Universities, Civil Society Organizations, Private Sector firms, Anglers, Traditional Leaders, Faith-based organizations and Schools

iii. Objectives

There are three specific objectives with five outcomes. The first objective has three outcomes, and objective two and three have one each.

iv. Project Implementation and Management Plan

Each component or all activities will culminate into an informed governance structure, initiate public education, facilitate shared responsibility by partners, conscious management actions and equip project beneficiaries. Our approach to this assignment would be very participatory, inclusive and given equal opportunities to users and stakeholders alike in order to facilitate broader shared expectations, their intentions and facilitate demand led-service delivery mode by both stakeholders and beneficiaries.

v. Sustainability and Replicability

At the end, a workshops (education, training, awareness and institutional capacity building) will be held to facilitate a shared vision estuary and work agreements around water quality monitoring program thus encourage future coordination, collaborative efforts and facilitate institutionalization as a driver for project sustainability and restoration ecological systems (goods and services). Since this project falls within the budgeted mandate of some partners, it has a chance to be sustained and replicated. DEA will use the lessons learnt to better coordinate marine and coast monitoring for mutual benefits of all users plus mandated institutions.

vi. Projects Monitoring and Evaluation

Here there would be proposed mechanisms and processes to be followed to monitoring and assess the progress. This will involve outcomes progress monitoring of all planned activities, project operations and appropriate corrective actions. There will be continuous water quality monitoring and periodic impact evaluation against the water quality guidelines as stipulated by the Environmental Quality Objectives and Targets.

vii. Budget

Lastly, a complete cost breakdown of the project will be presented for your consideration. Some activities will occur concurrently, responding to multiple outcome or outputs and share in the limited budget.

I. BACKGROUND AND JUSTIFICATION

1.1. Overview Background

Estuaries are recognised as productive ecosystems, which are of economic, recreational and aesthetic value.[1] Increasingly, the estuarine ecosystem is threatened through anthropogenic influences such as pollution, excessive freshwater abstraction in the catchment and over-fertilisation from nutrients in agricultural and urban runoff.[2] Estuaries, as the end-users of water of the entire catchment, reflect the land-use of the catchment and are essential areas to trap nutrients and other chemical compounds before discharge occurs into the adjacent coastal ocean.

As popular areas for settlements and recreation, estuaries have been impacted around the world. In South Africa, several cities, agriculture, tourism, residential developments and recreational activities are concentrated along the coast but primarily focus around or adjacent to estuaries. These developments impact on estuaries in the way of nutrient over-enrichment, siltation, and reduced freshwater inflow due to freshwater abstraction and so on.

1.2. Problem Statement

Currently, it is impossible to get a clear picture of the water quality status of the two estuaries at any given time and space or detect any possible trends. Other challenges include the fact that different Water Monitoring initiatives are ongoing either short-term or once-off programmes; there are monitoring programmes designed for various purposes, linked to mandates leading to fragmentation and overlaps plus inefficiency in limited resources utilizations. The aggregated impacts are unknown since water quality data is incompatible due to different methods and difficulty in accessing it.

At present, however, the flow in the river has increased from the naturalised conditions. The increased load of sediment in the longshore drift due to the harbour, may lead to increased deposition on the flood tidal deltas inside the mouth and constrict the mouth, reducing the tidal prism and therefore flushing of pollutants in the estuary.[3] Ecological Specifications for water quality sets concentration limits for water quality constituents in river inflow so as to ensure that the estuary is protected. An assessment of the spatial and temporal variability in water quality in 2012 and 2013 provided a new data set which showed an overall deterioration in the water quality of the estuary.[4]

To improve the health of the Estuary from a "D" to a "C" would require an improvement in the water quality, and volume of 'treated' sewage wastewater, control of stormwater input, reduced fishing and bait collection and rehabilitation of the salt marsh and salt pan areas. It would be impossible to return some of the estuary integrity due to the substantial loss of natural habitat due to urban development, the disturbance of biota and habitat destruction which have all reduced ecosystem health. No additional development (structures) on the floodplain should take place for safety reasons and sense of place.

---

[1] Scharler UM and Baird D 'The filtering capacity of selected Eastern Cape estuaries, South Africa' (2005) 31(4) Water SA 483 – 490.

[2] Scharler UM and Baird D (2005) 83 – 490.

[3] Belcher A, Quibell G, Kleynhans N, van Driel D, Boshoff T, Weston D, Cobban D, Möller R and MacKay H 'Zwartkops River Water Resources Management Plan: A Situation Assessment and Development of a Catchment Water Resources Management Plan' (June 1999).

[4] Adams J.B, Pretorius L and Snow G.C 'Deterioration in the water quality of an urbanised estuary with recommendations for improvement'(2019) 45(1) *Water SA* 86 – 96.

1.3. Demo Rational

This demonstration aims not only to improve water quality monitoring and management practices in Swartkops Estuary and Buffalo River Estuary but also to increase ecological health. The overall intent is to mitigate or remove the adverse effects that impacts on water quality through 'concrete' stress reduction activities such as recovering habitats, discharge monitoring, encourage healthier practices by industry, conduct environmental education, coordinated efforts and ensuring mutual interests for all users.

The proposed project will result in the identified improvements on the water quality for estuaries and provide an enabling environment for growth in the marine aquaculture sector, thus reducing pressure on the natural stocks. Partners will jointly implement mitigation strategies for coastal protection and restore marine ecosystems from undesirable land-based sources pollution and other related activities.

A long-term monitoring programme is needed to continuously evaluate the effectiveness of management actions to improve the health of the Estuary. Data will be used to identify whether Thresholds of Potential Concern (TPCs) have been exceeded to ensure that there is a timeous response. Ecological specifications for the water quality parameters are based on the South African Water Quality Guidelines produced by the Department of Water Affairs (DWAF, 1995) and the water quality guidelines as stipulated by the Environmental Quality Objectives and Targets in the Coastal Zone of the Western Indian Ocean (WIO) Region (UNEP/Nairobi Convention Secretariat and CSIR, 2009).

Adaptive management proposed hereto provides a structure for activities and actions that occur within the estuary and its environments going forward. Thus such management actions must take place within established legal, policy and/or best-practice frameworks. Exploitation of bait (invertebrates and fish) can be controlled by the enforcement of the Marine Living Resources Act (MLRA) in terms of bag limits, collection methods and licenses.

Habitat loss can be prevented by implementation of the Integrated Coastal Management Act, application of the coastal protection zone, Municipal coastal setback lines and inclusion of Critical Biodiversity Areas in all planning schemes (EnviroFish, 2011). Integrated planning should allow for the maintenance of a riparian zone along the length of the estuary where sensitive habitats occur.

1.4. THE STATE OF ENVIRONMENT IN SA

- SA has between 250 000 - 1 million species of plants and animals (one of richest in the world).
- Approx 80% of terrestrial plant species and 12% of coastal plant & animal species are unique to SA.
- 7.5% of world's vascular plant species and 5.8% of world's mammal species.
- SA has 8% of world's bird species and 4.6% of the world's reptile species.
- 16% of the world's marine fish species and 5.5% of world's recorded insect species.
- Two internationally renowned hotspots and five Southern African hotspots of biodiversity. Third most important country in world for biodiversity.
- South Africa has the second-highest number of plant extinctions in the world.

1.5. DEFINITION OF ENVIRONMENT

The definition of environment is taken from the National Environmental Management Act 107 of 1998. 'Environment' means the surroundings within which humans exist and that are made up of:

(i) Land, water and atmosphere of earth;
(ii) Micro-organisms, plant and animal life;
(iii) Any part or combination of (i) and (ii) and the interrelationships among and between them;
(iv) Physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

1.6. SUSTAINABLE DEVELOPMENT

Definition: 'the integration of social, economic and environment factors into planning, implementation & decision-making so as to ensure that development serves present and future generations'.

In the second half of the 20th century, the degradation of the environment became a topic of widespread concern. People and governments recognized their moral responsibility towards the earth and its well-being. It is now accepted that present trends will result in the world becoming more crowded, more polluted, less ecologically stable and more vulnerable to natural hazards in the years that lie ahead.

These trends are leading to a reduction in the quality of life for all people. There are two components leading to environmental degradation: The loss of renewable resources & deterioration and destruction of natural processes which ultimately sustain life. Human population increase exacerbates the problem.

