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STRATEGIC PLAN (2015 – 2019)
for the proposed
NATIONAL WATER RESOURCES
MANAGEMENT AUTHORITY (NWRMA)

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prepared by

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1. SUMMARY

The goal of this strategic plan for the National Water Resource Management Authority (NWRMA) is to facilitate the establishment of a national water resource management authority to lead the management of the country's water resources and coordinate all activities of the Government in the field of water resources. This authority will be the principal body for water resources management, development, conservation and protection in The Gambia, and oversees that Gambia adopts an integrated, cross-sectoral, river basin anchored approach to water resources management.

The Strategy Plan will take departure from the enactment of the National Water Resource Management Authority Bill by National Assembly which will create the foundation and framework for the operation of the National Water Resource Management Authority (NWRMA) in the years to come. The Strategy Plan provides an elaborated overview of vision and mission as stated below:

VISION: *To achieve sustainable water management by all for all.*

MISSION: *To regulate and manage the sustainable utilization of water resources and to coordinate related policies by combining core competencies and hard work through effective participation, monitoring and awareness creation for socio-economic development of The Gambia.*

*The **values of the employees** will be focussed around belief in individual responsibility and creativity, excellence in daily operations, social responsibility at the community, accountability, innovation, transparent interactions with stakeholders, a culture of continuous improvement and zero tolerance concerning negligence and production of low quality services.*

*The National Water Resource Management Authority will have a pivotal and central role in Gambia to support sustainable socio-economic development but also climate risk management of the country. Nonetheless, NWRMA will also aim at creating “**a business culture**” to provide a commodity or service that can be sold for money, based upon understanding the needs of the customers, establish new contracts to increase income, promote marketing environment and improve and sustain communication with customers. Competition upon water resource management in The Gambia is virtually non-existent and substantial capital investment in hydrological and hydrogeological infrastructure has already been made. This situation puts the NWRMA in an advantageous position for securing customers and resources benefiting from capital and human investments already made during the past years.*

*The overall **success factors** will include knowing the needs special requirements of the market and customer categories, developing partnerships and providing superior products and services.*

NWRMA is constituted with a Board responsible for the performance of its policy functions, powers and duties conferred by the NWRMA Act. The Board is comprised of a Chairman, the Permanent Secretary of Ministry of Environment, Climate Change, Water Resources, Parks and Wildlife, the Permanent Secretary Ministry of Finance, the Director General of the Authority and three other persons appointed by the President of the Republic of The Gambia to represent stakeholder sectors involved in water resources.

Under the overall management and responsibility of the Director General, the organizational structure of NWRMA comprises the following Sections and Units:

- *Administration Section including the following three units:*
 - *Finance and Administration Unit.*
 - *Information and Communication Technology Unit.*
 - *Human Resources Management Unit.*
- *Technical Section including the following four units:*
 - *Water Resource Planning Unit.*
 - *Groundwater and Surface Water Unit.*
 - *Water Quality Monitoring and Control Unit.*
 - *Research and Development Unit.*

The Senior Management Team is comprised of the Director General of the Authority, the Technical Director (Deputy Director General), and heads of the three administrative units and heads/principals of the four technical sections. The Technical Director is responsible for the management of the four technical sections, and the Director General is responsible for the three administrative units. Each administrative/technical unit has a Head/Principal Officer supervising the unit. Inter-unit teams may be established for specific projects or other purposes.

NWRMA recognizes the need for training and development of its human resources and therefore encourages staff members to pursue relevant courses which will enhance the skills, knowledge and ability of the individuals. In-house programmes will be designed to improve the supervisory and management practices of staff as well as to improve their productivity capability. In addition, the Authority will plan for continued training of new young professionals to replace staff members seeking employment opportunities outside the Authority.

*During the first five-year period (2015-2019) covered by this plan, the **strategic objectives** of NWRMA will be to:*

- 1) Coordination of the water sector.*
- 2) Developing, managing and monitoring the water sector.*
- 3) Regulation of use and allocation of water resources.*
- 4) Establishing of water user charges.*
- 5) Ensure financial and organizational sustainability.*
- 6) Create awareness raising, sharing of information, and involvement of stakeholders.*
- 7) Be responsible for and oversee The Gambia's interest and obligations in the perspective of sharing trans-boundary water resources (ref. OMVG and HYCOS), and representation in international water related fora.*
- 8) Institutional development and capacity building.*

*With departure point in these strategic objectives, details of the **specific objectives, outputs, main intervention strategies and indicators** related to implementation of the strategic objectives/business plan are outlined with a the synchronized **action plan** scheduling the implementation of these strategic objectives.*

*The **financial implications** associated with transforming the existing Divisions under the Department of Water Resources to a fully established authority will require a **major shift in understanding** the benefits of water resource management services, but also the associated costs by the main national customers such as NAWEC. The financial plan presented in this plan consists of the two main elements, viz. costs and revenues, and reflects a gradual move from the prevailing non-commercial setting in 2014 to a financially viable organizational establishment of NWRMA by the end of this strategic planning period.*

It is projected that the first year (2015) is guided much by the present situation related to staffing (number and qualifications) whereas the following three years (2016-2018) the new Authority is being geared up concerning new staff recruitment, training/education and investments as well as building up the revenue sources – and in the final year (2019) NWRMA is fully established and functioning as intended.

*The **estimated cost and expenses** for the new Authority is based on comparison of pay scale, allowances and operational expenses for similar agencies in The Gambia (NEA, GCAA, NAWEC and PURA). Nonetheless, it is likely that the Authority during the first years of its establishment would need to provide the necessary service within a funding framework initially only allowing for a 70 percent of the personnel cost to be covered of the salaries otherwise expected to be paid in such an authority. However, over time and with the NWRMA intensifying its operation and broader appreciation of proper water resource management emerges, the revenue and funding from providing solid and professional services should increase which then would allow a financial platform whereby full “authority staff salaries level” can be achieved in a not too distant future.*

*The **financing of the operation and capital investments** of the new water resource management authority will need to be a blend between revenues from various customers/receivers of water resource services, Government funding due to the partly “public good” nature of the service and finally Cooperating Partners due to the substantial capacity development investments needed.*

*The **financial sustainability/viability** of the new authority will obviously depend upon the acceptance of the main customers to make the adequate contribution(s) towards the cost required to run a water resource management authority. The main customers for non-competed services will need to accept payments set at a reasonable level consistent with the level of recurrent costs required to provide such services. Capital investment costs and capacity development cost are assumed to be financed either by government or donor development partners.*

2. CONTEXT AND RATIONALE

2.1 The IWRM concept

Previously, water was regarded as a free commodity – considered unlimited in quantity and available as required. However, with continued population growth and urbanization, and rapidly growing and diversified demands, including water for consumption, irrigation, industrial processes, fisheries and aquatic ecosystem protection, the resource is becoming increasingly scarce and often of inferior quality.

These trends are exacerbated by the past practices whereby planning, development and management of the resource for the envisaged uses have been approached from a sectoral perspective without recourse to coordination and dialogue among the relevant agencies and institutions. The result of this prevalent situation has often been realised in the form of non-optimal and unsustainable use of the resource.

Additionally, in the past, the socio-economic dimension in water resources management has not featured prominently among policy makers and planners concerned with the development and utilisation of the resource. Today, however, modern approaches to natural resource management acknowledge that planning for use and preservation of the natural resource must take the wider development of society into consideration.

The notion of integrated water resources management (IWRM) is not a new concept as such. Earlier approaches were based on the basic understanding that water flows downstream from one user to the next, and water abstracted by one user potentially prevents downstream users of a share in the water source. Similarly, waste discharged into the natural waters also impacts on downstream users. Hence, in order to maximize the benefits of water utilisation, and to ensure equitable use of the resource, the needs of all water users (and their effluents) in a river basin (like the Gambia River basin) must be balanced against resource availability. This relatively simple concept remains the cornerstone of today's IWRM philosophy.

The concept of IWRM has grown from these ideas and is now seen as the method of choice for managing the world's water resources whether at international, national or local (river basin) levels. IWRM as defined by the Global Water Partnership (GWP) thus deals with water resources in the broadest possible manner:

“IWRM is a process which promotes the coordinated development and management of water, land and related resources aimed at maximizing the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems”.

The ambition of IWRM is to promote a change from unsustainable to sustainable water resource management by widening the analytic framework and by inviting all stakeholders to participate in the management of the resource.

2.2 Integrated water resources management in The Gambia

The Gambia's experience with IWRM is still evolving, and 'lessons learnt' with interpretation of the concept and the application of the principles in practice are gradually emerging. Even though a number of reviews had been undertaken in the water sector since the early 1980's, the resultant remained sector-specific, with each sector authority planning, controlling and regulating its own activities with respect to water management with little cross-sectoral coordination. Subsequent reviews identified the institutional shortfalls, which to a large extent jeopardized proper coordination and integration of the various sector policies for water use in The Gambia.

In early 2008 the Government of The Gambia, through the Ministry of Fisheries and Water Resources¹ began to implement the new National Water Policy adopted in 2007. The overarching objective of the new water policy is the establishment of a sustainable and inclusive framework for managing The Gambia's water resources based on integrated water resources management (IWRM) principles and the promotion of an enabling legal and institutional framework. This would facilitate sustainable development and management of water resources to meet higher demands for domestic water supply and sanitation, expanding irrigated

¹ As of May 2014 reorganized into Ministry of Environment, Climate Change, Water and Wildlife.

agriculture to strengthen food security, and sustain environmental integrity in the face of increasing abstractions, climate change and variability, poor waste disposal, and high urbanization.

2.3 National Water Resources Management Board and Authority

A significant step has been taken by the government to address the diffused state of functions and mandates in the water resources sector and at the same time the concept of IWRM will be given full acknowledgement with the creation of the National Water Resources Management Board and Authority (NWRMA) through The Gambia Water Act and The National Water Resources Management Authority Act.

The NWRM Board is responsible for overseeing the implementation and delivery of the functions of the Authority in accordance with the provisions of the Act including *inter alia* overseeing the functions of the Authority, development of policy and legislation, providing due regard to The Gambia's regional and international obligations with respect to water resources. In addition it will approve annual plans and finances of the National Water Resources Management Authority itself.

The composition of the Board is made up of a Chairman, the Permanent Secretary of Ministry of Environment, Climate Change, Water Resources, Parks and Wildlife, the Permanent Secretary Ministry of Finance, the Director General of the Authority and three other persons appointed by the President of the Republic of The Gambia to represent stakeholder sectors involved in water resources. There shall be a Secretary to the Board, who shall be appointed by the Board from the staff of the Authority.

The NWRMA is mandated to lead the management of the country's water resources and shall coordinate all activities of the Government in the field of water resources. The NWRMA is the principal body for water resources management, development, conservation and protection in The Gambia, and oversees that Gambia adopts an integrated, cross-sectoral, river basin anchored approach to water resources management.

Duties and functions are fully elaborated in the National Water Resources Management Authority Act.

The Authority's capacity to operate fully and effectively may be somewhat impeded as a result of lack of reliable government funding particularly in respect of services and investment. Constraints could also occur due to the lack of professional staff to carry out the various activities.

The combined demands of day-to-day NWRMA routine duties to be performed, training activities and work planning sessions put a serious strain on the timely execution of tasks required during the plan period (2015-2019). A remedy to this constraint could be to utilize international and local consultants and specialists, who – if used correctly – would ensure successful completion of planned activities without necessarily increasing the amount of staff significantly.

This external assistance should provide funds for investment, various recurrent costs, training activities and advisory services (procured internationally as well as locally) covering a broad range of the Authority's functions. It should commence at the onset of the Authority's establishment and phased out by the end of 2019 in adherence with the principle of avoiding continued dependency of external funding.

2.4 Vision Statement

The National Water Resource Management Authority was established by an Act of the National Assembly (National Water Resources Management Authority Act) with a mandate to lead the regulation and management of Gambia's water resources and coordinate any policy in relation to them. The vision of the National Water Resource Management Authority, therefore, is to achieve "*sustainable water management by all for all*".

2.5 Mission Statement

The National Water Resource Management Authority needs to establish itself to contribute towards Vision 2020, which is to transform The Gambia into a dynamic middle income country, socially, economically and scientifically over a 25-year period from its adoption in 1996.

To this effect, the mission statement of NWRMA is as follows:

“to regulate and manage the sustainable utilization of water resources and to coordinate related policies by combining core competencies and hard work through effective participation, monitoring and awareness creation for socio-economic development of The Gambia.”

2.6 Strategic Objectives

To facilitate and move the process forward towards reaching the vision of NWRMA, the 5-year Strategy Plan has been developed around the following strategic objectives:

- (i) Coordination of the water sector.
- (ii) Developing, managing and monitoring the water sector.
- (iii) Regulation of use and allocation of water resources.
- (iv) Establishing of water user charges.
- (v) Ensure financial and organizational sustainability.
- (vi) Create awareness raising, sharing of information and involvement of stakeholders.
- (vii) Be responsible for and oversee The Gambia's interest and obligations in the perspective of sharing trans-boundary water resources, and representation in international water related fora.
- (viii) Institutional development and capacity building.

Further elaborations on the fulfillment of these objectives are found in Section 4.

2.7 Values

The activities will be carried out by qualified and dedicated staff supported by the following values:

- Belief in individual responsibility and creativity.
- Excellence in daily operations, with superior service.
- Social responsibility at the community, area and national levels.
- Accountability at all levels, to all stakeholders.
- Innovation in operations and service provision.
- Honest interactions with stakeholders.
- A culture of continuous improvement.
- Non-tolerance of negligence and production of low quality services.

2.8 Business of the Authority

The National Water Resource Management Authority will have a fundamental and central role in The Gambia to support sustainable socio-economic development of the country. However, NWRMA will also aim to provide “a business” to provide a commodity or service that can generate a revenue to partly recover the operational cost. This will be achieved through the following approaches/activities:

- Understand the needs of the existing stakeholders/ customers.
- Establish new contracts/customers to increase income.
- Provide the right solution for each stakeholder/customer.
- Promote marketing of services and products.
- Improve and sustain communication with customer.
- Educate existing and potential stakeholders/customers to use the products and services.
- Maintain contact with the stakeholders financing the authority (government and private sector).

2.9 Success factors

Overall success factors are defined as:

- Being close to the stakeholders and customers.
- Knowing the needs of the stakeholders and customers.
- Knowledge of the special requirements of the market.
- Developing partnership with other institutions to serve the stakeholders/customers.

- Providing superior products and services.

2.10 Stakeholder and customer relations and requirements

The establishment of the NWRMA and purpose of its existence is to lead the management, assessment and coordination; planning and development; and regulation and allocation of the country's water resources, and also to coordinate the protection of those water resources. Its operations will be guided by a stakeholder focused approach with due regard to the special geographical nature of the country. The stakeholder (or customer) group includes governmental institutions, organizations, agencies, private enterprises, professional groups and the public in general. An additional potential group of stakeholders (customers) are the internationally funded projects and their data requirements.

The stakeholder's/customer's needs will to some extent have to be prioritized according to their importance. Services are developed and produced for stakeholders/customers that can pay for the services to secure the operation and development of the Authority.

NWRMA will develop a marketing function which will be embedded within the Information and Communication Technology Unit and will be responsible for market research, marketing and customer relations at different levels in close collaboration with the Research and Development Unit.

NWRMA will engage and cooperate with regional water resources organizations of similar mandates to seek advice and expertise to enable NWRMA to offer the stakeholders/customers comprehensive solutions to their problems.

However, first and foremost NWRMA will provide services towards the greater public good and betterment of the nation – which implies that a substantial funding must be maintained and secured from the governmental budget.

3. MANAGEMENT AND HUMAN RESOURCES

3.1 Management Team

Under the overall management and responsibility of the Director General, the organizational structure of NWRMA comprises the following Sections and Units:

- Administration Section including the following three units:
 - Finance and Administration Unit.
 - Information and Communication Technology Unit.
 - Human Resources Management Unit.
- Technical Section including the following four units:
 - Water Resource Planning Unit.
 - Groundwater and Surface Water Unit.
 - Water Quality Monitoring and Control Unit.
 - Research and Development Unit.

The Senior Management Team is comprised of the Director General of the Authority, the Technical Director (Deputy Director General), and heads of the three administrative units and heads/principals of the four technical sections. The Technical Director is responsible for the management of the four technical sections, and the Director General is responsible for the three administrative units. Each administrative/technical unit has a Head/Principal Officer supervising the unit. Inter-unit teams may be established for specific projects or other purposes.

Annex 1 provides an overview of the organizational structure of NWRMA.

3.2 Human Resource Strategy and Policy

The values statement of NWRMA underscores that the services provided need to be carried out by qualified and dedicated staff. In order to ensure this, NWRMA believes that professional motivation and the working conditions, wages/salary and benefits (including human resource development opportunities) it offers to its employees should be competitive with those offered by other comparable national agencies.

NWRMA has developed a Human Resource Policy which advocates employment of a number of appropriately educated specialists in IWRM, hydrology, hydrogeology, water chemistry, programming, IT, telecommunication technology, communication, public relations and awareness raising, financing and marketing. The aim is to have sufficiently qualified staff to execute all necessary activities. The number of permanently employed people is kept at a minimum to facilitate the financial sustainability of the Authority's services. The activities at HQ level enables on the job training and common learning on water resource management as well as in IT-technology. Short term personnel can be employed for research and development projects.

The structure of the workforce is gradually being changed by re-educating people from the existing Department of Water Resources (DWR) structure, and by employing/recruiting appropriately educated and experienced people according to the new demands. The total number of employees is balanced with the envisaged long-term funding of the Authority.

NWRMA will closely cooperate with local and regional universities to support hydrology and hydrogeology research and education. Post-graduate education and special skills are obtained from countries with the highest level of skills in the subject(s) in question.

The research and development is focused on development and utilization of the monitoring data from the new hydrological stations, the groundwater data-loggers and the water quality analyses. The research programs are undertaken in cooperation with international research institutes and when possible financed by funding from international sources.

3.3 Human Resource Development

NWRMA recognizes the need for training and development of its human resources and therefore encourages staff members to pursue relevant courses which will enhance the skills, knowledge and ability of the individuals. In-house programmes will be designed to improve the supervisory and management practices of staff as well as to improve their productivity and capability. In addition, the Authority will plan for continued training of new young professionals to replace staff members seeking employment opportunities outside the Authority.

An assessment of employee's performance will be done every year and in this connection a plan of action will be developed for each employee's professional development. The respective unit heads is responsible for follow up on these development plans and the Human Resources Management Unit receives and files all completed assessment reports.

Human resource development will be a continuous process and need to be planned and implemented well over a longer period to allow the Authority to function and not be hampered by key qualified staff being away for prolonged periods.

The present (2014) status of the available staffing in DWR, staff qualifications, the need for training/upgrading and recruitment are outlined in Annex 2.

4. IMPLEMENTING THE STRATEGIC OBJECTIVES

To facilitate and move the process forward towards meeting the strategic goals of the National Water Policy (2007) and the Gambia Water Act, the 5-year Strategic Plan has been framed around the following medium-term objectives:

”Capacity of NWRMA enhanced in fulfilling the mandated role that aims at promoting IWRM with focus on water demand management and abstraction regulation, pollution monitoring and water resource assessment activities”

To achieve this objective, the 5-year Strategic Plan and associated implementation activities is designed around the strategic objectives with the following eight elements as focal themes:

- 9) Coordination of the water sector.
- 10) Developing, managing and monitoring the water sector.
- 11) Regulation of use and allocation of water resources.
- 12) Establishing of water user charges.
- 13) Ensure financial and organizational sustainability.
- 14) Create awareness raising, sharing of information, and involvement of stakeholders.
- 15) Be responsible for and oversee The Gambia’s interest and obligations in the perspective of sharing trans-boundary water resources (ref. OMVG and HYCOS), and representation in international water related fora.
- 16) Institutional development and capacity building.

In the following sections each of the strategy elements/themes are subject to further description, which presents the background and rationale for why the element is included and how implementation is envisaged, i.e. listing of expected outputs and main activities to be embarked on towards achieving the outputs.

For the staff to be able to perform the expected roles and carry out the mandated functions there is a need to continue the institutional development and capacity building (training) activities. These aspects are highlighted in the last section of this chapter.

4.1 Coordination of the water sector

Strategic objective 1: Coordination of the national water sector

Through a participatory process, including nation-wide stakeholder consultations and inter-ministerial collaboration, the Gambia Water Act and The National Water Resources Management Authority Act has been elaborated, which focuses on an integrated approach to water resources management. The various coordination efforts in the water sector to ensure an effective management of available water resources, is to be facilitated through the Board with relevant stakeholder representation.

Specific Objective 1.1: To ensure the institutional capacity and sustainability of NWRMA

Output 1.1.1: Secure legal, administrative and operational framework of NWRMA

Main Intervention Strategies

1. The Gambia Water Act enacted by National Assembly.
2. The National Water Resource Management Authority Act enacted by National Assembly.
3. The National Water Resource Management Board formalized and functioning.
4. The National Water Resource Management Authority inaugurated and in operation.
5. Update, implement and monitor the National Water Policy and the National Water Resources Strategy and Implementation Plan.

Output Indicators:

1. The Gambia Water Bill and NWRMA Bill enacted.
2. NWRM Board instituted and meetings conducted.
3. NWRM Authority with section and units established.
4. NWRM Authority positions filled with qualified staff.
5. Regular updates/revisions of the National Water Policy and Strategy.

Specific Objective 1.2: Effective coordination in the water sector**Output 1.2.1: Well-functioning Board and Authority****Main Intervention Strategies**

1. Development of working procedures with the NWRM Board and linkage to the Authority.
2. Establishment of working committees across sectors (roles, functions, composition and outputs defined).
3. Lead the collaboration with sector stakeholders to ensure the objectives of the Gambia Water Act.
4. Advise government on interpretation, harmonisation development and updating of legislation and regulations with regard to the water sector and to develop and propose such regulations as are deemed necessary.

Output Indicators:

1. NWRM Board working procedures in place.
2. Number of working committees with participation from different sectors established.

Output 1.2.2: Working relationship established with other agencies/authorities**Main Intervention Strategies**

1. Establishing MOU between NWRMA and NEA on management of environment.
2. Establishing MOU between NWRMA and NAWEC on water quality sampling and analysis.
3. Establishing MOU between NWRMA and PURA on water quality sampling and analysis.
4. Establishing MOU between NWRMA and Local Government on management of water resources.

Output Indicators:

1. Numbers of MOUs developed and agreed upon.

4.2 Developing, managing and monitoring of the water sector**Strategic objective 2: Developing, managing and monitoring of the national water resources**

The NWRMA will be responsible for development, management, assessment, conservation and finally the control of the water resources to cover all necessary aspects for a good and sound water resource management and as such, NWRMA is the custodian or guardian in all aspects of the nation's water resources.

Specific Objective 2.1: Developing the national water resources**Output 2.1.1: Water resource utilized in the best and most optimal manner****Main Intervention Strategies**

1. Take the lead role in coordinating water development projects in The Gambia.
2. Develop documents as are necessary to support Gambia's national interests concerning water resources.

Output Indicators:

1. No. of meetings held with national stakeholders related the water resource development projects.
2. No. of documents, strategies etc. produced related to water resource development.

Specific Objective 2.2: Managing, assessment and monitoring/control the national water resources**Output 2.2.1: Quantities of water resources managed and monitored.****Main Intervention Strategies**

1. Establish framework for water quantity monitoring/control (both surface and groundwater).
2. Maintain a network of hydrological measuring stations.
3. Maintain a network of hydrogeological measuring stations (monitoring boreholes).
4. Gather information on water resources and its utilisation and publish information on water resources.

5. Maintain a national database of water resource information (water quantities) including such GIS and electronic data as are relevant.

Output Indicators:

1. Framework for water quantity monitoring established.
2. Number of quarterly hydrology reports or as otherwise defined.
3. Number of quarterly hydrogeology reports or as otherwise defined.
4. Database established and maintained.
5. Number of request for water quantity data from stakeholders/customers

Output 2.2.2: Qualities of water resources managed and monitored.

Main Intervention Strategies (in collaboration with NEA)

1. Finalize the national framework for water quality monitoring (both surface and groundwater) including formalizing the Water Quality Monitoring and Control Unit as lead.
2. Maintain a network of stations/points to collect water samples for water analysis and to provide such information to the public.
3. Control, protect and conserve water resources quality from adverse impacts, to manage and protect water catchments and to advise pollution control agencies on matters concerning the management and control of pollution of water resources.
4. Maintain a national database of water resource (water qualities) information including such GIS and electronic data as are relevant.
5. Coordinate, harmonise and periodically review/update water resource quality standards.

Output Indicators:

1. Framework for water quality monitoring established.
2. Number of water samples taken and analysed.
3. Number of reports on water quality (in collaboration with NEA).
4. Database established and maintained.
5. Number of reviews of water resource quality standards.
6. Number of requests for water quality data from stakeholders/customers.
7. Number of incidences of water quality above standards in surface waters and groundwater aquifers.

Output 2.2.3: Established protection zones around drinking water wells/well fields against polluting activities.

Main Intervention Strategies (coordinated with NEA and NAWEC)

1. Define and demarcate (draft) protection zones.
2. Discuss and agree on zones (extent, activities allowed inside, enforcement etc.) with stakeholders/land owners.
3. Implement the physical demarcation of protection zones.

Output Indicators:

1. Defined outline of protection zones.
2. Agreed extent, activities allowed inside, and enforcement procedures.
3. Physical demarcation of protection zones.

4.3 Regulation of use and allocation of water resources

Strategic objective 3: Regulation of use and allocation of water resources

The commonly accepted method to implement and regulate water use is by means of granting the users abstraction permit. The NWRMA Act authorizes the NWRMA to approve water permits, to keep a register of permits, to administer a water permitting system, to monitor and enforce conditions attached to water licenses, including the cancellation of a license and suspension of activities where

conditions are violated.

As part of this strategy, the development of a Decision Support System (DSS) will be initiated. A DSS is basically a “tool” for water resource planners to facilitate sound and well informed decisions related to water resources allocation – this could be at a larger catchment scale or pertaining to a more local situation to evaluate applications for water abstraction licenses whether surface or groundwater based. A DSS should build on knowledge and information about water resources, socio-economic information, and national priorities.

Specific Objective 3.1: Regulating use of water resources

Output 3.1.1: Established regulation for the for use of water resources.

Main Intervention Strategies

1. Develop guidelines and procedures for the allocation and permitting of water resources in accordance with The Gambia Water Act.
2. Approve water permits, to keep a register of permits and to administer a water permitting system in accordance with the Water Act
3. Develop and disseminate practical guidelines on the development and use of water.

Output Indicators:

1. Guidelines and procedures for the allocation and permitting approved by NWRM Board.
2. Number of permits granted/approved.
3. Practical guidelines on the development and use of surface and groundwater developed.