At no other time in history are the rates at which we are using resources, modifying natural systems and increasing our numbers so great. Some changes are direct and obvious such as soil erosion and loss of species; while others are indirect such as ozone depletion, climate change, acid rain, and elimination of genetic diversity by agriculture practices and unsustainable harvesting (collapse of fishing industry).

1.7. SOUTH AFRICAN CITIES ARE IN CRISIS

- Over 40 million people live in SA, and the population is growing.
- 50% of the SA's population lives in urban areas
- 40%-50% of people living in SA do not have proper housing, electricity and access to clean water (cholera epidemics). Freshwater is SA's most limiting resource.
- SA has the highest extinct rates for plants in the world.

Agenda 21(Healthy Cities), an action plan and blueprint for sustainable development and Department of Environmental Affairs has a responsibility in South Africa for the implementation of Agenda 21. The two fundamental requirements stressed in this initiative were to secure widespread commitment to the ethic for sustainable living and to integrate conservation and development.

1.7.1. NINE PRINCIPLES FOR BUILDING A SUSTAINABLE SOCIETY

- Respect and care for a community of life
- Improve the quality of human life

- Conserve the earth's vitality and diversity
- Minimize the depletion of non-renewable resources
- Keep within the earth's carrying capacity
- Change personal attitudes and practices
- Enable communities to care for their own environments
- Provide a national framework for integrating development and conservation
- Create a global alliance

Efforts to conserve the world's biological diversity seek to address the principles of 'sustainable development' have established three globally applicable goals for the convention:

- The conservation of biological diversity,
- The sustainable use of its components, and
- The fair and equitable sharing of the benefits from the use of genetic resources.

1.8. Supportive International Obligations, Legislation, Policy and Management Plans

The overarching legal, policy and management context of estuaries within South Africa is sighted below. The intention is to strictly focus on the framework of legal and management tools available for the said river estuaries.

This, therefore, highlight two issues, firstly the subject of legal requirements, i.e. the minimum requirement for legal compliance to the letter and spirit of the law, and secondly, the interpretation and implementation of management interventions. This includes international obligations, national legislation, provincial frameworks and local government plans.

An example of such legislations includes Constitution (24) which provides for reasonable enactment of laws and other pollution prevention measures. ICM Act (83) (1) empowers the Minister to prescribe type and format of data to be submitted to the DEA and other organs of state for the purpose of monitoring and implementation of Act. NEMA facilitates improved adherence with ocean environmental reporting requirement. NPA recommends the development and implementation of monitoring and evaluation programme for land-based source of pollution.

Table 2: Important National Legislations and Linkages

International Obligations	Short Description
Convention on Wetlands of International Importance especially as Waterfowl Habitat (1971) (Ramsar Convention)	The broad aims of this Convention are to stem the loss and to promote wise use of all wetlands (including estuaries). The Convention linked to the project due to sustainable support of the wetland ecosystem rehabilitation. Due to number of polluters at the Swartkops estuary and Buffalo River, the ecosystem degrade to extent of losing nutrients and valuable species. Habitat loss is against species restoration. The industries around these rivers need to implement their waste management plans as per NEM: Waste Act
Agenda 21 (1992) as reaffirmed at the United Nations World Summit on Sustainable Development - Johannesburg Summit (2002)	This is not a legal binding document, but Agenda 21 is an internationally accepted strategy for sustainable development; the principles of sustainable development are easily applied to the estuarine scenario. **The local Agenda 21 linked to the project in the sense that the communities within the estuaries need to take ownership of the estuaries. Local Agenda 21 reflects the involvement of communities in the decision making when it comes to management of natural resources and assets.**
United Nations Convention on Biological Diversity (1992)	The objectives of convention include the conservation of biological diversity; the sustainable use of biological resources; and the fair and equitable sharing of benefits arising from the use of genetic resources. CBD is the world convention on biological diversity that support the protection of nature both marine and terrestrial. The protection of the Buffalo and Swartkops supported by CBD as it will increase the protection estate of South Africa. The project linked to CBD due to protection environment.
United Nations Framework Convention on Climate Change (1992)	This framework sets an ultimate objective of stabilizing greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. This has particular relevance to estuaries when considering changes in rainfall, storm severity and flood levels and frequencies. The UNFCCC linked to the project due to ecosystem support on carbon sinks. The ecological sustainability of the Swartkops and Buffalo will add on the climate change resilience. Saltmarshes and mangroves restoration contribute on carbon sinks.
Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) (1995)	The GPA is designed to assist states in taking action to prevent, reduce, control or elimination the degradation of the marine environment (including estuaries), and to assist in its recovery or rehabilitation from the impacts of land-based activities.

	Global Programme of Action for the Protection of the Marine Environment from Land-based Activities. The main goal of the GPA is to secure additional commitments from a full range of partners to further the implementation of the Global Programme of Action (GPA) in addressing the priorities and needs of countries as well as to make decisions that prevent pollution in the marine environment. This proposed project mainly focus on prevention of marine litter in the marine ecosystem, where the environment need to be sustained. Marine pollution (litter, nutrients and wastewater/ effluent) are significant threats to the marine environment of South Africa. In 2008, a National Programme of Action (NPoA) for the Protection of the Marine Environment from Land-Based Activities (NPoA) was developed by the Republic of South Africa to give effect to the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities. This project is very critical in elimination of waste in the receiving environment. Surveys need to be done from time to time at Buffalo and Swartkops to look if the project is doing impact on the species regrowth.	
National Relevant legislation & policy	**Description**	**Relevance/ implication**
The Constitution of the Republic of South Africa (Section 24)	Provides all citizens the right to an environment that is not harmful to their health or well-being as well as to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that: prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.	The environmental right in the Constitution is particularly relevant as it highlights the need to curtail current pollution incidents, prevent future events and implement a strategy to reverse the ongoing ecological degradation of River Estuaries and past management trends. The project linked to the implementation of the Constitution of South Africa, as there is no need to harm the environment. The constitution also reflect on the cooperation of stakeholders in environmental management. Chapter 3 of the constitution talks of cooperative governance. This linked to the project as South Africa need to cooperate with the Nairobi Convention objectives on environmental management.
National Environmental Management Act (Act 107 of 1998)	Provides for co-operative environmental governance through the establishment of national environmental management	The principles of NEMA need to be applied the development of plans. These

	principles, and procedures for their incorporation into decisions affecting the environment. It provides that specific attention be given to sensitive, vulnerable, highly dynamic or stressed ecosystems, such as estuaries.	Estuaries are considered to be a sensitive, vulnerable and highly dynamic ecosystem. NEMA specific coastal restrictions on activities in the estuary. NEMA linked to the project as NEMA reflect to the alignment of plans from local, provincial, national and international. NEMA also reflect on the concurrency on environment. NEMA more likes Disaster Management Act hence, these acts projects that environment is everybody's business.
Marine Living Resources Act (Act 18 of 1998) amended 2000	This Act regulates the utilization, conservation and management of marine living resources and the need to protect whole ecosystems preserve marine biodiversity and minimize marine pollution.	Recreational fishing, bait collecting and subsistence harvesting (to a lesser degree) are famous pastimes in respect to River Estuary. This Act regulates these activities such as launches at the mouth of the Estuary. MLRA is the act that protects living an non-living marine resources. This project need living Swartkops and Buffalo River.
National Water Act (Act 36 of 1998)	This Act ensures the protection of South Africa's water resources and aquatic ecosystems, including estuaries through the development of policies to provide guidance in developing resource quality objectives as well as the regulation of water use as well as waste disposal.	Estuaries are classified as a water resource under this Act and as such, this Act provides guidance in respect to any objectives identified in regard to both water quality and quantity. This act linked to the project due to Water Quality monitoring to be done in the both identified sites.
National Environmental Management: Biodiversity Act (Act 10 of 2004)	This Act provides for the conservation of biological diversity, regulates the sustainable use of biological resources and ensures the fair and equitable sharing of the benefits arising from the use of genetic resources.	Estuaries are considered to be critical in respect to biodiversity value and provides for the protection of all biodiversity within the estuary environment. The act linked to the project as the project address the marine biological ecosystem restoration. Biodiversity act not only focus