Output 3.1.2: Monitoring and enforcement of the for use of water resources

Main Intervention Strategies

1. Define enforcement tools/guidelines (offences and corresponding fines/penalties) necessary to ensure effective regulation under the Water Act to safeguard the national water resources.
2. Monitor and enforce conditions attached to water permits, including the cancellation of a permit and suspension of activities where conditions are violated
3. Establish and maintain a national register of all water supplies in The Gambia.
4. Qualify, certify and maintain a register of borehole drilling and well construction companies.

Output Indicators:

1. Enforcement guidelines approved by NWRM Board
2. Number of registered permits and no. of registered offences (violation of the permit conditions).
3. Number of water supplies / boreholes registered.
4. Updated register (database) of groundwater exploration companies/drillers and number of drilling certification permits issued.

Specific Objective 3.2: Regulating allocation of water resources

Output 3.2.1: Development of conceptual framework for Decision Support System (DSS).

Main Intervention Strategies

1. Design of conceptual framework for DSS;
2. Assessment of need for tools, model and data;
3. Decision and procurement of DSS software application (model);and
4. Installation and training in DSS software application (model).

Output Indicators:

1. Conceptual framework and assessment of tools, model and data for DSS completed;
2. DSS software application procured; and
3. Installation of training in DSS software application (model) completed.

Output 3.2.2: Development of DSS for pilot sub-basin/groundwater based area

Main Intervention Strategies

1. Selection and demarcation of first pilot sub-basin/groundwater based area;
2. Collating of relevant information pertaining to first pilot sub-basin/area;
3. Carry out socio-economic background and “profiling” study in pilot sub-basin/area;
4. Evaluate demographic trends at basin level for water demand projection purposes;
5. Prepare groundwater assessment study/model covering the pilot sub-basin/area;
6. Prepare overall water resources assessment (“water balance” evaluation), and supply and demand scenario analysis for pilot sub-basin through application of the chosen model tool; and
7. Prepare a plan for further development of DSS to include the entire country.

Output Indicators:

1. Collating of relevant information pertaining to river sub-basin (first pilot sub-basin);
2. Carry out socio-economic background and “profiling” study in pilot sub-basin;
3. Evaluate demographic trends at basin level for water demand projection purposes;
4. Prepare groundwater assessment study/model covering the pilot sub-basin;
5. prepare overall water resources assessment (“water balance” evaluation), and supply and demand scenario analysis for pilot sub-basin through application of the chosen model tool; and
6. Country wise DSS plan completed.

4.4 Establishing of water use charges**Strategic objective 4: Establishing of water use charges**

The NWRMA are given a central role for successful implementation of IWRM and the user-pay principle, as the revenue of the authority consists of raw water charges remitted by the water users/providers (abstractors) and this will contribute to the sustainability of the IWRM activities and NWRMA’s operations.

Specific Objective 4.1: Establishment of water use charges

Output 4.1.1: Water use charges established to finance the management of water resources by NWRMA on a sustainable basis.

Main Intervention Strategies

1. Establishment of the basis/criteria to determine the various charges and fees to be imposed for the abstraction and use of water from any water resource in accordance with guidelines in the National Water Policy, the Gambia Water Act and the NWRMA Act; and
2. Submitting of basis/criteria for charges to approving authorities (by the NWRM Board).

Output Indicators:

1. Approved basis/criteria to determine the various charges and fees.

Specific Objective 4.2: Operationalization of water use charges

Output 4.2.1: Water charges/revenue is being generated.

Main Intervention Strategies

1. Commencing a nation-wide identification of all major water users/abstractors; and
2. Consultations with all major water abstractors to prepare and agree on modalities, which should govern the invoicing and payments of water charges.

Output Indicators:

1. All major water users registered;
2. Number of consultations with major water abstractors; and
3. Number of agreed modalities on invoicing and payments for raw water charges.

4.5 Financial and organizational sustainability

Strategic objective 5: Financial and organizational sustainability

The overriding rationale behind sustainability and user payments is to institute a mechanism, which will ensure that the water users carry the operational cost of administration, regulation and protection of the water resources. This means in principle that the raw water charge and other service charges are determined by the overall cost of the water resource administration divided by the quantity of water and services granted or provided.

However, as indicated above, the general national water resource administration will also continue to provide service as a public good, which cost will be difficult to recover from the abstraction charges - so a substantial part of the operational cost still need to be funded from the governmental budget (subvention) in the foreseeable future.

Specific Objective 5.1: Establishment of Financial Provision for the National Water Resource Management Authority

Output 5.1.1: Financial Provision for NWRMA functioning

Main Intervention Strategies

1. Preparing mode of operation and other financial management procedures for the functioning of the National Water Resource Management Authority;
2. Submitting mode of operation for approval by the NWRM Board and endorsed by the Ministry of Finance; and
3. Develop annual budgetary, operational and financial plans to be approved by the Board.

Output Indicators:

1. Mode of financial operation for National Water Resource Management Authority
2. Annual budgetary, operational and financial plans

Specific Objective 5.2: Diversify sources of income to meet administrative and operational costs

Output 5.2.1: Increased sources of income to meet administrative and operational costs.

Main Intervention Strategies

1. Undertake assessment to ascertain the customers demand of water resources products and services and identify possibilities for charging cost recovery fees;
2. Implementation of cost recovery on selected water resources products and services; and
3. Prepare financial management procedures of cost recovery on selected water resources products and services in relation to the National Water Resource Management Authority Financial Provision

Output Indicators:

1. Report on cost recovery on selected water resources products and services; and
2. Number of MOUs established related to payment of products and services, including type of products and services and amount to be paid.

Output 5.2.3: Products and services being more user-friendly and meeting specific requirements of the users.

Main Intervention Strategies

1. Simplify or tailor-make products and services language to suit the different categories of customers; and
2. Improve upon the format of presenting water resources products and services.

Output Indicators:

1. Report on simplification on language and format used in the packaging of products and services.

Output 5.2.3: Increased appreciation of customers' needs of water resource products and services.

Main Intervention Strategies

1. Identify and implement customer feedback mechanisms/methodologies;
2. Institutionalize customer feedback on the quality and delivery of water resource products and services; and
3. Monitor and evaluate the demand patterns for water resource products and services.

Output Indicators

1. Customer feedback reports prepared at pre-set intervals (bi-annually) by NWRMA; indicating data collection tools and methods used, and information generated for decision making; and
2. Market Analysis Reports on NWRMA water resource products and services.

Output 5.2.4: Increased NWRMA capacity to raise financial resources for programs and activities from government and Cooperating Partners (CPs).

Main Intervention Strategies

1. Increase and improve NWRMA's dialogue with government institutions and Cooperating Partners; and
2. Improve NWRMA's negotiating skills and knowledge for mobilizing financial resources.

Output Indicators

1. No. and type of meetings held with government institutions and CPs;
2. Minutes of meetings and reports;
3. No. of committees and organization in which NWRMA has membership; and
3. Amounts and types of resources arising from NWRMA's dialogue with government institutions and Cooperating Partners.

Specific Objective 5.3: To develop an accounting and financial management system

Output 5.3.1: Improved financial management and control

Main Intervention Strategies

1. Recruit senior accountant and two assistants to undertake accounting and procurement functions;
2. Acquire accounting software for the administration and accounts unit; and
3. Develop appropriate accounting and procurement management systems for the authority.

Output Indicators

1. Accountant recruited;
2. Accounting software in place; and
3. Accounting and procurement manuals in place.

4.6 Awareness raising, sharing of information, involvement of stakeholders**Strategic objective 6: Awareness raising, sharing of information, involvement of stakeholders**

The success of the IWRM implementation in The Gambia will depend upon the involvement of stakeholders – so it is important to continue the targeted public awareness raising activities and use the Communication Strategy as a 'guide' for NWRMA in its efforts to put in place an effective and efficient mechanism to carry forward with its communication and information sharing tasks.

Specific Objective 6.1: Strengthening human and institutional capacities related to IWRM

Output 6.1.1: Update the Communication Strategy and Action Plan

Main Intervention Strategies

1. Update the Communication Strategy and Action Plan

Output Indicators:

1. Communication Strategy and Action Plan updated

Output 6.1.2: Implement NWRMA Communication Strategy.**Main Intervention Strategies**

1. Promote and facilitate IWRM awareness at national, regional and district level;
2. Promote and facilitate water education in schools;
3. Awareness raising activities conducted in connection with special events, e.g. World Water Day, local celebrations and NGO initiatives; and
4. Ensuring a feedback mechanism to capture observable change in behaviour or attitude as a result of the communication interventions.

Output Indicators:

1. No. of IWRM awareness sessions held at national, regional and district level;
2. No. of sessions held at schools;
3. No of awareness raising activities conducted at special events; and
4. No. of feedback reports/notes on behaviour or attitude as a result of the communication interventions.

4.7 Oversee The Gambia's interest and obligations**Strategic objective 7: Management of international water resources**

NWRMA should continue the facilitation of the 'international instruments' for adequate and an enabling environment for the joint administration and management of the shared water resources of the Gambia River.

Specific Objective 7.1: Corporation with the Gambia River Basin Development Organization (OMVG)

Output 7.1.1: National interest of the use of the waters of The Gambia River Basin ensured

Main Intervention Strategies

1. Active participation in the OMVG businesses and activities to support Gambia's regional and international interests concerning water resources – in particular on food security and hydropower generation.

Output Indicators:

1. Number of OMVG Minutes of Meetings; and
2. Progress on the implementation of the Sambangalou Dam and other similar projects.

Specific Objective 7.2: To promote bilateral and multi-lateral cooperation

Output 7.2.1: Improved bilateral and multilateral cooperation.

Main Intervention Strategies

1. Conduct a needs assessment on areas of bilateral and multilateral cooperation in the IWRM sector;
2. Identify strategic institutions and organization for collaboration;
3. Study of collaborating institutions and their areas of specialization and comparative advantages and
4. Engage the government for contact with potential cooperating partners (CPs) in their respective countries and signing of agreements, protocols, conventions, etc.

Output Indicators

1. Report on needs assessment on areas of bilateral and multilateral cooperation;
2. Study Report on enhanced cooperation;
3. Number of meetings with government and level of engagement; and
4. Number and type of agreements, MOU, protocols and conventions signed by the Government of The Gambia with other governments to facilitate collaboration between NWRMA and counterpart institutions/organizations outside Gambia.

4.8 Institutional development and capacity building**Strategic objective 8: Institutional development and capacity building**

It is widely recognized that adequate institutional and human capacity for planning and managing sustainable water resource management services is one of the critical factors and requirements for success in any efforts related to IWRM.

Therefore this requires proper attention and funding.

Specific Objective 8.1: To build and develop the human resources management capacity of NWRMA

Output 8.1.1: Effective and efficient Human Resource Management and improved delivery of products and services

Main Intervention Strategies

1. Recruit an Sr. Human Resource Officer and assistant to undertake HR functions;
2. Recruit other necessary additional technical staff;
3. Training needs assessment prepared involving all staff (updated twice during strategy period);
4. Lead and ensure that training needs of the water sector are addressed through coordination of capacity activities and arrangements with relevant agencies and training institutions;
5. Develop and finalize Human Resource Development Plan for the NWRMA;
6. Function/job description for the Authority's positions prepared;
7. Developed strategy to motivate and retain staff; and
8. Ensure the working environment with adequate infrastructure and logistical support for the staff to carry out their duties effectively and efficiently.

Output Indicators

1. Sr. Human Resource Officer and one assistant recruited;
2. No. staff recruited in various fields of specialization as well as support staff;
3. Human Resource Development Plan finalized;
4. No. staff trained in various fields of specialization as well as support staff;
5. Finalize job description for all staff;
6. Percentage of staff separated from NWRMA through resignation; and
7. Number and quality of various infrastructure and logistics for operations.

Specific Objective 8.2: Develop human resources capacity in management, monitoring and research

Output 8.2.1: Planning and management capacity developed

Main Intervention Strategies

1. Internal procedures for the daily operations and administration upgraded and improved; and
2. Training of programme staff in the sections/units in management of activities.

Output Indicators

1. Internal procedures in place; and
2. Number of programmes staff trained in program management.

Output 8.2.2: Programs regularly monitored and evaluated

Main Intervention Strategies

1. Prepare a Monitoring and Evaluation Plan (M&E Plan);
2. Development of data base on M&E (NWRMA performance); and
3. Train key officers in monitoring and evaluation (M&E).

Output Indicators

1. Monitoring and Evaluation(M&E) Plan document;
2. M&E programme developed; and
3. Number of officers trained in M&E.

Output 8.2.3: Research capacity developed

Main Intervention Strategies

1. Provide training of NWRMA staff in research methods in hydrology, hydrogeology, water chemistry;
2. Undertake scientific investigations, experiments or research into water resources and to engage the services of such experts and consultants as necessary to fulfil the functions of the Authority;
3. Develop sectoral water plans and strategies including strategies to prevent water loss; and improve water conservation, reuse and recycling as well as to promote best technology.