		on this project ecosystem restoration; it also address the biological sustainability that is on threat due to development pressure.
National Heritage Resources Act (Act 25 of 1999)	The Act introduces an integrated and interactive system for the management of national heritage resources which include landscapes and natural features of cultural significance.	Potential areas of National heritage significance could be identified. This act linked to the project as we want to retain our archaeological status of this estuary properties. This act promote the pristine status of the environment, and this is what we want to achieve in this project.
Local Government: Municipal Systems Act	These Acts requires Municipalities to prepare and adopt a single inclusive plan for the development of the Municipal area called an Integrated	Metros are a capacitated Municipality with a range of planning instruments developed to guide development. Local Government Municipal Systems Act linked to the project in the sense that the municipality need to be the face of government in managing these Estuaries. The municipalities we talking about is the Nelson Mandela Bay Municipality for Swartkops and Buffalo City for Buffalo River. Both these municipalities need to integrate these municipalities on the Municipal Integrated Development Plans and the Municipal Spatial Development Framework as per Spatial Planning and Land Use Management Act (SPLUMA).
Act 32 of 2000) Local Government Transition Second Amendment Act (Act 97 of 1996)	Development Plan (IDP) which are intended to encompass and harmonize planning over a range of sectors such as water, transport, land use and environmental management. These Plans are proposed to Link, integrate and coordinate plans and take into account proposals for the development of the municipality; Align the resources and capacity of the municipality with the implementation of the plan; Form the	Are discussed in detail in later sections.

	policy framework and general basis on which annual budgets must be based; and Be compatible with national and provincial development plans and planning requirements that are binding on the municipality in terms of legislation.	
Water Services Act (No. 108 of 1997)	This Act provides for the national management of water services via: Management of right of access to basic water supply and basic sanitation necessary to secure sufficient water and an environment not harmful to human health or well-being; Management and control of water services, in general, including water supply and sanitation; Regulation of industrial use of water, both in terms of use and disposal of effluent; and Preparation and adoption of Water Services Development Plans by water services authorities that typically form part of IDP's.	The River Estuaries is a transformed "working" system and any future planning needs to take cognizance of this Act in respect to both water supply and sanitation as well as in regard to industrial effluence and runoff. It is already articulated above.
National Environmental Management: Waste Management Act (2009)	This Act proposes to regulate waste management in order to protect the health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards for regulating the management of waste by all spheres of government	This act is the critical act linked to the project because the waste is what we want to address in the project. Waste Management is the key. This is because two estuaries identified also mentioned at National Biodiversity Assessment as estuaries affected by pollution to the extent of degrading. In terms of this act, municipality need to appoint a Waste Officer to develop the Waste Management Plan. Waste Act advises the country and the municipality to move away from fragmented uncoordinated waste management to integrated waste management. The Waste management plan of Nelson Mandela Bay Municipality and Buffalo City Municipality waste management plan need to address estuary management plans. The estuaries management planning

		implementation need to be address by the waste plan of the municipality. Issues of water quality testing need to be reflected on the waste plan. The estuary zonation and activities need to be reflected. In case of bathing and fishing on these estuaries, water quality need to be tested from time to time to detect the levels of ecoli on the waters. This project once more want to achieve the water testing to look at the health status of these estuaries for the benefit of the future

1.1.2. Other Relevant Legislation, Policies, Strategies and Plans include the following

- National Forests Act (84 of 1998)
- Conservation of Agricultural Resources Act (43 of 1983) (CARA)
- National Ports Authority Act (5 of 2003)
- National Environmental Management: Waste Act (59 of 2008) – (NEDM:WA)
- Marine Pollution (Control and Civil Liability) Act (No. 6 of 1981)
- Tourism Act (No. 72 of 1993, as amended in 1996 & 2000)
- Disaster Management Act (No. 57 of 2002)
- National Policy National Climate Change Response White Paper (2012)
- White Paper for Sustainable Coastal Development (2000)
- National Waste Management Strategy (2010)
- National Biodiversity Strategy and Action Plan
- South African Risk and Vulnerability Atlas (SRVA, 2010)
- National Protected Area Expansion Strategy for South Africa (2008)
- Eastern Cape State of Environment Report (2010)
- Eastern Cape Climate Change Response Strategy (2011)
- Eastern Cape Biodiversity Conservation Plan (ECBCP) (2007)
- Eastern Cape Coastal Management Programme: 2013 Update
- Eastern Cape Provincial Integrated Waste Management Plan (PIWMP) 2010
- Department of Water and Sanitation: Development of Procedures to operationalise resources directed measures – Estuary and Marine tool analysis and standardization report (Oct, 2016)
- BCMM Integrated Coastal Zone Management Plan (2006)
- BCMM Integrated Environmental Management Plan (2001)
- BCMM Climate Change Strategy (2012)
- BCMM Sanitation Policy and Strategy (2007)
- NMBM Open Space System (MOSS)
- NMBM Spatial Development Framework, 2009

II. PARTNERSHIPS

Partner Name	Mandate	Role in the project	Resources partner will provide
Walter Sisulu University	Develop knowledge and assist through research to solve societal issues	Analysis of water samples.	Mobile laboratory.
Nelson Mandela University	Develop knowledge and assist through research to solve societal issues	Research on estuaries Databank Key informant and reference point	Personnel and laboratory services Coordinate information & knowledge management. Materials development Publications of results findings
Department of Water and Sanitation (DWS)	Regulate freshwater, catchment management and water security	To be part of the management of the project and also members of the project steering committee. Critical partner and reference	Experts, financial resources, operational, tools, information & equipment, maps, research, records, platforms to share replicate & compliance staff
Department of Agriculture Forestry and Fisheries (DAFF):	Food security, environmental health and mitigation of environmental risks	To be part of the management of the project and also members of the project steering committee.	Experts, financial resources, operational, tools, information & equipment, maps, research, records, platforms to share replicate & compliance staff
Provincial Department of Environmental Affairs:	To provide support to the National Department of Environmental Affairs (Oceans and Coasts) branch in the implementation of the project.	To be part of the management of the project and also members of the project steering committee. Co-host and Provincial principal Interested and affected party	Experts, financial resources, operational, tools, information & equipment, maps, research, records, platforms to share replicate & compliance staff
South African National Biodiversity Institute	Biodiversity parameters	To provide research work and knowledge.	Personnel, reference scientific literature, knowledge depository.
Buffalo City and Nelson Mandela Metros	To manage estuaries	To maintain a healthy status of the estuaries within their jurisdiction.	Hosting Office, compliance staff, maps, literature, plans & operational equipment
Community Trusts, Clubs, Anglers, schools, traditional healers & faith-based organization	Visual monitoring of the estuaries	Form part of the estuaries clean-up operations. Interested and affected party. Dependent communities	Workforce, platforms to share, volunteers Responsive audience to support the project Oversight and feedback on impact

III. OBJECTIVES

A. Overall objective

To improve the status and conditions of Buffalo and Swartkops estuary waters in a manner that sustainably support coastal ecological systems goods and services thus increasing adaptive management actions in the context of fitness for use by dependent group of people.

There are three specific objectives with five outcomes. The first objective has three outcome, and objective two and three have one each.

B. Immediate/Specific Objectives

Three Specific objectives are as follows:

(1) Better understanding of the importance of these estuaries and negative environmental economic and social impacts associated with poor water.

- Conduct a Situational Analysis
- Propose water quality monitoring activities in the estuaries.
- Recommend scenarios for adoptive management

(2) Develop a common water quality monitoring program to measure and report on regular basis on the status of the Estuaries for different users.

- Establishing Project Steering Committee (PSC) and unambiguous terms of reference
- Training and awareness programs for governmental, community, civil society and privates sector stakeholders.
- Efficient and cooperative arrangement in water quality monitory by various mandated institutions
- Adopt an effective communication for reporting findings, transgressions and progress.

(3) Promote cleaner efficient water quality by preventing and reducing water pollution at source.

- Facilitate local knowledge, culturally sensitive education and estuary health awareness amongst resources users and dependants.
- Improve compliance and enforcement of legislation.
- Real-time *in situ* monitoring, expanding the number and types of indicators monitored, and reducing costs while improving reliability of sampling tools and analysis.