Output Indicators

1. Number of NWRMA staff trained in research methods;
2. Number of scientific investigations undertaken;
3. Number of sectoral water plans and strategies developed; and

Specific Objective 8.3: Building and ensuring institutional capacity

Output 8.3.1: Technical human capacity ensured

Main Intervention Strategies

1. Completing one MSc. degree in Hydrology/IWRM (Principal Hydrological Officer);
2. Completing one MSc. degree in Water Resource Management (Research and Development Officer);
3. Completing one MSc. degree in IT/MIS related to WRM (Head of Information and Communication Technology Unit);
4. Completing one BSc. degree in IT/MIS related to WRM (MIS/Database Specialist in ICT Unit);
5. Completing two BSc. degrees in IT/MIS related to WRM (MIS Technicians);
6. Completing ten (12) diplomas in Water Resource Management/Water Quality; and
7. Completing other relevant training events taken place through utilisation of the available consultancy resources, locally recruited training providers and participation in formal courses, conferences and workshops/seminars organised in both Africa and overseas.

Output Indicators:

1. MSc. degree in Hydrology/IWRM completed by end 2015;
2. MSc. degree in Water Resource Management completed by end 2017;
3. MSc. degree in IT/MIS related to WRM completed by end 2016;
4. First BSc. degree in IT/MIS completed by end 2017;
5. Second and third BSc. degree in IT/MIS completed by end 2019;
6. 12 diplomas in Water Resource Management/Water Quality completed by end 2019; and
7. Number of other training events.

Specific Objective 8.4: To align NWRMA towards effectiveness and efficient to improve water resources products and services to customers.

Output 8.4.1: A lean and cost-effective organizational structure which is financially sustainable.

Main Intervention Strategies

1. Review NWRMA organizational structure using the criteria of relevance, effectiveness, efficiency, adequacy and sustainability; such that it is:
 - Relevant to meet the needs and aspirations of the country and the international community;
 - Effective so NWRMA being capable of implementing all planned programs and projects;
 - Efficient to timely delivery of quality, cost-effective products and services;
 - Adequate in having required staffing which are sufficiently manned for its core business; and
 - Sustainable so the NWRMA structure is not too top heavy, but is lean and cost-effective.

Output Indicators: A restructured NWRMA (if found required)

5. FINANCIAL PLAN – COST AND REVENUES

This Chapter 5 presents the financial implications associated with creating the new NWRMA. The first 5-year period (2015 - 2019) is to be considered the required time frame to transform the existing divisions under the Department of Water Resources to a fully established authority. Financially, the challenge is gradually to move from the present non-commercial setting to a financially viable organizational establishment.

The financial plan, which consists of the two main elements, viz. costs and revenues, reflects the progression of the establishment. Basically the first year of the strategic plan period (2015) is guided much by the present situation related to staffing (number and qualifications). The following three years (2016-2018) is the period where the establishment is geared up concerning new staff recruitment, training/education and investments as well as building up the revenue sources. The final year of the plan period (2019) is envisaged to be the year when NWRMA is fully established and functioning as intended.

The elaborations and conclusions presented below are guided by this gradual transformation to take place over a 5-year period.

5.1 Cost and Expenses

The estimated cost and expenses below for the NWRMA to be established is based on comparison of pay scale, allowances and operational expenses for similar agencies in The Gambia (NEA, GCAA and PURA).

Details are given in Annex 4 to 6.

5.1.1 NWRMA personnel costs

Personnel Cost (GMD)	2015	2016	2017	2018	2019
Personnel salaries	2.590.026	2.986.244	3.225.144	3.483.155	3.761.808
Personnel allowances	2.164.838	2.479.575	2.677.941	2.892.176	3.123.550
Pensions (19% of salaries)	492.105	567.386	612.777	661.799	714.743
ICS/Health Insurance	15.660	15.660	15.660	15.660	15.660
Total	5.262.628	6.048.865	6.531.522	7.052.791	7.615.761

The personnel cost above has taken into account the recruitment to be taken place during 2015 and the salary levels is aimed towards achieving a personnel remuneration package from 2015 which is at least 70% of what is paid in other similar authorities in The Gambia comparable with NWRMA. See details on salaries and allowances level in Annex 4.

5.1.2 NWRMA operating costs

Operational Cost (GMD)	2015	2016	2017	2018	2019
Local transportation	91.286	93.568	95.908	98.305	100.763
International travels	2.299.121	2.356.599	2.415.514	2.475.901	2.537.799
Motor vehicle running cost and maintenance	1.474.000	1.510.850	1.548.621	1.587.337	1.627.020
Water and electricity	502.563	515.127	528.005	541.205	554.735
Communication (Telephone, Internet & Postage)	756.926	775.849	795.246	815.127	835.505
Stationery	300.646	308.162	315.866	323.763	331.857
Maintenance of stations and	688.049	743.092	802.540	866.743	936.082

equipment					
Operation of the Water Quality Monitoring and Control Unit.	222.000	239.760	258.941	279.656	302.029
Payment to GAMA for meteorological services	846.720	914.458	987.614	1.066.623	1.151.953
Vehicle insurance	132.000	142.560	153.965	166.282	179.585
Board Costs	253.200	273.456	295.332	318.959	344.476
Audit Fees	62.116	67.086	72.452	78.249	84.508
Staff Training	5.678.401	5.678.401	5.678.401	5.678.401	5.678.401
Additional cost associated with administration of permits and fees	133.796	191.138	248.479	305.820	363.161
Total Operational Cost	13.440.824	13.810.105	14.196.884	14.602.371	15.027.874

The figures above are partly based on actual estimates (number of vehicles, expected millage, present cost of service, actual cost of training etc.) and partly on benchmarking against operational cost from similar organizations (PURA, NEA, NAVEC). See details on operational cost in Annex 5.

5.1.3 NWRMA investments or capital costs (given in EUR)

Capital Investments (€)	Quantity needed	Anticipated reuse (%)	Quantity to be procured as new	Unit Cost Estimated average cost (€)	Total (€)
Motor vehicles	11	55%	5	25000	125.000
Computers	43	14%	10	450	4.500
Printers	12	50%	6	300	1.800
Furniture	44	14%	10	750	7.500
Filing Cabinets	14	43%	5	400	2.000
Photocopier	8	75%	4	1500	6.000
Projectors and scanners	1	0	1	4550	4.550
Total capital investments to be financed					151.350

The capital investments needed is limited due to the anticipated location of the Authority (at the same premises as the existing DWR) hence no substantial investment required to establish NWRMA HQ. Likewise, due to the capital investments on equipment and hydrological stations already made under the on-going National Water Sector Reform Project capital investments are limited in this respect too.

5.2 Financing and Revenues

The financing of the operation and capital investments of the new national water resource management authority will need to be based on water user permits and abstraction charges, various other service charges, government subvention due to the partly “public good” nature of the service, and finally cooperating partners due to the substantial needed for institutional strengthening.

The basis of revenue estimates from water users in The Gambia is based upon the present estimated situation of the water utilization in terms of volumes and analysis of the actual workload/cost of providing the customized services including personnel and operational cost. The indicated water charges below are indicative – and will need to be finalized during the very early stages of this business plan (see section 4.4 and 4.5 above).

5.2.1 Revenue from NAWEC

The annual withdrawal from groundwater wells delivering the source for the drinking water production of NAWEC is close to approximately 30 million cubic meters providing a sales value of approximately 225 million GMD (2012). NAWEC is by far the largest user of groundwater in The Gambia.

If water resource management in The Gambia are to be sustainable both practically and financially – some of the “*water sale income*” of NAWEC must be paid to the NWRMA in order to ensure a continued production of drinking water to an ever expanding Greater Banjul Area and other urban/semi-urban areas.

Based on the NAWEC abstraction and sales figures from 2010-2012, it is found reasonable² to base the payment to NWRMA on a flat rate of 25 bututs per abstracted cubic meter, which is approximately 3,3 % of the average sales value/m³ of NAWEC, namely 7,55 GMD (2012).

This will provide the revenue from abstraction charges from NAWEC production as captured below:

Abstraction charges to be received from NAWEC	2015	2016	2017	2018	2019
	7.168.439	7.189.227	7.210.076	7.230.985	7.251.955
<i>Approximately 3,3% (0,25 GMD/abstracted m³ raw water) of the average sales values of NAWEC (2010 - 2012) projected to grow at its calculated average sales growth of 0,029%..</i>					

Details on NAWEC abstraction (2010-12) are found in Annex 7.

5.2.2 Revenue from other uses of groundwater and surface water

There are general two other sector of groundwater use in The Gambia – the private sector (incl. individuals) and the rural water supply sector.

The private sector is limited – nonetheless its need will be registered and subsequently be charged for abstracting groundwater. The permit³ given will specify the condition and limitation of the annual abstraction and the exact charges whether it should be a flat rate, based on actual abstraction or aligned with the modalities used and agreed with NAWEC will be established in early 2015 (see section 4.4. above) – but for the sake for budgeting – a flat rate of 12.000 GMD is suggested based on anticipated cost for administration plus some overhead charges (details in Annex 7).

This will provide the revenue from abstraction charges from the private sector as seem below:

Water Use Charges - Boreholes using submersible pumps abstracting more than 10 m³/day					
Year	2015	2016	2017	2018	2019
Revenue per annum	180.000	240.000	300.000	360.000	420.000
Revenues assumed to start at 15 users in the first year and growing by 5 year on year					

² Payment for abstraction towards water resource management from larger utilities in countries like Ghana amounts to similar level of 3-4 % of the total sales value of abstracted raw water.

³ The requirement for a Permit A and subsequent annual water charges is suggested to be limited to those boreholes installed with submersible pumps or with an estimated abstraction more than 3650 m³/year. In all cases – fixed metering is required.

Similarly – it is expected that surface water use from major diversion and larger water impoundment will create possibilities for revenue. Again permit⁴ given will specify the condition and limitation of the annual diversion or size of impoundment and the exact charges will be established in early 2015 – but a flat rate of 11.000 GMD for diversions and 7.000 GMD for larger impoundments is recommended based on anticipated cost for administration plus some overhead charges (details in Annex 7).

Water Use Charges - Diversion using more than 10 m³/day					
Year	2015	2016	2017	2018	2019
Revenue per annum	33.000	55.000	77.000	99.000	121.000
Revenues assumed to start at 3 users in the first year and growing by 2 year on year					

Water Use Charges - Impoundment of more than 1000 m³					
Year	2015	2016	2017	2018	2019
Revenue per annum	21.000	35.000	49.000	63.000	77.000
Revenues assumed to start at 3 users in the first year and growing by 2 year on year					

The Rural Water Supply Sector: It is not expected that the vast number of boreholes installed with hand pumps at village level will be charges for their use of water – partly due to social consideration and partly due to the high cost of administration such charges. It will be required for the new authority to establish an overview (hence a registration) of all boreholes in the country as part of their usual operations – but this should be regarded as “institutional development” of the new authority and the associated cost could be sort financed through support from Development Partners (see section 5.3).

5.2.3 Revenues from other sources

The Authority will be responsible to administrate and charge for various permits for water use with attached conditions but also to impose fines if water use is done without such permits or the conditions in a given permit is breached. This will provide revenue from permits and fines as seen below:

Revenue from Permits	2015	2016	2017	2018	2019
Borehole Drilling Permit - A	375.000	500.000	625.000	750.000	875.000
Water Diversion Permits - B	90.000	310.000	410.000	510.000	610.000
Water Impounding Permits - C	90.000	310.000	410.000	510.000	610.000
Total Revenues from Permits	555.000	1.120.000	1.445.000	1.770.000	2.095.000

Revenue from Fines	2015	2016	2017	2018	2019
Operating without a permit	150.000	150.000	150.000	150.000	150.000
Operating in breach of permit conditions	150.000	150.000	150.000	150.000	150.000
Total Revenue from Fines	300.000	300.000	300.000	300.000	300.000

⁴ The requirement for a permit to divert water (Permit B) is recommended to be limited to estimated diversion above 3650 m³ per annum and a permit to impound water (Permit C) is recommended to be limited to impoundments of water above 1000 m³.

Furthermore, it is expected that the Water Quality Monitoring and Control Unit will be in charge of most water resource quality monitoring as well as monitoring drinking water standards on behalf of NAWEC and PURA. An estimated overview of the revenue for such service is indicated below.

Revenue from Water Quality Monitoring Services	2015	2016	2017	2018	2019
Water Quality Monitoring Assessments (requested by PURA)	259.840	285.824	314.406	345.847	380.432
Other Water Quality Information Requests	201.600	221.760	243.936	268.330	295.163
River and tributaries information requests	100.800	151.200	226.800	340.200	510.300
Rural water analysis	100.800	151.200	226.800	340.200	510.300
Total Revenue from Water Quality Monitoring Services	663.040	809.984	1.011.942	1.294.577	1.696.194

Details on charges for permit, fines and water quality monitoring are found in Annex 8.

5.2.4 Revenue (funding support) from Cooperating Partners

It is expected that external funding can be secured for the following cost items for operation (50% of expenses on international travel to participate in various fora, 100% of capacity development/training and 100% towards to the registration of rural water supply boreholes).

Revenue from CP Partners towards operational cost	2015	2016	2017	2018	2019	Total
International travels	1.149.560	1.178.299	1.207.757	1.237.951	1.268.899	6.042.467
Staff Training	5.678.401	5.678.401	5.678.401	5.678.401	5.678.401	28.392.005
Registration of RWS boreholes	250.000	1.695.000	1.695.000	1.695.000	1.695.000	7.030.000
Total funding (GMD)	7.077.961	8.551.700	8.581.158	8.611.352	8.642.300	41.464.472
Total funding (Euro)	128.690	155.485	156.021	156.570	157.133	753.899

Similarly, funding for capital investment of 5 vehicles will be negotiated with cooperating partners.