IV. PROJECT IMPLEMENTATION AND MANAGEMENT PLAN

Project Title: Improvements in Marine Water Quality through enhanced Estuarine Management

4. Project Overall Objective: *To improve the status and conditions of Buffalo and Swartkops estuary waters in a manner that will sustainably support coastal ecological systems goods and services thus increasing adaptive management actions in the context of fitness for use by dependent group of people.*

4.1. Better understanding of the importance of these estuaries and related negative environmental, social and economic impacts associated with poor water quality.

Project Results	Indicator	Target/baseline	Method
Outcome 4.1.1 Situational Analysis Report development to identify and analyse the impact of poor water quality.	**IND.1.1** Situational Report agreed upon by all relevant stakeholders document on status quo and framework for water quality protection Stakeholder inputs on consequences and remedial actions regarding poor water quality	**Target**: Comprehensive understanding of past reports and studies Planning information and management decisions **Baseline**: Research studies, university thesis, media reports, departmental policies & programs, estuarine related literature, government plans, meeting minutes, stakeholder presentations, articles, GIS maps municipal reports and publications	Data Collection Literature Review Interviews Focus Group Discussion Consensus Building on with role players Presentation to stakeholders Adoption by the DEA Field traverse observations
Outcome 4.1.2 Develop a common water quality monitoring program and sites identification for the estuaries. Promotion of good water quality by prevent and	**IND.2.1.** Water Quality Monitoring Program developed and adopted by all relevant stakeholders. Monitoring Sites Established Awareness programs and workshops (one each quarter). Industry and Community consultation	**Target**: Mandated institutions and Government Water quality guidelines as stipulated by the Environmental Quality Objectives and Targets in the Coastal Zone of the Western Indian Ocean (WIO) Region Strategy and human capital to enforce compliance by responsible authorities	Focus groups Workshops Planning sessions Literature review Consensus Building

reducing water pollution at source		Mapping pollution hotspots / discharge effluents sites Monitoring techniques used in the processing of marine and estuarine water quality samples **Baseline**: Lack of information and informal sites monitoring No shared understanding and monitoring indicators Current water quality monitoring programs Status of the estuaries unknown Different monitoring programs	
Outcome 4.1.3 Recommended scenarios for mitigative management plans.	4.1.3.1. Water quality monitoring standardisation through implementation of similar methods. 4.1.3.2. Management Scenario reports compiled and available upon request.	**Target** Diagnostic analysis of management practises Consolidated performance management reporting Estuary Ecological systems management scenario **Baseline** Every stakeholder has own maps, hotspot sites, monitoring indicators, literature and protocols. Aggregated impact of water quality unknown disintegrated and divergence management practises	Secondary data collection Literature review (maps) Status Quo analysis Integrated Development Planning Mutual Beneficial Monitoring Program Stakeholder analysis Performance management tools Work breakdown Analysis
4.2. Provide a mutual beneficial and collaborative water quality monitoring program to measure and report on regular basis on the status and trends on the condition.			
Project Results	**Indicator**	**Target/baseline**	**Method**
Outcome 4.2.1. Establishing Project Steering Committee (PSC) and unambiguous terms of reference (ToRs)	4.2.1.1. Attendance and valuable stakeholder contributions; 4.2.1.2. Acceptance to nomination in the PSC	**Target** Government, public entities, universities, civil society organizations, community interest groups, fishermen & anglers association, NGOs and private sector.	Document and institutional mandates review Invitations (RSVPs) Meetings Workshops

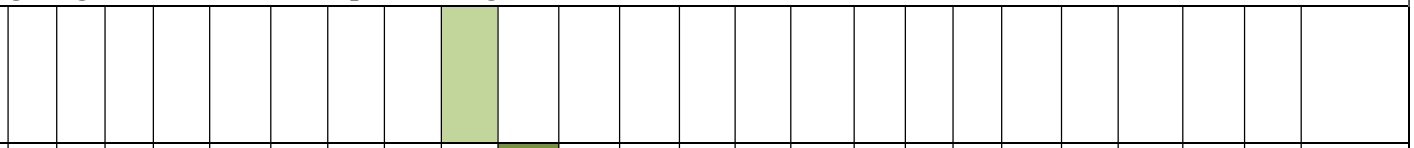
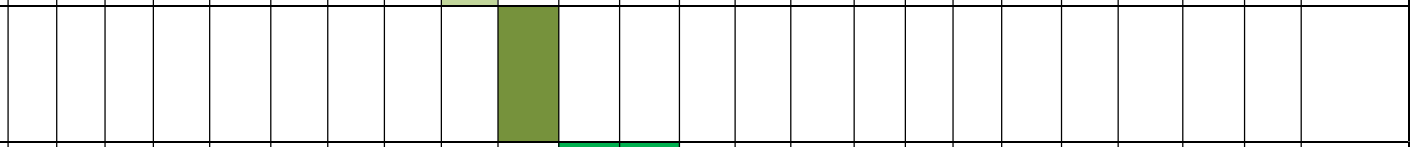
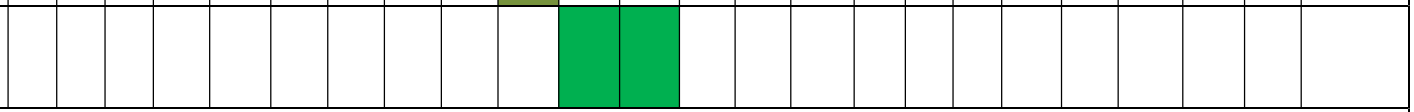
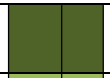
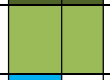
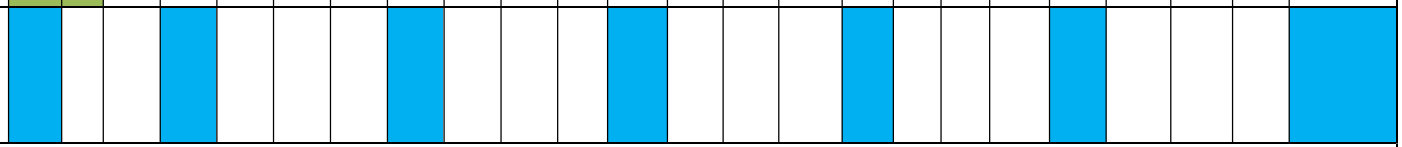
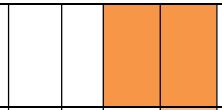
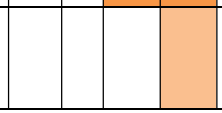
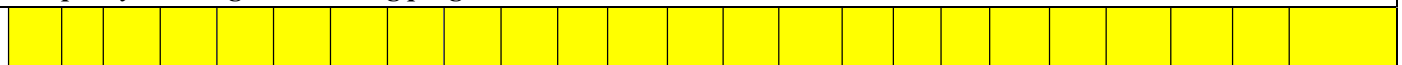
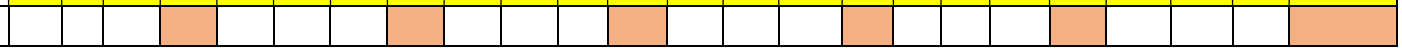
	4.2.1.3. Institutional Endorsement 4.2.1.4. Acceptance of ToRs	**Baseline** Estuary / catchment stakeholder forum list Existing public participation and university forums Project proposal and other relevant documents	Information dissemination sessions Presentations in public events Adoptive management scenario
Outcome 4.2.2. Governmental, community, civil society and privates sector stakeholders trained in various critical skills.	4.2.2.1. Requests for training 4.2.2.2. Documented Skills audit and skills development plan 4.2.2.3. Training Schedule 4.2.2.4. No. of trained persons in identified critical and enabling skills	**Target** No. of municipal water treatment official trained No. of community recycling participants trained **Baseline** Estuary / catchment stakeholder forum list(s) Existing public participation and university forum(s) Project proposal and other relevant documents	Skills Audit Skills Development Facilitation Skills Development Planning Accredited and non-accredited training Information dissemination Workshops
Outcome 4.2.3 An effective communication strategy for reporting, sharing findings, transgressions and progress embrace	4.1.4.1. Documented collaborations and resource sharing shows commitment to common vision on Estuary Development shared amongst stakeholders 4.1.4.2. Quarterly results of effective and regular sampling shows estuary health recovery 4.1.4.3. 4 Community involved in river health and awareness conducted 4.1.4.4. 2 Publications of progress in made Estuarine Ecological Systems adaptive management actions Regular water quality monitored and activities underway and 4	**Target** Mandated monitoring institutions and their plans Consolidated performance reporting & joint actions Awareness and outreach for polluter to cooperate Formal reports or information (monitoring outcomes) provided to the public, officials, managers and decision-makers Impacts in hotspots and stress reduction measured and communicated. **Baseline** Maps, hotspot sites, outreach actions, reports and litigations Messaging, popular education material and posters Complaints registers reporting less transgressions	Workshops and campaigns Status Quo analysis reports Monitoring Schedule findings Stakeholder management Policy / strategy development Mini-SAS river health Appraisals Awareness, campaigns and outreach Research Publications Mapping Public participation & feedback Satisfaction polls and pledges Sampling and analysis Reviews and reflection Meetings