Revenue from CP Partners towards capital cost	2015	2016	2017	2018	2019	Total
Motor vehicles	50.000	75.000	0	0	0	125.000
Total funding (GMD)	2.750.000	4.125.000	0	0	0	6.875.000
Total funding (Euro)	50.000	75.000	0	0	0	125.000

5.2.5 Government Subvention

The NWRMA would normally provide service, advice and information meant for the general public without a charge/fee and is overall responsible to manage the nation's water resources for macro-economic national programming and planning. It will therefore be necessary that Government continues to provide subvention to the NWRMA for the purpose of maintaining the requisite infrastructure for such overall national water resource management, programming and planning - making this critical service available and possible.

Based upon the total operating and capital investment cost of NWRMA and the anticipated revenues from non-government sources – the government subvention during 2015-2020 is expected to be as indicated below:

Government Subvention towards cost	2015	2016	2017	2018	2019
Total budget (GMD)	2.707.027	1.880.076	2.156.246	2.408.267	2.602.205

It can be noted from the budget above that the government contribution over the years will only slightly increase and the additional revenue potentials from other 'sectors' such as tourism, donors and projects, joint assignments with international partners and increased need and of variety of private operators for meteorological information will contribute to ensure personal cost levels to be comparable to similar other authorities in the country.

The government subvention towards the capital expenditures is indicated below:

Required subvention from Government towards capital investment cost	2015	2016	2017	2018	2019	Total
Computers	2.250	2.250	0	0	0	4.500
Printers	900	900	0	0	0	1.800
Furniture	3.750	3.750	0	0	0	7.500
Filing Cabinets	1.000	1.000	0	0	0	2.000
Photocopier	3.000	3.000	0	0	0	6.000
Projectors	2.275	2.275	0	0	0	4.550
Government Subvention (GMD)	724.625	724.625	0	0	0	1.449.250
Government Subvention (Euro)	13.175	13.175	0	0	0	26.350

5.3 Summary Budget (2015-19)

The financial sustainability/viability of the new water resource authority will depend upon the acceptance of the main customer like NAWEC to make the adequate contribution(s) towards the cost required to run a modern water resource management authority. The main customers for non-competed services will need to accept payment set at a reasonable level consistent with the level of recurrent costs (as outlined above) required providing such services. It should be noted that the capital investment costs are not included in the payment calculations above as this is assumed to be paid by government/donor development partners.

NWRMA should as soon as possible establish the modalities for the water charges, permit fees, fines, water analysis fees etc. to be charges to relevant customers which clearly define the outputs and associated costs/payments. The operational NWRMA budget is summarized below (all figures given in GMD).

Cost and Expenditures	2015	2016	2017	2018	2019
Personnel related cost	5.264.643	6.050.881	6.533.539	7.054.809	7.617.780
Operating cost	13.440.824	13.810.105	14.196.884	14.602.371	15.027.874
Total NWRMA Cost	18.705.467	19.860.987	20.730.422	21.657.180	22.645.655

Revenue /funding	2015	2016	2017	2018	2019
Government Subvention	2.707.027	1.880.076	2.156.246	2.408.267	2.602.205
Abstraction Charges	7.402.439	7.519.227	7.636.076	7.752.985	7.869.955
Permits	555.000	800.000	1.045.000	1.290.000	1.535.000
Penalties and Fines	300.000	300.000	300.000	300.000	300.000
Water Quality Services	663.040	809.984	1.011.942	1.294.577	1.696.194
Development Partners	7.077.961	8.551.700	8.581.158	8.611.352	8.642.300
Total Revenue/Funding	18.705.467	19.860.987	20.730.422	21.657.180	22.645.655

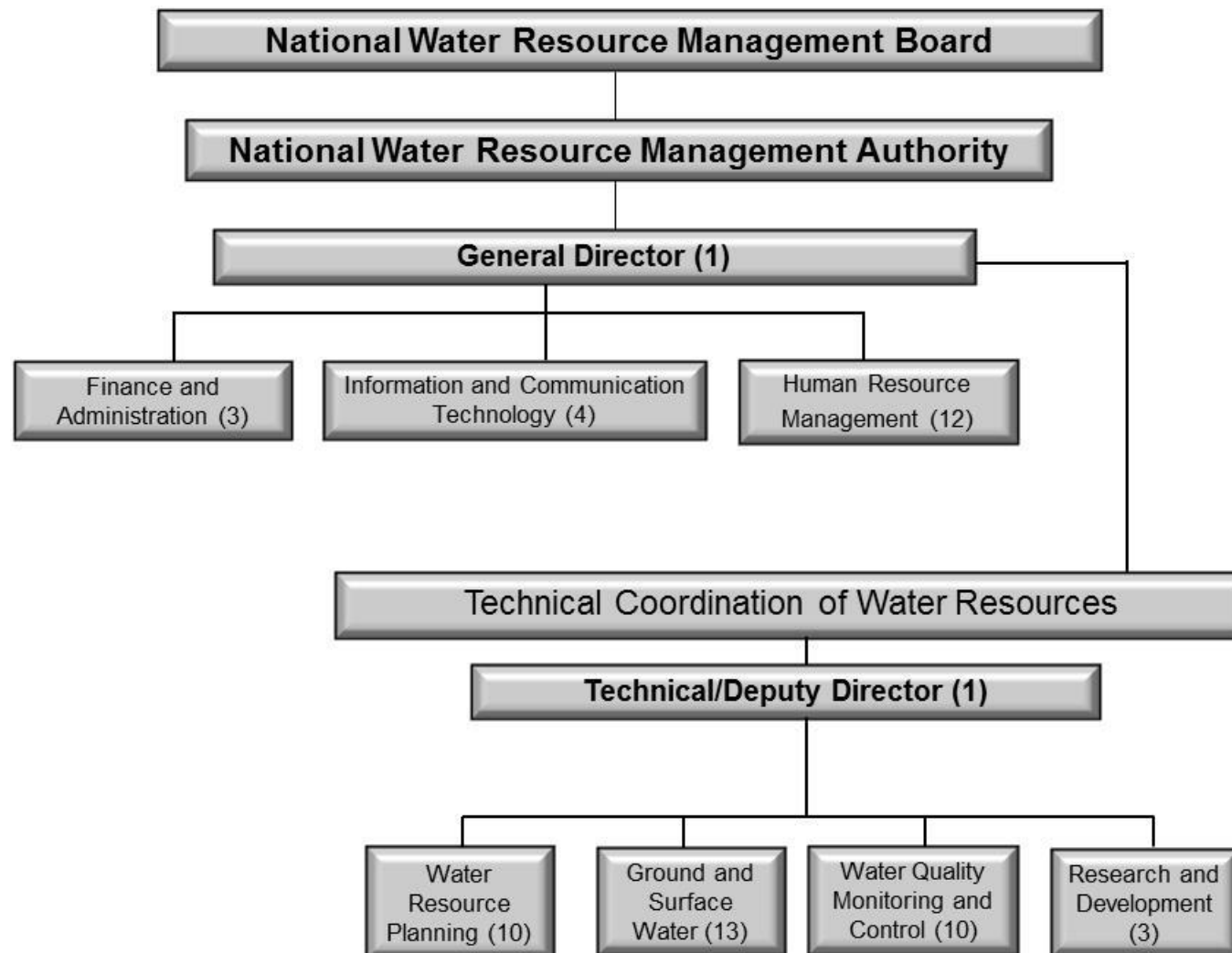
Details of sources of revenues/funding for specific cost items are given in Annex 9.

As mentioned in section 5.1.1 above, it is likely that the Authority during the first years of its establishment would need to provide the necessary service within a funding framework initially only allowing a certain part of the personnel to be covered. Hence, in the budget tables presented in this chapter and associated annexes, a 70%-level of the salaries otherwise expected to be paid in an authority is used. However, over time and with the NWRMA intensifying its operation and broader appreciation of proper water resource management emerges, the revenue and funding from providing solid and professional services should increase which then would allow a financial platform whereby full “authority staff salaries level” can be achieved in a not too distant future.

The capital NWRMA budget is summarized below (all figures given in EUR)

Required capital investment cost	2015	2016	2017	2018	2019	Total (€)
Motor vehicles	50.000	75.000	0	0	0	125.000
Computers	2.250	2.250	0	0	0	4.500
Printers	900	900	0	0	0	1.800
Furniture	3.750	3.750	0	0	0	7.500
Filing Cabinets	1.000	1.000	0	0	0	2.000
Photocopier	3.000	3.000	0	0	0	6.000
Projectors	2.275	2.275	0	0	0	4.550
Total	63.175	88.175	0	0	0	151.350

Financing capital investment cost	2015	2016	2017	2018	2019	Total (€)
Government Subvention	13.175	13.175	0	0	0	26.350
Funding from Cooperating Partners	50.000	75.000	0	0	0	125.000
Total Financing	63.175	88.175	0	0	0	151.350

Annex 1: NWRMA Organisational Structure

Annex 2: Overview of NWRMA staffing, qualification, recruitment and training needs

National Water Resource Management Authority			Upgrading if required		
Authority Organisational Set-Up	To build upon or recruit		MSc	BSc	Diploma
	Exist already in DWR	To Recruit			
NWRMA Administration, ICT and HR					
General Director (NWRMA)	1	0	0	0	0
Finance and Administration	0	3	0	0	0
Information and Communication Technology	4	0	1	1	1
Human Resource Management	8	4	0	0	0
Total NWRMA Administration	13	7	1	1	1
Technical Coordination Section					
Technical Director (Deputy)	0	1	0	0	0
<i>Water Resource Planning Unit</i>	8	2	0	0	5
<i>Ground- and Surface Water Unit</i>	12	1	1	1	4
<i>Water Quality Monitoring and Control Unit</i>	10	0	0	1	2
<i>Research and Development Unit</i>	3	0	1	0	0
Total Technical Coordination Section	33	4	2	2	11
Total	46	11	3	3	12

Annex 3: Action Plan/Schedule for the Implementation of Strategic Objectives

Strategic Objective 1: Coordination of the national water sector	IMPLEMENTATION Schedule, 2015 -2019																				RESPONSIBLE PARTY (to implement the activity - but not necessarily approval)
	Year 1				Year 2				Year 3				Year 4				Year 5				
	Quarter				Quarter				Quarter				Quarter				Quarter				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Specific Objective 1.1: To ensure the institutional capacity and sustainability of NWRMA																					
Output 1.1.1: Secure legal, administrative and operational framework of NWRMA																					
Activity 1.1.1.1: The Gambia Water Act enacted by National Assembly	X																				National Assembly
Activity 1.1.1.2: The National Water Resource Management Authority Act enacted by National Assembly	X																				National Assembly
Activity 1.1.1.3: The National Water Resource Management Board formalized and functioning		X																			Minister of Env, CC, WR, Parks and WL
Activity 1.1.1.4: The National Water Resource Management Authority inaugurated and in operation.		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Director General (NWRMA)
Activity 1.1.1.5: Update, implement and monitor the National Water Policy and the National Water Resources Strategy and Implementation				X								X								X	Director General (NWRMA)
Specific Objective 1.2: Effective coordination in the water sector																					
Output 1.2.1:Well-functioning Board and Authority																					
Activity 1.2.1.1: Development of working procedures with the NWRM Board and linkage to the Authority		X																			Director General (NWRMA)
Activity 1.2.1.2: Establishment of working committees across sectors (roles, functions, composition and outputs defined)		X	X	X																	Director General (NWRMA)
Activity 1.2.1.3: Lead the collaboration with sector stakeholders to ensure the objectives of the Water Act		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Director General (NWRMA)
Activity 1.2.1.4: Advise government on interpretation, harmonisation development and updating of legislation and regulations with regard to the water sector and to develop and propose such regulations as deemed necessary		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Director General (NWRMA)
Output 1.2.2: Working relationship established with other agencies/authorities																					
Activity 1.2.2.1: Establishing MOU between NWRMA and NEA on management of environment	X	X																			Minister of Env, CC, WR, Parks and WL
Activity 1.2.2.2: Establishing MOU between NWRMA and NAWEC on water quality sampling and analysis		X																			Director General (NWRMA)
Activity 1.2.2.3: Establishing MOU between NWRMA and PURA on water quality sampling and analysis		X																			Director General (NWRMA)
Activity 1.2.2.4: Establishing MOU between NWRMA and Local Government on management of water resources		X	X																		Minister of Env, CC, WR, Parks and WL

Strategic Objective 2: Developing, managing and monitoring of the national water resources	IMPLEMENTATION Schedule, 2015 -2019																				RESPONSIBLE PARTY (to implement the activity but not necessarily approval)
	Year 1				Year 2				Year 3				Year 4				Year 5				
	Quarter				Quarter				Quarter				Quarter				Quarter				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Specific Objective 2.1: Developing the national water resources																					
Output 2.1.1: Water resource utilized in the best and most optimal manner																					
Activity 2.1.1.1: Take the lead role in coordinating water development projects in The Gambia			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Principal Water Resource Planning Officer
Activity 2.1.1.2: Develop documents necessary to support Gambia's national interests concerning water resources					X	X															Principal Water Resource Planning Officer
Specific Objective 2.2: Managing, assessment and monitoring/control the national water resources																					
Output 2.2.1:Quantities of water resources managed and monitored																					
Activity 2.2.1.1: 1. Finalize the national framework for water quality monitoring (both surface and groundwater) including formalizing the Water Quality Monitoring and Control Unit as lead.		X	X	X																	Principal Hydrological Officer
Activity 2.2.1.2: Maintain a network of hydrological measuring stations, to measure national hydrological record			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Senior Hydrological Superintendent
Activity 2.2.1.3: Maintain a network of hydrogeological measuring stations (monitoring boreholes).			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Sr. Hydrogeologist
Activity 2.2.1.4: Gather information on water resources and its utilisation and publish information on water resources			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Principal Hydrological Officer
Activity 2.2.1.5: Maintain a national database of water resource information (water quantities) including such GIS and electronic data as are relevant			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Head of Information and Communication Technology
Output 2.2.2:Qualities of water resources managed and monitored																					
Activity 2.2.2.1: Finalizing framework for water quality monitoring (both surface and groundwater)		X	X	X																	Principal Scientific Officer
Activity 2.2.2.2: Maintenance of a network of stations/points to collect water samples for water analysis and to provide such information to the public			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Senior Hydrological Superintendent
Activity 2.2.2.3: Control, protect and conserve water resources quality from adverse impacts, to manage and protect water catchments and to advise pollution control agencies on matters concerning the management and control of pollution of water resources			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Principal Scientific Officer
Activity 2.2.2.4: Maintain a national database of water resource (water qualities) information including such GIS and electronic data as are relevant			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Head of Information and Communication Technology
Activity 2.2.2.5: Coordinate, harmonise and periodically review/update water resource quality standards				X				X				X				X				X	Principal Scientific Officer
Output 2.2.3: Established protection zones around drinking water wells/well fields against polluting activities																					
Activity 2.2.3.1: Define and demarcate (draft) protection zones		X	X	X																	Principal Scientific Officer
Activity 2.2.3.2: Discussing and agreeing on zones (extent, activities allowed inside, enforcement etc.) with stakeholders/land owners			X	X	X																Director General (NWRMA)
Activity 2.2.3.3: Implement the physical demarcation of protection zones					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Principal Hydrological Officer

Strategic Objective 3: Regulation of use and allocation of water resources	IMPLEMENTATION Schedule, 2015 -2019																				RESPONSIBLE PARTY (to implement the activity but not necessarily approval)
	Year 1				Year 2				Year 3				Year 4				Year 5				
	Quarter				Quarter				Quarter				Quarter				Quarter				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Specific Objective 3.1: Regulating use of water resources																					
Output 3.1.1: Established regulation for the use of water resources																					
Activity 3.1.1.1: Develop guidelines and procedures for the allocation and permitting of water resources in accordance with The Gambia Water Act		X	X																		Technical Director (Deputy)
Activity 3.1.1.2: Approve water permits, to keep a register of permits and to administer a water permitting system in accordance with the Water Act			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Sr. Water Permit and Charging Officer
Activity 3.1.1.3: Develop and disseminate practical guidelines on the development and use of water.			X	X			X				X				X				X		Principal Water Resource Planning Officer
Output 3.1.2: Monitoring and enforcement of the use of water resources																					
Activity 3.1.2.1: Define enforcement tools/guidelines (offences and corresponding fines/penalties) necessary to ensure effective regulation under the Water Act to safeguard the national water resources.		X	X																		Technical Director (Deputy)
Activity 3.1.2.2: Monitor and enforce conditions attached to water permits, including the cancellation of a permit and suspension of activities where conditions are violated			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Water Resource Enforcement Officer
Activity 3.1.2.3: Establish and maintain a national register of all water supplies in The Gambia.					X	X	X	X													Water Permit and Charging Assistant
Activity 3.1.2.4: Qualify, certify and maintain a register of borehole drilling and well construction companies			X	X			X				X				X				X		Sr. Water Permit and Charging Officer

Strategic Objective 3: Regulation of use and allocation of water resources	IMPLEMENTATION Schedule, 2015 -2019																				RESPONSIBLE PARTY (to implement the activity but not necessarily approval)
	Year 1				Year 2				Year 3				Year 4				Year 5				
	Quarter				Quarter				Quarter				Quarter				Quarter				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Specific Objective 3.2: Regulating allocation of water resources																					
Output 3.2.1:Development of a conceptual framework for DSS																					
Activity 3.2.1.1: Design of conceptual framework for DSS					X	X															Principal Water Resource Planning Officer
Activity 3.2.1.2: Assessment of need for tools, model and data						X	X	X													Principal Hydrological Officer
Activity 3.2.1.3: Decision and procurement of DSS software application (model)								X													Technical Director (Deputy)
Activity 3.2.1.4: Installation and training in DSS software application (model)									X	X	X	X									MIS / Database Specialist
Output 3.2.2: Development of DSS for pilot sub-basin																					
Activity 3.2.2.1: Selection and demarcation of first pilot sub-basin/groundwater based area											X	X									Principal Hydrological Officer
Activity 3.2.2.2: Collating of relevant information pertaining to first pilot sub-basin/area												X	X	X							Sr. Hydrological Field Assistants
Activity 3.2.2.3: Carry out socio-economic background and “profiling” study in pilot sub-basin/area													X	X							Regional Coordinator
Activity 3.2.2.4: Evaluate demographic trends at basin level for water demand projection purposes														X	X						Principal Water Resource Planning Officer
Activity 3.2.2.5: Prepare groundwater assessment study/model covering the pilot sub-basin/area														X	X	X					Sr. Hydrogeologist
Activity 3.2.2.6: Prepare overall water resources assessment (“water balance” evaluation), and supply and demand scenario analysis for pilot sub-basin through application of the chosen model tool																X	X	X			Principal Water Resource Planning Officer
Activity 3.2.2.7: Development of plan for further development of DSS to include the entire country																		X	X	X	Principal Water Resource Planning Officer

Strategic Objective 4: Establishing of water user charges	IMPLEMENTATION Schedule, 2015 -2019																				RESPONSIBLE PARTY (to implement the activity but not necessarily approval)
	Year 1				Year 2				Year 3				Year 4				Year 5				
	Quarter				Quarter				Quarter				Quarter				Quarter				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Specific Objective 4.1: Establishment of water user charges																					
Output 4.1.1: Water user charges established to finance the management of water resources by NWRMA on a sustainable basis																					
Activity 4.1.1.1: Establishment of the basis/criteria to determine the various charges and fees to be imposed for the abstraction and use of water from any water resource; in accordance with guidelines in the National Water Policy, the Water Act and the Laws of The Gambia		X	X	X																	Sr. Water Permit and Charging Officer
Activity 4.1.1.2: Submitting of basis/criteria for charges to approving authorities (by the NWRM Board)				X																	Director General (NWRMA)
Specific Objective 4.2: Operationalization of water user charges																					
Output 4.2.1: Water charges/revenue is being generated																					
Activity 4.2.1.1: Commencing a nation-wide identification of all major water users		X	X																		Principal Water Resource Planning Officer
Activity 4.2.1.2: Consultations with all major water abstractors to prepare and agree on modalities, which should govern the invoicing and payments of water charges			X	X																	Director General (NWRMA)

Strategic Objective 5: Financial and organizational sustainability	IMPLEMENTATION Schedule, 2015 -2019																				RESPONSIBLE PARTY (to implement the activity - but not necessarily approval)
	Year 1				Year 2				Year 3				Year 4				Year 5				
	Quarter				Quarter				Quarter				Quarter				Quarter				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Specific Objective 5.1: Establishment of Financial Provision for the National Water Resource Management Authority																					
Output 5.1.1: Financial Provision for NWRMA functioning																					
Activity 5.1.1.1: Preparing mode of operation and other financial management procedures for the functioning of the National Water Resource Management Authority			X	X																	Head of Accounting
Activity 5.1.1.2: Submitting mode of operation for approval by the NWRM Board and endorsed by the Ministry of Finance				X																	Director General (NWRMA)
Activity 5.1.1.3: Develop annual budgetary, operational and financial plans to be approved by the Board				X				X				X				X				X	Head of Accounting
Specific Objective 5.2: Diversify own sources of income to meet administrative and operational costs																					
Output 5.2.1: Increased own sources of income to meet administrative and operational costs																					
Activity 5.2.1.1: Undertake assessment to ascertain the customers demand of water resources products and services and identify possibilities for charging cost recovery fee					X	X															Principal Water Resource Planning Officer
Activity 5.2.1.2: Implementation of cost recovery on selected water resources products and services						X	X	X													Head of Accounting
Activity 5.2.1.3: Prepare financial management procedures of cost recovery on selected water resources products and services in relation to the National Water Resource Management Authority Financial Provision								X	X												Head of Accounting
Output 5.2.2: Products and services being more user-friendly and meeting specific requirements of the users																					
Activity 5.2.2.1: Simplify or tailor-make products and services language to suit the different categories of customers					X	X															Technical Director (Deputy)
Activity 5.2.2.2: Improve upon the format of presenting water resources products and services						X	X														Principal Hydrological Officer
Output 5.2.3: Increased appreciation of customers’ needs of water resource products and services																					
Activity 5.2.3.1: Identify and implement customer feedback mechanisms/methodologies					X	X	X	X													Technical Director (Deputy)
Activity 5.2.3.2: Institutionalize customer feedback on the quality and delivery of water resource products and services							X	X	X	X											Technical Director (Deputy)
Activity 5.2.3.3: Monitor and evaluate the demand patterns for water resource products and services												X				X				X	Head of Information and Communication Technology
Output 5.2.4: Increased NWRMA capacity to raise financial resources for programs and activities from government and Cooperating Partners (CPs)																					
Activity 5.2.4.1: Increase and improve NWRMA’s dialogue with government institutions and Cooperating Partners					X	X	X	X													Director General (NWRMA)
Activity 5.2.4.2: Improve NWRMA’s negotiating skills and knowledge for mobilizing financial resources					X	X															Head of HRM

Strategic Objective 5: Financial and organizational sustainability	IMPLEMENTATION Schedule, 2015 -2019																				RESPONSIBLE PARTY (to implement the activity but not necessarily approval)
	Year 1				Year 2				Year 3				Year 4				Year 5				
	Quarter				Quarter				Quarter				Quarter				Quarter				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Specific Objective 5.3: To develop an accounting and financial management system																					
Output 5.3.1: Improved financial management and control																					
Activity 5.3.1.1: Recruit a senior accountant and two assistants to undertake accounting and procurement functions		X																			Head of HRM
Activity 5.3.1.2: Acquire accounting software for the administration and accounts unit			X	X																	Head of Accounting
Activity 5.3.1.3: Develop appropriate accounting and procurement management systems for the Authority				X	X	X															Head of Accounting

Strategic Objective 6: Awareness raising, sharing of information, involvement of stakeholders	IMPLEMENTATION Schedule, 2015 -2019																				RESPONSIBLE PARTY (to implement the activity but not necessarily approval)
	Year 1				Year 2				Year 3				Year 4				Year 5				
	Quarter				Quarter				Quarter				Quarter				Quarter				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Specific Objective 6.1: Strengthening human and institutional capacities related to IWRM																					
Output 6.1.1: Update the Communication Strategy and Action Plan																					
Activity 6.1.1.1: Update the Communication Strategy and Action Plan								X												X	Principal Water Resource Planning Officer
Output 6.1.2: Implement the Communication Strategy and Action Plan																					
Activity 6.1.2.1: Promote and facilitate IWRM awareness at national, regional and district level							X	X	X	X											Principal Water Resource Planning Officer
Activity 6.1.2.2: Promote and facilitate water education in schools									X	X	X	X	X	X	X	X	X	X	X	X	Water Resource Planning Assistants
Activity 6.1.2.3: Awareness raising activities conducted in connection with special events, e.g. World Water Day, local celebrations and NGO initiatives						X				X				X				X			Principal Water Resource Planning Officer
Activity 6.1.2.4: Ensuring a feedback mechanism to capture observable change in behaviour or attitude as a result of the communication interventions								X				X				X				X	Water Resource Planning Assistants
Output 6.2.2: Research capacity developed																					
Activity 6.2.1.1: Provide training of NWRMA staff in research methods in meteorology, climatology, agro-meteorology									X	X					X	X					Principal Research and Development Officer
Activity 6.2.1.2: Put in place machinery, equipment and ICT software for research							X	X													Head of Information and Communication Technology

Strategic Objective 7:Management of international water resources	IMPLEMENTATION Schedule, 2015 -2019																				RESPONSIBLE PARTY (to implement the activity but not necessarily approval)
	Year 1				Year 2				Year 3				Year 4				Year 5				
	Quarter				Quarter				Quarter				Quarter				Quarter				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Specific Objective 7.1: Corporation with the Gambia River Basin Development Organization (OMVG)																					
Output 7.1.1: National interest of the use of the waters in The Gambia River ensure																					
Activity 7.1.1.1: Collaborate with OMVG to support Gambia’s regional and international interests concerning water resources - in particular on food security and hydropower generation			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Principal Hydrological Officer
Specific Objective 7.2: To promote bilateral and multi-lateral cooperation																					
Output 7.2.1: Improved bilateral and multilateral cooperation																					
Activity 7.2.1.1: Conduct a needs assessment on areas of bilateral and multilateral cooperation in the IWRM sector			X	X	X																Technical Director (Deputy)
Activity 7.2.1.2: Identify strategic institutions and organization for collaboration					X																Technical Director (Deputy)
Activity 7.2.1.3: Study of collaborating institutions and their areas of specialization and comparative advantages				X	X																Technical Director (Deputy)
Activity 7.2.1.4: Engage the government for contact with potential cooperating partners (CPs) in their respective countries and signing of agreements, protocols, conventions, etc.					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Director General (NWRMA)