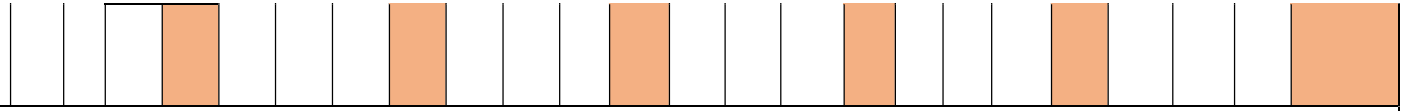
	reports available quarterly from partners. 4.3.1.3. A number of Materials and publication developed.	Lack of standards and use different techniques for quality monitoring are applied Users see no benefit and change in water quality and do not understand consequences of their actions	Popular education material
4.3. Promote cleaner efficient water quality thereby preventing and reducing water pollution at source.			
Project Results	**Indicator**	**Target/baseline**	**Method**
Outcome 4.3.1. Improve compliance and enforcement of legislation.	4.3.1.1. Pollution SAP Implementation agreed by for resource users in line with relevant legislations and Ecosystem Quality Objectives. 4.3.1.2. Marine living resources act and penalties popularised 4.3.1.3. Joint operations activities undertaken by enforcement agencies against polluters. 4.3.1.4. Water quality monitoring reports used as evidence during litigation or fining.	Current status of water quality Transgression reports and warnings The requirements of the SAP Implemented Plan through the Ecosystem Quality Objectives on Pollution Strategy for delivery of results and packing of analysis progress made for various interest groups and users Involvement of polluters in appraising estuary health initiative and benefits Improved and mitigation of point-source and chronic pollution that can be adopted for stress reduction Conform to the requirements of the SAP Implementation Plan through the Ecosystem Quality Objectives on Pollution **Baseline** Water Quality Monitoring has no effect and does not contribute to stress reduction Unreliable Water Quality Monitoring findings add no value in law enforcement Litigation judgements, user licences & permits	Joint operation activities Monitoring patrols on hotspots areas Randomly sampling of selected site where each represents an unequal but known proportion of the population of interest. Monitoring designed around fixed stations useful to detect trends in efficient water quality improvements Issue fines and proceed with litigation of transgressors Strategic positioning of mobile labs to use critical and quick results

		Laboratory results and empirical field evidence	
4.2.3. Real time *in situ* monitoring, expanding the number and types of indicators monitored, and reducing costs while improving reliability of sampling tools and analysis	4.2.3.1. Monitoring of coastal water quality in the vicinity of coastal developments Developed and expanded 4.2.2. new potential hotspots to be monitored and existing ones to be extended beyond the immediate vicinity	Mobile lab reports and findings Accurate and timely sampling of water quality by field workers. Access to a common data depository of finding by all water quality monitoring agency. Information and knowledge management system.	Develop an integrated plan to share time, resources, findings and gain value for money. Establish a business process and common standard operation procedures Ensure suitability of labs analyse, speedily delivers reliable results on an accessible electronic data bank.

Annex1: Work plan

Task	Responsible	Year 1												Year 2											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Overall objective: ***To improve the status and conditions of Buffalo and Swartkops estuary waters in a manner that will sustainably support coastal ecological systems goods and services thus increasing adaptive management actions in the context of fitness for use by dependent group of people.***																									
Outcome 1.0 ***Situational Analysis to exposes understanding regarding the status and impacts related poor water quality.***																									
Output ***1.1***	***Situational Analysis Report***																								
Activity 1.1.1 Secondary data collection	Stakeholders																								
Activity 1.1.2 Primary data	Stakeholders																								
Activity 1.1.3 Share Actuaries status quo with Stakeholders as planning information	DEA, DAFF, DEDEAT & Stakeholders																								
Outcome 2.0.	***Proposed water quality monitoring schedule for the estuaries.***																								
Output ***2.1.***	***A study of current water quality monitoring and proposed monitoring schedule of mutual benefits***																								
Activity 1.2.1. Documents Review, Analyse and record current water quality monitoring activities	DEA & All																								
Activity 1.2.2. Document common sites, mutual benefits, concerns, highlight issues and challenges related to water monitoring.	DEA & All																								
Activity 1.2.3. Deliver proposed water quality monitoring schedule	DEA & All																								
Outcome 3.0.	***Recommended scenarios for adaptive management in place***																								

Output 3.1.	***Estuarine ecological goods and services adoptive management document***	
Activity 3.1.1. Analysis management practises and consolidate report.	DEA,	
Activity 3.1.2. Conceptualise a scenario management for discussions and consolidate stakeholder inputs.	DEA	
Activity 3.1.3 Draft and finalise ecological systems for adaptive management	DEA	
Outcome 4.0.	***Establish Project Steering Committee (PSC) and unambiguous terms of reference (ToRs)***	
Output 4.1.	***Stakeholders list and schedule of meeting***	
Activity 4.1.1. Access list of stakeholders	DEA & Researchers	
Activity 4.1.2. Conduct an stakeholder analysis	DEA	
Activity 4.1.3. Invite stakeholders to a project introductory & other scheduled meetings	DEA	
Output 4.2	***Formalise PSC establishment and adoption of terms of reference by all stakeholders***	
Activity 4.2.1. Facilitate institutional nominations from various representatives.	DEA Metro officials	
Activity 4.2.2. Share draft Terms of Reference to be ratified by PSC Members	DEA	
Outcome 5.0	***Governmental, community, civil society and privates sector stakeholders trained in critical skills.***	
Output 5.1	***Request letters for capacity building and training programs***	
Activity 5.1.1. Record various institutions requests	All & DEA	
Activity 5.1.2.	DEA	

Present a prioritised list of requested critical skills		
Outputs 5.2	**Skills development facilitation plan and capacity building reporting**	
5.2. Output	***Skills audit, skills development plan and training reports***	
Activity 5.2.1. Activity 5.2.2. Conducts a skills audit and present a project relevant skills gap	DEA	
Activity 5.2.2. Prepare a skills plan and budget	DEA	
Activity 5.2.3. Invite service providers to conduct formal and informal training	Service Providers & DEA	
Activity 5.2.4. Present a project skills development report	DEA	
Outcome 6	***Communication strategy that facilitates information dissemination, local knowledge, share culturally sensitive information and healthy estuarine awareness developed and implemented***	
Output 6.1.	***Community involvement in river health assessment and ecological systems management joint actions***	
Activity 6.1.1. . Develop protocols to communicate, share results and manage feedback amongst interest groups;	DEA & DAFF	
Activity 6.1.2. Facilitate an establishment of reporting system and mechanism for whistleblowing;	NMU, DEA & DAFF	
Activity 6.1.3. Conduct campaigns, awareness and joint operations to deal with water pollution-related issues;	Stakeholders and dependent communities	
Activity 6.1.4 Disseminate popular materials using posters, murals, flyers,	Stakeholders, dependent communities,	

publications, websites, social media, schools competitions, notice boards, maps, stakeholder engagements and workshops	NMU, DAFF, DEA,DEDEAT	
Activity 6.1.5. Effective sampling shows estuary health recovery	DEA, DAFF & NMU	
Activity 6.1.6. Community involvement cleanup and awareness	Dependent communities, DEA & DAFF	
Activity 6.1.7. Report on progress made in Estuarine Ecological Systems adaptive management actions	DEA, DAFF, NMU, Nelson Mandela Metro SANBI& CSIR	
Outcomes 7.0.	***Improve compliance and enforcement of relevant legislations.***	
Outputs 7.1.	***Pollution SAP Implementation Measures agreed by partners for resource users in line with relevant legislation and Ecosystem Quality Objectives.***	
Activity 7.1.1. Popularise water catchment and marine-related legislations	Nelson Mandela Metro DAFF &DEA	
Activity 7.1.2. Conduct joint operations activities by various enforcement agencies against polluters.	Nelson Mandela Metro DAFF, DEA & DEDEAT	
Activity 7.1.3. Facilitate use of water quality monitoring reports as evidence during litigations and fining of transgressors.	Nelson Mandela Metro DAFF, DEA & DEDEAT	
Activity 7.1.4. Foster Pollution SAP Implementation agreement by resource users in line with relevant legislation and Ecosystem Quality Objectives.	Stakeholders, DEDEAT, DAFF, DRDAR, Nelson	

	Mandela Metro & NMU																										
Activity 7.1.5. Encourage enforcement of Coast and Marine Management laws and issuing penalties	SAPS, Nelson Mandela Metro DAFF, DEA & DEDEAT																										
Activity 7.1.6. Involvement of polluters in appraising estuary health initiative and reporting transgressors.	NMU, Nelson Mandela Metro DAFF, DEA & DEDEAT																										
Outcome 8.0.	***Real-time in situ monitoring, expanding the number and types of indicators monitored, and reducing costs while improving reliability of sampling tools and analysis***																										
Output 8.1.	***Coastal water quality monitoring in the vicinity of coastal developments developed and expanded***																										
Activity 8.1.1. Involvement of dependent communities in Mini-SAS for river health assessment and immediate feed of findings to a central data bank.	NMU, Nelson Mandela Metro DAFF, DEA & DEDEAT																										
Activity 8.1.2. Training of unemployed graduates as field water quality monitors to attach them to government entities and university labs.	NMU Nelson Mandela Metro DAFF, DEA & DEDEAT																										
Activity 8.1.3 Facilitate the immediate sampling of water quality whose results can be used to prosecute transgressors.	NMU, Nelson Mandela Metro DAFF, DEA, & DEDEAT																										
Activity 8.1.4. Identify laboratories to use for water quality analysis and to sharing of accurate results.	Nelson Mandela Metro DAFF, DEA & DEDEAT																										
Activity 8.1.5 Target pollution hotpots for regulator	NMU, Nelson Mandela Metro																										

water quality monitoring and sharing quick results (suspected or known polluters)	DAFF, DEA, & DEDEAT																											
Activity 8.1.6. Erection of trapper or sensor technology to send a warning signal on transgressions	NMU, Nelson Mandela Metro DAFF, DEA, & DEDEAT																											
Activity 8.1.7. Conduct random sampling using mobile labs on hotspot areas	NMU, Nelson Mandela Metro DAFF, DEA, & DEDEAT																											

C. Project Beneficiaries

The main beneficiaries of this Water Quality Monitoring project will be the local communities situated along the identified estuaries, the fishermen with valid permits, students. The expected number of beneficiaries both directly and indirectly is in the excess of thousands of people. Intensive stakeholder engagements were conducted with both local communities, NGOs as well as relevant Government Departments.

The expected beneficiaries will benefit through employment opportunities, improved resources from the estuaries, knowledge sharing and improved health of the estuaries which will, in turn, improve Tourism opportunities which will directly improve GPD.

D. Implementing agency management of project

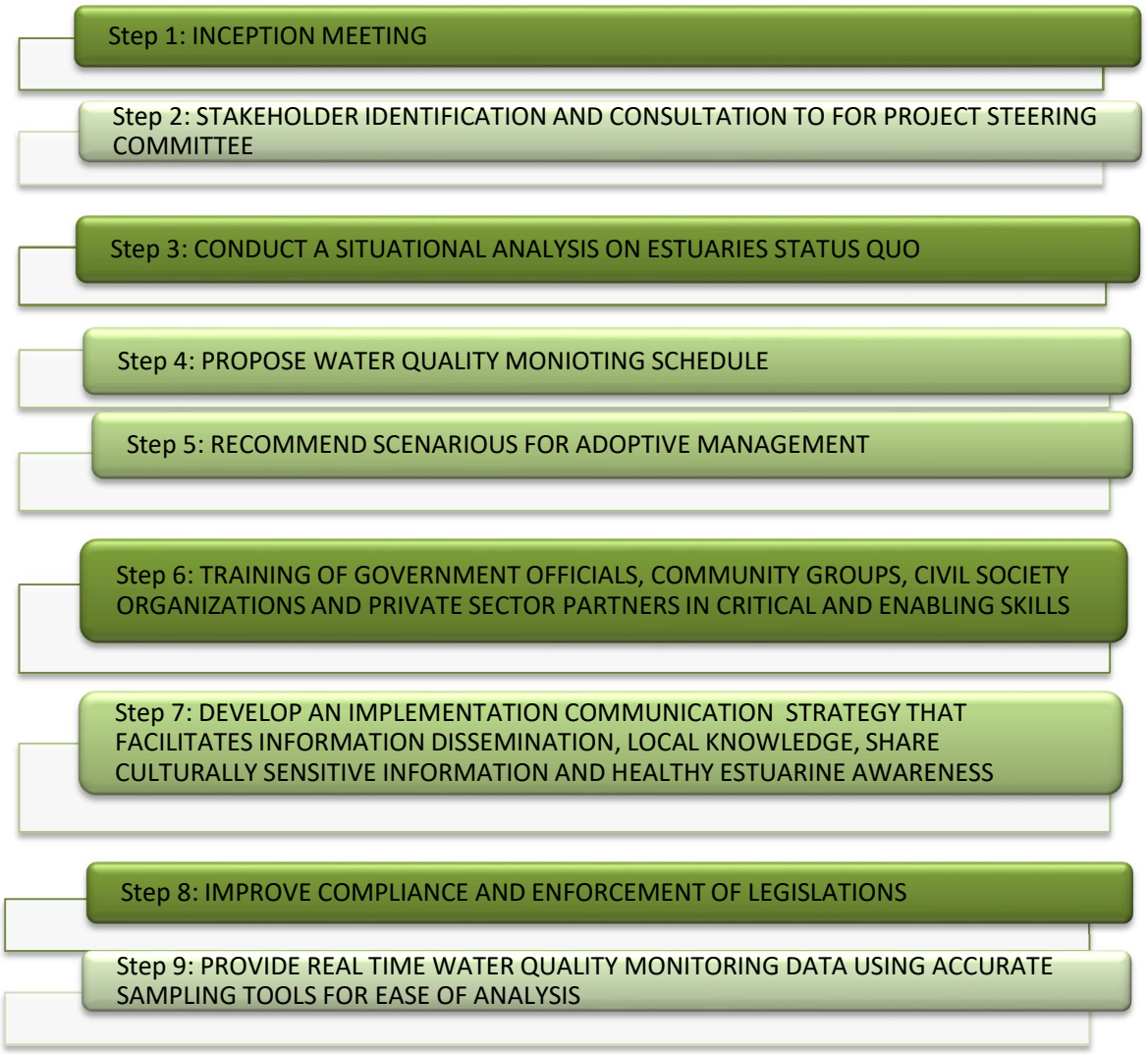
A project steering committee will be developed that will be chaired/ led by the National Department of Environmental Affairs. The project steering committee will comprise of the following relevant Departments and institutions:

Department of Environment Forestry and Fisheries (DEFF)
Department of Water and Sanitation
Provincial Department of Environment
Provincial Department of Environmental Affairs
Walter Sisulu University
South African National Biodiversity Institute
Buffalo City and Nelson Mandela Metros

The leading department who chairs the steering committee will coordinate all the related programmes and activities happening with the estuaries. The project manager will chair the steering committee.

V. PROJECT METHODOLOGY

The purpose of this section is to outline the proposed methodology consists of nine steps, which are consequently elucidated below:



Step 1: ***Inception Meeting***

The Inception Meeting between the Department of Environment Forrest and Fisheries (DEFF) and stakeholders is meant to brief and confirm the objectives, project annual plans, targets, financial resource allocation and project report mechanisms. In addition, the following will be introduced and agreed upon:

- solicit expertise in biodiversity, institutional development, research and aquatic science, spatial planning, biochemistry and other experts that would be valuable in the implementation project;
- Initial interaction with high-level management and executive staff of various institutions to facilitate their inputs into the project implementation process;

Step 2: Establish Project Steering Committee (PSC)

PSC will be champion local operations and facilitate optimum use of available resources collaboratively. Agree on roles, responsibilities and establish mechanisms for communication, oversight and reporting. There will pledge to share resources, thus expanding project impact and receiving value for money.