Strategic Objective 8: Institutional development and capacity building	IMPLEMENTATION Schedule, 2015 -2019																				RESPONSIBLE PARTY (to implement the activity - but not necessarily approval)
	Year 1				Year 2				Year 3				Year 4				Year 5				
	Quarter				Quarter				Quarter				Quarter				Quarter				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Specific Objective 8.1: To build and develop the human resources management capacity of NWRMA																					
Output 8.1.1: Effective and efficient HRM and improved delivery of products and services																					
Activity 8.1.1.1: Recruit an Sr. Human Resource Officer and assistant to undertake HR functions		X																			Director General (NWRMA)
Activity 8.1.1.2: Recruit other necessary additional technical staff		X	X	X																	Director General (NWRMA)
Activity 8.1.1.3: Training needs assessment prepared involving all staff (updated twice during strategy period)					X	X	X														Head of HRM
Activity 8.1.1.4: Lead and ensure that training needs of the water sector are addressed through coordination of capacity activities and arrangements with relevant agencies and training institutions								X	X	X	X	X	X	X	X	X	X	X	X	X	Head of HRM
Activity 8.1.1.5: Develop and finalize Human Resource Development Plan for the NWRMA								X	X	X	X										Head of HRM
Activity 8.1.1.6: Function/job description for the Authority’s positions prepared								X	X												Head of HRM
Activity 8.1.1.7: Develop strategy to motivate and retain staff					X	X															Head of HRM
Activity 8.1.1.8: Ensure the working environment with adequate infrastructure and logistical support for the staff to carry out their duties effectively and efficiently					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Head of HRM
Specific Objective 8.2: Develop human resources capacity in management, monitoring and research																					
Output 8.2.1: Planning and management capacity developed																					
Activity 8.2.1.1: Internal procedures for the daily operations and administration upgraded and improved					X	X															Head of HRM
Activity 8.2.1.2: Training of programme staff in the sections/units in management of activities								X	X	X	X										Head of HRM
Output 8.2.2: Programs regularly monitored and evaluated																					
Activity 8.2.2.1: Prepare a Monitoring and Evaluation Plan (M&E Plan)								X	X												Head of HRM
Activity 8.2.2.2: Development of data base on M&E									X												Head of Information and Communication Technology
Activity 8.2.2.3: Train key officers in monitoring and evaluation (M&E)										X	X	X	X	X	X	X	X	X	X	X	HRM assistants
Output 8.2.3: Research capacity developed																					
Activity 8.2.3.1: Provide training of NWRMA staff in research methods in hydrology, hydrogeology, water chemistry										X	X					X	X				Principal Research and Development Officer
Activity 8.2.3.2: Undertake scientific investigations, experiments or research into water resources and to engage the services of such experts and consultants as necessary to fulfil the functions of the Authority										X	X			X	X			X	X		Principal Research and Development Officer
Activity 8.2.3.3: Develop sectoral water plans and strategies including strategies to prevent water loss and improve water conservation, reuse and recycling as well as to promote best technology								X	X												Principal Water Resource Planning Officer

Strategic Objective 8: Institutional development and capacity building	IMPLEMENTATION Schedule, 2015 -2019																				RESPONSIBLE PARTY (to implement the activity - but not necessarily approval)
	Year 1				Year 2				Year 3				Year 4				Year 5				
	Quarter				Quarter				Quarter				Quarter				Quarter				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Specific Objective 8.3: Building and ensuring institutional capacity																					
Output 8.3.1: Technical human capacity ensured																					
Activity 8.3.1.1: Completing one MSc. degree in Hydrology/IWRM (Principal Hydrological Officer)	X	X	X	X	X	X	X	X													Director General (NWRMA)
Activity 8.3.1.2: Completing one MSc. degree in Water Resource Management (Research and Development Officer)									X	X	X	X	X	X	X	X					Head of HRM
Activity 8.3.1.3: Completing one MSc. degree in IT/MIS related to WRM (Head of Information and Communication Technology Unit)					X	X	X	X	X	X	X	X									Head of HRM
Activity 8.3.1.4: Completing one BSc. degree in IT/MIS related to WRM (MIS/Database Specialist in ICT Unit)					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Head of HRM
Activity 8.3.1.5: Completing one BSc. degree in IT/MIS related to WRM (MIS Technician)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					Head of HRM
Activity 8.3.1.5: Completing two BSc. degrees in IT/MIS related to WRM (MIS Technicians);	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Head of HRM
Activity 8.3.1.6: Completing twelve (12) diplomas in Water Resource Management/Water Quality	X	X	X	X					X	X	X	X					X	X	X	X	Head of HRM
Activity 8.3.1.7: Completing other relevant training events taken place through utilisation of the available consultancy resources, locally recruited training providers and participation in formal courses, conferences and workshops/seminars organised in both Africa and overseas					X		X		X		X		X		X		X		X		Head of HRM
Specific Objective 8.4: To align NWRMA towards effectiveness and efficient to prove water resource products and services to customers.																					
Output 8.4.1: A lean and cost-effective organizational structure which is financially sustainable.																					
Activity 8.4.1.1: Revisit the proposed NWRMA organizational structure using the criteria of relevance, effectiveness, efficiency, adequacy and sustainability															X	X					Director General (NWRMA)

Annex 4: Personnel Cost - NWRMA

Details of 2015 Salaries	Staff Required				Normal Authority Salaries (monthly)				Normal Authority Salaries (annual)	70% of normal levels (annual) 2015	Employment during the year in % (some exist - some to be recruited during 2015)
	MSc	BSc	Diploma	Others	MSc	BSc	Diploma	Other	Dalasis	Dalasis	%
Director General (NWRMA)	1	0	0	0	18.750				225.000	157.500	100
Head of Accounting	0	1	0	0		11.310			135.720	47.502	50
Account Assistant	0	0	2	0			6.533		156.780	54.873	50
Head of ICT	1	0	0	0	11.310				135.720	95.004	100
MIS / Database Specialist	0	1	0	0		8.970			107.640	75.348	100
MIS / Database Assistant	0	0	1	0			4.680		56.160	39.312	100
ICT Assistants	0	0	1	0			4.680		56.160	39.312	100
Head of HRM	0	1	0	0		11.310			135.720	47.502	50
HRM assistants	0	0	1	0			4.680		56.160	19.656	50
Private Secretary to the General Director	0	0	0	1				3.218	38.610	13.514	50
Superintendent (in charge of Service Staff)	0	0	1	0			6.533		78.390	27.437	50
Support Staff	0	0	0	8				1.658	159.120	111.384	100
Technical Director (Deputy)	1	0	0	0	18.281				219.375	76.781	50
Principal Water Resource Planning Officer	1	0	0	0	11.310				135.720	47.502	50
Water Resource Planning Assistants	0	0	2	0			5.662		135.876	95.113	100
Sr. Water Permit and Charging Officer	0	1	0	0		8.970			107.640	75.348	100
Water Permit and Charging Assistants	0	0	2	0			5.662		135.876	71.335	75
Water Resource Enforcement Officer	0	0	1	0			5.662		67.938	47.557	100
Regional Coordinator	0	0	1	0			5.662		67.938	47.557	100
Regional Coordination assistants	0	0	2	0			4.680		112.320	78.624	100
Principal Hydrological Officer	1	0	0	0	11.310				135.720	95.004	100
Sr. Hydrogeologist	1	0	0	0	8.970				107.640	37.674	50
Senior Hydrological Superintendent	0	0	1	0			6.533		78.390	54.873	100
Sr. Hydrological Field Assistants	0	0	2	0			6.533		156.780	109.746	100
Hydrological Field Assistants	0	0	4	0			4.680		224.640	157.248	100
Hydrogeological Field Assistants	0	0	2	0			4.680		112.320	78.624	100
Workshop Technician	0	0	0	1				4.680	56.160	39.312	100
MIS Technician	0	1	0	0		4.680			56.160	39.312	100
Principal Scientific Officer	1	0	0	0	11.310				135.720	95.004	100
Scientific Officer	0	2	0	0		8.970			215.280	150.696	100
Sr. Lab. Technician	0	0	1	0			6.533		78.390	54.873	100
Lab. Technicians	0	0	5	0			4.680		280.800	196.560	100
MIS Technician	0	1	0	0		4.680			56.160	39.312	100
Principal RD Officer	1	0	0	0	11.310				135.720	95.004	100
RD Assistants	0	0	2	0			4.680		112.320	78.624	100
Total	8	8	31	10					4.266.063	2.590.026	

Details of 2015 Allowances	Staff Required				Normal Authority Allowances (monthly)				Normal Authority Allowances (annual)	70% of normal levels (annual)	Employment during the year in % (some exist - some to be recruited during 2015)
	MSc	BSc	Diploma	Others	MSc	BSc	Diploma	Other	Dalasis	Dalasis	%
Director General (NWRMA)	1	0	0	0	10.000				120.000	84.000	100
Head of Accounting	0	1	0	0		11.500			138.000	48.300	50
Account Assistant	0	0	2	0			4.000		96.000	33.600	50
Head of ICT	1	0	0	0	11.500				138.000	96.600	100
MIS / Database Specialist	0	1	0	0		10.188			122.250	85.575	100
MIS / Database Assistant	0	0	1	0			3.500		42.000	29.400	100
ICT Assistants	0	0	1	0			3.500		42.000	29.400	100
Head of HRM	0	1	0	0		11.500			138.000	48.300	50
HRM assistants	0	0	1	0			3.500		42.000	14.700	50
Private Secretary to the General Director	0	0	0	1				2.500	30.000	10.500	50
Superintendent (in charge of Service Staff)	0	0	1	0			4.000		48.000	16.800	50
Support Staff	0	0	0	8				2.500	240.000	168.000	100
Technical Director (Deputy)	1	0	0	0	8.750				105.000	36.750	50
Principal Water Resource Planning Officer	1	0	0	0	11.500				138.000	48.300	50
Water Resource Planning Assistants	0	0	2	0			3.500		84.000	58.800	100
Sr. Water Permit and Charging Officer	0	1	0	0		10.188			122.250	85.575	100
Water Permit and Charging Assistants	0	0	2	0			3.500		84.000	44.100	75
Water Resource Enforcement Officer	0	0	1	0			3.500		42.000	29.400	100
Regional Coordinator	0	0	1	0			3.500		42.000	29.400	100
Regional Coordination assistants	0	0	2	0			3.500		84.000	58.800	100
Principal Hydrological Officer	1	0	0	0	11.500				138.000	96.600	100
Sr. Hydrogeologist	1	0	0	0	10.188				122.250	42.788	50
Senior Hydrological Superintendent	0	0	1	0			4.000		48.000	33.600	100
Sr. Hydrological Field Assistants	0	0	2	0			4.000		96.000	67.200	100
Hydrological Field Assistants	0	0	4	0			3.500		168.000	117.600	100
Hydrogeological Field Assistants	0	0	2	0			3.500		84.000	58.800	100
Workshop Technician	0	0	0	1				3.500	42.000	29.400	100
MIS Technician	0	1	0	0		3.500			42.000	29.400	100
Principal Scientific Officer	1	0	0	0	11.500				138.000	96.600	100
Scientific Officer	0	2	0	0		10.188			244.500	171.150	100
Sr. Lab. Technician	0	0	1	0			4.000		48.000	33.600	100
Lab. Technicians	0	0	5	0			3.500		210.000	147.000	100
MIS Technician	0	1	0	0		3.500			42.000	29.400	100
Principal RD Officer	1	0	0	0	11.500				138.000	96.600	100
RD Assistants	0	0	2	0			3.500		84.000	58.800	100
Total	8	8	31	10					3.542.250	2.164.838	

Details of 2016 Salaries	Staff Required				Normal Authority Salaries (monthly)				Normal Authority Salaries (annual)	70% of normal levels (annual)
	MSc	BSc	Diploma	Others	MSc	BSc	Diploma	Other	Dalasis	Dalasis
Director General (NWRMA)	1	0	0	0	18.750				225.000	157.500
Head of Accounting	0	1	0	0		11.310			135.720	95.004
Account Assistant	0	0	2	0			6.533		156.780	109.746
Head of ICT	1	0	0	0	11.310				135.720	95.004
MIS / Database Specialist	0	1	0	0		8.970			107.640	75.348
MIS / Database Assistant	0	0	1	0			4.680		56.160	39.312
ICT Assistants	0	0	1	0			4.680		56.160	39.312
Head of HRM	0	1	0	0		11.310			135.720	95.004
HRM assistants	0	0	1	0			4.680		56.160	39.312
Private Secretary to the General Director	0	0	0	1				3.218	38.610	27.027
Superintendent (in charge of Service Staff)	0	0	1	0			6.533		78.390	54.873
Support Staff	0	0	0	8				1.658	159.120	111.384
Technical Director (Deputy)	1	0	0	0	18.281				219.375	153.563
Principal Water Resource Planning Officer	1	0	0	0	11.310				135.720	95.004
Water Resource Planning Assistants	0	0	2	0			5.662		135.876	95.113
Sr. Water Permit and Charging Officer	0	1	0	0		8.970			107.640	75.348
Water Permit and Charging Assistants	0	0	2	0			5.662		135.876	95.113
Water Resource Enforcement Officer	0	0	1	0			5.662		67.938	47.557
Regional Coordinator	0	0	1	0			5.662		67.938	47.557
Regional Coordination assistants	0	0	2	0			4.680		112.320	78.624
Principal Hydrological Officer	1	0	0	0	11.310				135.720	95.004
Sr. Hydrogeologist	1	0	0	0	8.970				107.640	75.348
Senior Hydrological Superintendent	0	0	1	0			6.533		78.390	54.873
Sr. Hydrological Field Assistants	0	0	2	0			6.533		156.780	109.746
Hydrological Field Assistants	0	0	4	0			4.680		224.640	157.248
Hydrogeological Field Assistants	0	0	2	0			4.680		112.320	78.624
Workshop Technician	0	0	0	1				4.680	56.160	39.312
MIS Technician	0	1	0	0		4.680			56.160	39.312
Principal Scientific Officer	1	0	0	0	11.310				135.720	95.004
Scientific Officer	0	2	0	0		8.970			215.280	150.696
Sr. Lab. Technician	0	0	1	0			6.533		78.390	54.873
Lab. Technicians	0	0	5	0			4.680		280.800	196.560
MIS Technician	0	1	0	0		4.680			56.160	39.312
Principal RD Officer	1	0	0	0	11.310				135.720	95.004
RD Assistants	0	0	2	0			4.680		112.320	78.624
Total	8	8	31	10					4.266.063	2.986.244