- Institutions to nominate permanent representatives on PSC and foster mutually beneficial relations.
- Identify and agree on scope of the work (inclusive and exclusive actions) and endorse ToRs.
- Assist the DEFF to appoint a project implementation service provider(s).

Step 3: ***Conduct a situational analysis***

Facilitate common understanding of the status quo and use the document as planning information for real-time monitoring results, adaptive management actions, law enforcement and intervention measures. Collect and analyse various inputs from different or stratified sources to provide a birds-eye-view. The focus would be on real-time information to understand gaps, challenges, socio-economic and ecological problems, causes, sources, impacts, diverse needs linkages to dependent communities, appraising 'best or worst practices' and use-value of the estuarine ecological goods and services.

- Undertake a literature review
- Conduct stakeholder interviews using a questionnaire
- Consolidate information to provide a comprehensive status quo report

Step 4: ***Propose Water Quality Monitoring Schedule***

A review of current monitoring initiatives and linkage with management practices. Draw suggestions from past and present Estuary Management Plan (EMP) and highlight issue identified. Find and agree on synergies and mutual benefits that supports various mandated institutions. Agree with stakeholders on diagnostic analysis of threats and causes including Demo Site maps of point-sources and other impacts as well as their 'origins',

- Harmonise various stakeholder water quality monitoring programs and information-sharing strategies.
- Suggest and domesticate environmental quality objectives and Target as water quality guidelines
- Conduct GIS mapping of the existing sources of water pollution, including categorizing sources.
- Determine common analysis indicators, methodologies, protocols and operational collaborations.
- Final proposed water quality monitoring schedule presented and accepted by stakeholders.

Agreements in place and standard coastal water quality monitoring indicators adopted by partners for inter-sectoral coordination.

Step 5: ***Recommend adaptive management scenarios***

Interventions to address the identified impacts and to reduce the threats to water quality at the demo site(s) and adjacent areas. Based on the information captured through Steps 1-4 above, identify and summarise management scenarios and monitoring strategies applicable to build on-the-ground improvements. Improve coordination of water quality monitoring among stakeholders and inform proactive decision making.

- Adoption of standard water quality monitoring indicators and monitoring techniques (including selected monitoring sites and frequency of monitoring; analysis and statistical techniques to be used to ensure comparable outputs);
- Strategy for delivery of results and analysis to appropriate government bodies for management decisions; and
- Identify improvements on point-source and stress reduction.

Step 6: ***Training of government officials, community groups, civil society organizations and private sector partners in critical and enabling skills.***

- Accept enabling skills development requests and conduct a skills audit to enhance implementation;
- Engage dependent communities in water quality monitoring and awareness creation activities;
- Capacitate community-based recycling initiatives that seek to address waste and pollution issues;
- Organise a research dissemination symposium and knowledge generation actions for better results;
- Train officials in Waste Water Reticulation and Environmental Impact Assessments to improve environmental practices of the Metros and commercial establishments;

Step 7: ***Develop an implementation communication strategy that facilitates information dissemination, local knowledge, share culturally sensitive information and healthy estuarine awareness***

Conduct a public relations and outreach programs. Developed of materials and publications on effective intervention measures .Draft a comprehensive, cross-sectoral communication and tailored strategy;

- Develop protocols to communicate, share results and manage feedback amongst interest groups;
- Facilitate an establishment of reporting system and mechanism for whistleblowing;
- Conduct campaigns, awareness and joint operations to deal with water pollution-related issues;
- Disseminate popular materials using posters, murals, flyers, websites, social media, schools competitions, notice boards, maps, stakeholder engagements and workshops

Step 8: Improve compliance and enforcement of legislations

Facilitate agreement to uphold pollution SAP Implementation by partners for estuarine goods and services in line with relevant legislation and Ecosystem Quality Objectives**.** Facilitate evidence gathering and establishment of cases against pollution transgressors. Conduct joint law enforcement operations with other security agencies and facilitate litigation of transgressors (*fines, withdrawal of licences, refusal of permits, court appearance & arrests*).

- Identify pollution hotpots for regulator water quality monitoring and sharing quick results (suspected or known polluters)
- Erection of trapper or sensor technology to send a warning signal on transgressions
- Provide random sampling using mobile labs on hotspot areas
- Traversing demo site to take pictures and conduct boat patrols
- Support checking of permits, licence conditions and other user conditional regulations

Final and formal report on best lessons and practices (for sharing with other countries)

Step 9: ***Provide real-time monitoring data using accurate sampling tools for ease of water quality analysis***

Improve coastal water quality through the implementation of integrated and simultaneous actions in collaboration with all water quality analysis laboratories. Make use of the mobile lab to feed real-time data on pollutants. Expand water quality monitoring in the vicinity of coastal developments and beyond existing hotspots sites for better scientific validation.

- Training and involvement of dependent communities in Mini-SAS for river health assessment and immediate feed of findings to a central data bank
- Training of unemployed graduates as field water quality monitors that are attached to government and local university labs.
- Facilitate the immediate sampling of water quality whose results can be used to prosecute transgressors.
- Identify and use suitable water quality analysis laboratory to share accurate contamination.

VI. SUSTAINABILITY AND REPLICABILITY

For sustainability and replicability purposes, DEA would capture the case studies and use the lessons as bench making for future interventions. This intervention will assist DEA to better coordinate similar interventions with recipient provincial and local government (Metropolitan). This demo project will assist in future resource mobilization to expand the impact of positive results in restoring the ecological integrity of estuarine goods and services.

The demonstration evaluation reports will developed will provide best practices focusing on the options for replication and issues to avoid or ensure in order to succeed. These reports will be shared amongst all the relevant stakeholders for long term monitoring and will enhance service delivery by mandated government institutions. Regular and common water quality monitoring activities encouraged to ensure availability of integrated reports for all appropriate agencies as a reference.

Local stakeholders and dependent communities will possess much-needed knowledge in order to assist government initiatives and protect estuarine goods and service for socio-economic development. Communities and industry partners will take ownership of the solutions and participate actively in restorative and adaptive management actions. The leveraged skills will boost and ensure better function of wastewater treatment works. Community will actively be involved in mitigation measure that alternatively promote sustainable livelihood.

VII. PROJECT MONITORING AND EVALUATION

The Nairobi Convention Secretariat will monitor the progress of the Demonstration. South Africa will appoint its own Demonstration Project Manager to oversee and manage the day-to-day demonstration site activities and various partnerships and collaborations as well as cooperation between the various government departments.

A small Demonstration Project Steering Committee will be assigned by the Department of Environmental Affairs, Branch: (Oceans and Coasts) to manage the project and ensure it is meeting it targets and objectives. Formal reports or information (monitoring outcomes) provided to the public, officials, managers and decision-makers on impacts of stress reduction measured.

The South African Government aims to align the demonstration project with Operation Phakisa and other projects dealing with water quality monitoring in order to utilise the personnel already involved. Where there is a need for additional support with management or associated demonstration activities, this can be agreed by the responsible parties and catered for through the demonstration budget.

Regular, three-monthly brief progress reports will be provided by the Project Manager to the Demonstration Project Steering Committee and then to the Nairobi Convention and the overall WIOSAP UNDP GEF Project Management. The Demonstration Project Manager will also provide updates on project activities to the overall WIOSAP Project Steering Committee when it meets.

VII. BUDGET

Annex 2: Logical Framework

Project title: Improvements in Marine Water Quality through enhanced Estuarine Management			
Project overall objective: To improve the status and conditions of Buffalo and Swartkops estuary waters in a manner that sustainably support coastal ecological systems goods and services thus increasing adaptive management actions in the context of fitness for use by dependent group of people.			
Objective One: Better understanding of the importance of these estuaries and related negative environmental, social and economic impacts associated with poor water quality.			
Project Results	**Outputs**	**Activities**	**Costs /output (US$)**
Outcome 1.0 Situational Analysis to exposes common understanding regarding the status and impacts related Estuarine poor water quality.	O.1.1 Research proposal Interview schedule Questionnaire Situational Analysis Report	1.1.1 Secondary data collection & literature review 1.1.2 Primary data collection through interview 1.1.3 Share Actuaries status quo with Stakeholders as planning information	Research proposal @ $4000 Stakeholder Engagement schedule = $4000 Interviews questionnaire @ $8000 Report Situational Analysis Report @ $12000 **Sub Total = $28000**
Outcome 2.0 Proposed water quality monitoring schedule for the estuaries.	O.2.1 A study of current water quality monitoring and proposed monitoring schedule of mutual benefits	1.2.1. Documents Review, Analyse and record current water quality monitoring activities. 1.2.2. Document common sites, mutual benefits, concerns, highlight issues and challenges related to water monitoring. 1.2.3. Deliver proposed water quality monitoring schedule	Review draft report @ $8000 Proposed water quality schedule @ $10000 **Sub total = $18000**
Outcome 3.0 Recommended scenarios for adaptive management in place.	O.2.3. Estuarine ecological goods and services adoptive management document	3.1.1. Analysis of management practises and consolidates a draft report. 3.1.2. Conceptualise a scenario management for discussions and consolidate stakeholder inputs. 3.1.3. Draft and Finalise ecological systems adoptive management document	Analysis draft report @ $4000 Conceptual scenarios and stakeholder inputs of adoptive management actions @ $6000 Finalised adoptive management document @ $10000 **Sub total = $20000**

Project title: Improvements in Marine Water Quality through enhanced Estuarine Management			
Project overall objective: To improve the status and conditions of Buffalo and Swartkops estuary waters in a manner that sustainably support coastal ecological systems goods and services thus increasing adaptive management actions in the context of fitness for use by dependent group of people.			
Objective Two: Provide a mutually beneficial and collaborative water quality monitoring program to measure and report on regular basis on the status and trends on the condition.			
Project Results	**Outputs**	**Activities**	**Costs /output (US$)**
Outcome 4: Establish Project Steering Committee (PSC) and unambiguous terms of reference (ToRs)	O.4.1 List & stakeholder O.4.2. Analysis report. O.4.3. Inception and schedule of PSC meetings O.4.4. PSC establishment O.4.5. Adopted of terms of reference	4.1.1. Access list of stakeholders 4.1.2. Conduct an stakeholder analysis 4.1.3. Invite stakeholders to a project introductory and other scheduled meetings 4.1.4. Facilitate institutional nominations from various representatives. 4.1.5. Share draft ToRs to be ratified by PSC Members	Invite and compile stakeholder list @ $4000 Stakeholder analysis report @ $5000 Draft ToRs = $5000 Established PSC @ $10000 Stakeholder meetings schedule @ $12000 **Sub – total= $36000**
Outcome 5: Governmental, community, civil society and privates sector stakeholders trained in critical skills.	O.5.1 Request letters for capacity building and training programs record O.5.2. Skills audit, skills development plan and training reports	5.1.1. Record various institutions requests and present a prioritised list of requested critical skills 5.1.2. Conducts a skills audit and present a project relevant skills gap 5.1.3. Prepare a skills plan, and budget 5.1.4. Invite service providers to conduct formal and informal training 5.1.6. Present a project skills development report	Skills Audit = $8000 Skills Plan = $10,000 Skills Development and Training Reports @ $20000 Outreach and campaigns @ 5000 Awareness creation @ 5000 **Subtotal $48000**

Outcome 6: Communication strategy that facilitates information dissemination, local knowledge, share culturally sensitive information and healthy estuarine awareness developed and implemented	O.6.1.Communication protocols O.6.2. Reporting System O.6.3.Educational campaigns O.6.4. Awareness creation O.6.5. Joint operations O.6.6. Popular materials O.6.7. Access data bank O.6.8. Mini SAS training O.6.9. Monitors Training O.6.10. Research Symposium	6.1.1. Develop protocols to communicate, share results and manage feedback amongst interest groups; 6.1.2. Facilitate an establishment of reporting system and mechanism for whistleblowing; 6.1.3. Conduct campaigns, awareness and joint operations to deal with water pollution-related issues; 6.1.4. Disseminate popular materials using posters, murals, flyers, publications, websites, social media, schools competitions, notice boards, maps, stakeholder engagements and workshops 6.1.5. Effective sampling shows estuary health recovery 6.1.6. Community involvement cleanup and awareness 6.1.7. Report on progress made in Estuarine Ecological Systems adaptive management actions	Communication protocols & Strategy @$4000 Reporting System@ $4000 Educational campaigns@ $4000 Awareness creation@ $4000 Joint operations@ $4000 Popular materials @ $10000 Access data bank@ $8000 Mini SAS river health@ $10000 Monitors Training @ $4000 Research Symposium@ $6000 **Sub Total: $58 000**

Project title: Improvements in Marine Water Quality through enhanced Estuarine Management			
Project overall objective: To improve the status and conditions of Buffalo and Swartkops estuary waters in a manner that sustainably support coastal ecological systems goods and services thus increasing adaptive management actions in the context of fitness for use by dependent group of people. **Objective Three**: Promote cleaner efficient water quality thereby preventing and reducing water pollution at source.			
Project Results	**Outputs**	**Activities**	**Costs /output (US$)**
Outcome 7: Improve compliance and enforcement relevant legislations.	O.7.1. Pollution SAP Implementation Measures agreed by partners for resource users in line with relevant legislation and Ecosystem Quality Objectives.	7.1.1. Identify pollution hotpots for regulator water quality monitoring and sharing quick results (suspected or known polluters) 7.1.2. Conduct joint operations activities by various enforcement agencies against polluters. 7.1.3. Facilitate use of water quality monitoring reports as evidence during litigations and fining of transgressors. 7.1.4. Foster Pollution SAP Implementation agreement by resource users in line with relevant legislation and Ecosystem Quality Objectives.	Invite and compile stakeholder list @ $4000 Stakeholder analysis report @ $5000 Draft ToRs = $5000 Established PSC @ $10000 Stakeholder meetings schedule @ $20000 **Sub – total= $44000**

		7.1.5. Encourage enforcement of Coast and Marine Management laws and issuing penalties 7.1.6. Involvement of polluters in appraising estuary health initiative and reporting transgressors.	
Outcome 8: Real-time in situ monitoring, expanding the number and types of indicators monitored, and reducing costs while improving reliability of sampling tools and analysis	O.8.1. Coastal water quality monitoring in the vicinity of coastal developments developed and expanded	8.1.1. Involvement of dependent communities in Mini-SAS for river health assessment and immediate feed of findings to a central data bank. 8.1.2. Training of unemployed graduates as field water quality monitors to attach them to government entities and university labs. 8.1.3. Facilitate the immediate sampling of water quality whose results can be used to prosecute transgressors. 8.1.4. Identify laboratories to use for water quality analysis and to sharing of accurate results. 8.1.5.Target pollution hotpots for regulator water quality monitoring and sharing quick results (suspected or known polluters) 8.1.6. Erection of trapper or sensor technology to send a warning signal on transgressions 8.1.7. Conduct random sampling using mobile labs on hotspot areas	

Annex 4: Budget

	Category	Quantity	Unit Cost (US$)	Total Cost (US$)	WIOSAP Support	Co-financing
1.	**Personnel**	**1**	$1316	$2,631	$2,631	Project management
2.	**Equipment**			$13,369	$13,369	$40,107
3.	**Operating costs**		$65,000	$65,000	$65,000	$130,000
4.	**Contract Services**		$34,000	$34,000	$34,000	Personnel
5.	**Travel**		$11,000	$11,000	$11,000	$22,000

Annex 4.1: Budget justification

	Category	Justification
1.	**Personnel**	Project administration and procurement of implementation service provide is very critical to project success.
2.	**Equipment**	For water quality monitoring, equipment is essential as you cannot be able to perform the testing without the required equipment.
3.	**Operating costs**	The operation of the project is dependent on funding.
4.	**Contract Services**	Scientific inputs are needed during the duration of the project.
5.	**Travel**	The distance between Cape Town, Port Elizabeth and East London demands a lot travelling.
6.	**Project Office**	The project office will be co-financed and the Nelson Mandela Metropolitan
7.	**Core Activities**	Some activities will be occur concurrently and share available funding resource (efficiency)
8.	**Pledge Support**	Hosting of Unemployed Graduate and Subsidise the utilization of Laboratory Resource