Details of 2016 Allowances	Staff Required				Normal Authority Allowances (monthly)				Normal Authority Allowances (annual)	70% of normal levels (annual)
	MSc	BSc	Diploma	Others	MSc	BSc	Diploma	Other	Dalasis	Dalasis
Director General (NWRMA)	1	0	0	0	10.000				120.000	84.000
Head of Accounting	0	1	0	0		11.500			138.000	96.600
Account Assistant	0	0	2	0			4.000		96.000	67.200
Head of ICT	1	0	0	0	11.500				138.000	96.600
MIS / Database Specialist	0	1	0	0		10.188			122.250	85.575
MIS / Database Assistant	0	0	1	0			3.500		42.000	29.400
ICT Assistants	0	0	1	0			3.500		42.000	29.400
Head of HRM	0	1	0	0		11.500			138.000	96.600
HRM Assistants	0	0	1	0			3.500		42.000	29.400
Private Secretary to the General Director	0	0	0	1				2.500	30.000	21.000
Superintendent (in charge of Service Staff)	0	0	1	0			4.000		48.000	33.600
Support Staff	0	0	0	8				2.500	240.000	168.000
Technical Director (Deputy)	1	0	0	0	8.750				105.000	73.500
Principal Water Resource Planning Officer	1	0	0	0	11.500				138.000	96.600
Water Resource Planning Assistants	0	0	2	0			3.500		84.000	58.800
Sr. Water Permit and Charging Officer	0	1	0	0		10.188			122.250	85.575
Water Permit and Charging Assistants	0	0	2	0			3.500		84.000	58.800
Water Resource Enforcement Officer	0	0	1	0			3.500		42.000	29.400
Regional Coordinator	0	0	1	0			3.500		42.000	29.400
Regional Coordination assistants	0	0	2	0			3.500		84.000	58.800
Principal Hydrological Officer	1	0	0	0	11.500				138.000	96.600
Sr. Hydrogeologist	1	0	0	0	10.188				122.250	85.575
Senior Hydrological Superintendent	0	0	1	0			4.000		48.000	33.600
Sr. Hydrological Field Assistants	0	0	2	0			4.000		96.000	67.200
Hydrological Field Assistants	0	0	4	0			3.500		168.000	117.600
Hydrogeological Field Assistants	0	0	2	0			3.500		84.000	58.800
Workshop Technician	0	0	0	1				3.500	42.000	29.400
MIS Technician	0	1	0	0		3.500			42.000	29.400
Principal Scientific Officer	1	0	0	0	11.500				138.000	96.600
Scientific Officer	0	2	0	0		10.188			244.500	171.150
Sr. Lab. Technician	0	0	1	0			4.000		48.000	33.600
Lab. Technicians	0	0	5	0			3.500		210.000	147.000
MIS Technician	0	1	0	0		3.500			42.000	29.400
Principal RD Officer	1	0	0	0	11.500				138.000	96.600
RD Assistants	0	0	2	0			3.500		84.000	58.800
Total	8	8	31	10					3.542.250	2.479.575

Normal Pay Scales and Allowances of an authority similar to the NWRMA									
A. Basic Salary Schedule		Salary Base Year	Allowances (base year)					Total Allowances Base Year	Total Salary and Allowances Base Year
	Category		Responsibility	Telephone	Vehicle Transport	Residential	Risk		
I	Top Management								
A	Director General	225.000	72.000	24.000	-	12.000	12.000	120.000	345.000
B	Deputy Director	219.375	63.000	18.000	-	12.000	12.000	105.000	324.375
II	Senior Management								
A	Head of Accounting	135.720	54.000	12.000	48.000	12.000	12.000	138.000	273.720
A	Head of ICT	135.720	54.000	12.000	48.000	12.000	12.000	138.000	273.720
A	Head of HRM	135.720	54.000	12.000	48.000	12.000	12.000	138.000	273.720
A	Principal Water Resource Planning Officer	135.720	54.000	12.000	48.000	12.000	12.000	138.000	273.720
A	Principal Hydrological Officer	135.720	54.000	12.000	48.000	12.000	12.000	138.000	273.720
A	Principal Scientific Officer	135.720	54.000	12.000	48.000	12.000	12.000	138.000	273.720
A	Principal RD Officer	135.720	54.000	12.000	48.000	12.000	12.000	138.000	273.720
III	Middle Management	-							
A	MIS / Database Specialist	107.640	41.250	9.000	48.000	12.000	12.000	122.250	229.890
A	Sr. Hydrogeologist	107.640	41.250	9.000	48.000	12.000	12.000	122.250	229.890
A	Scientific Officer	107.640	41.250	9.000	48.000	12.000	12.000	122.250	229.890
A	Sr. Water Permit and Charging Officer	107.640	41.250	9.000	48.000	12.000	12.000	122.250	229.890
IV	Technicians & Assistants	-							-
A	Superintendent	78.390	-	-	24.000	12.000	12.000	48.000	126.390
A	Senior Hydrological Superintendent	78.390	-	-	24.000	12.000	12.000	48.000	126.390
A	Sr. Hydrological Field Assistants	78.390	-	-	24.000	12.000	12.000	48.000	126.390
A	Account Assistant	78.390	-	-	24.000	12.000	12.000	48.000	126.390
A	Sr. Lab. Technician	78.390	-	-	24.000	12.000	12.000	48.000	126.390
B	Water Resource Planning Assistants	67.938	-	-	18.000	12.000	12.000	42.000	109.938
B	Water Permit and Charging Assistants	67.938	-	-	18.000	12.000	12.000	42.000	109.938
B	Water Resource Enforcement Officer	67.938	-	-	18.000	12.000	12.000	42.000	109.938
B	Regional Coordinator	67.938	-	-	18.000	12.000	12.000	42.000	109.938
B	Regional Coordination assistants	56.160	-	-	18.000	12.000	12.000	42.000	98.160
B	Hydrological Field Assistant	56.160	-	-	18.000	12.000	12.000		56.160
B	Hydrogeological Field Assistants	56.160	-	-	18.000	12.000	12.000	42.000	98.160
B	Workshop Technician	56.160	-	-	18.000	12.000	12.000	42.000	98.160
B	MIS Technician	56.160	-	-	18.000	12.000	12.000	42.000	98.160
B	HR Assistants	56.160	-	-	18.000	12.000	12.000	42.000	98.160
B	Lab. Technicians	56.160	-	-	18.000	12.000	12.000	42.000	98.160
B	RD Assistants	56.160	-	-	18.000	12.000	12.000	42.000	98.160
C	Private/ Secretary	38.610	-	-	18.000	12.000	-	30.000	68.610
D	Driver	19.890	-	-	18.000	12.000	-	30.000	49.890
D	Messenger	19.890	-	-	18.000	12.000	-	30.000	49.890
D	Cleaner	19.890	-	-	18.000	12.000	-	30.000	49.890

Annex 5: Operational Cost – NWRMA

Sl.	Operational Cost	Means of estimation/calculation of 2015 budget cost	2015	2016	2017	2018	2019
1	Local transportation	Benchmarked against of PURA operational cost (2010-2012) – 100%	91.286	93.568	95.908	98.305	100.763
2	International travels	Benchmarked against of PURA operational cost (2010-2012) – 70%	2.299.121	2.356.599	2.415.514	2.475.901	2.537.799
3	Motor vehicle running cost and maintenance	(Millage/fuel (90.000), spare parts (20.000) and regular maintenance/service (24.000)) x 11	1.474.000	1.510.850	1.548.621	1.587.337	1.627.020
4	Water and electricity	Benchmarked against of PURA operational cost (2010-2012) – 80%	502.563	515.127	528.005	541.205	554.735
5	Communication (Telephone, Internet & Postage)	Benchmarked against of PURA operational cost (2010-2012) – 40%	756.926	775.849	795.246	815.127	835.505
6	Stationery	Benchmarked against of PURA operational cost (2010-2012) – 40%	300.646	308.162	315.866	323.763	331.857
7	Maintenance of stations and equipment	Benchmarked against of PURA operational cost (2010-2012) – 150%	688.049	743.092	802.540	866.743	936.082
8	Payment to TGMA for meteorological service	Based upon 15 request per month and approximately 4.650 GDM per request	222.000	239.760	258.941	279.656	302.029
9	Operation of the Water Quality Monitoring and Control Unit.	Based of cost of reagents per samples of 750 GDM	846.720	914.458	987.614	1.066.623	1.151.953
10	Vehicle insurance	Estimated to be 12.000 x 11 vehicles	132.000	142.560	153.965	166.282	179.585
11	Board Costs	Benchmarked against of PURA operational cost (2010-2012) – 80%	253.200	273.456	295.332	318.959	344.476
12	Audit Fees	Benchmarked against of PURA operational cost (2010-2012) – 75%	62.116	67.086	72.452	78.249	84.508
13	Staff Training	See separated budget overview (next page)	5.678.401	5.678.401	5.678.401	5.678.401	5.678.401
14	Additional cost associated with administration. of permits and fees	Based on actual anticipated fuel consumption and DSA to staff on tours to administrate	133.796	191.138	248.479	305.820	363.161
Total Operational Cost			13.442.839	13.812.122	14.198.901	14.604.389	15.029.893

Staff Training						
	Cost of Training(€)					Location
	Air ticket(s)	Fees	Boarding/Lodging	Materials	Total	
Masters, Bachelors and diplomas required						
MSc in Hydrology/IWRM Principal Hydrological Officer	2.000	5.660	12.000	2.300	21.960	South Africa
MSc in Water Resource Management Principal Research and Development Officer	3.000	24.000	18.000	2.200	47.200	Holland
MSc in IT/MIS related to WRM Head of ICT Unit	1.200	23.000	12.000	4.000	40.200	UK
BSc in IT/MIS related to WRM MIS/Database Specialist in ICT Unit	3.600	36.000	36.000	4.000	79.600	South Africa
BSc in IT/MIS related to WRM MIS Technician in GSW Unit	3.600	33.750	36.000	4.000	77.350	UK
BSc in IT/MIS related to WRM MIS Technician in WQMC Unit	3.600	33.750	36.000	4.000	77.350	UK
Diploma in Water Resource Management Various Technicians (total 12 employees in batches of 4 employees)	24.000	61.200	62.158	25.200	172.558	Barbados
Total Training Cost(Euro)					516.218	
Total Training Cost(GMD)					28.392.005	
Total Training Cost per year (GMD)					5.678.401	

Training Rates	Costs (€)				Total	Course	Duration
Training Location	Air ticket(s)	Fees	Boarding/Lodging	Materials			(Years)
South Africa	2.000	5.660	12.000	2.300	21.960	M Sc.Hydrology	1
Holland - IHE	2.000	24.000	18.000	2.200	46.200	M Sc. WRM	1,5
UK	1.200	23.000	12.000	4.000	40.200	M Sc. IT/MIS	1
South Africa	1.200	12.000	36.000	4.000	53.200	B. Sc. IT/MIS	3
UK	1.200	11.250	36.000	4.000	52.450	B. Sc. IT/MIS	3
UK	1.200	11.250	36.000	4.000	52.450	B. Sc. IT/MIS	3
Barbados	2.000	5.100	5.180	2.100	14.380	Dip. WRM	1

Annex 6: Capital Investments - NWRMA

Summary of estimated quantities of TGMA HQ equipment to operate						
Sections	MV	Computers	Printers	Furniture (Sets)	Filing Cabinet	Photocopier
Administration and Accounts	2	4	2	4	3	2
Information and Communication Unit	0	4	1	4	2	1
Human Resource Management Unit	0	1	1	8	2	0
Technical Director(Deputy)	1	1	1	1	1	1
Water Resources Planning Unit	2	10	2	10	1	2
Ground and Surface Water Unit	3	13	2	13	2	1
Water Quality Monitoring Control Unit	2	7	2	1	1	1
Research and Development Unit	1	3	1	3	2	1
Total	11	43	12	44	14	9

Financial Estimates of Capital Expenditure - GMA	Quantity needed	Percentage of anticipated reuse	Quantity to be procured as new	Means of estimation/calculation of capital investment	Unit Cost Estimated average cost	Total (€)
Motor vehicles	11	55%	5	3 saloons, 1 specialized van, 1 staff van and 3 double cabin pick-ups. Average cost 25.000	25.000	125.000
Computers	43	14%	10	Unit cost of 450 Euro	450	4.500
Printers	12	50%	6	Unit cost of 300 Euro	300	1.800
Furniture	44	14%	10	Set of 1 ex. Desk/1 ex. Chair/2 visitor's chairs	750	7.500
Filing Cabinets	14	43%	5	Unit cost of 400 Euro	400	2.000
Photocopier	8	75%	4	Unit cost of 1.500 Euro	1500	6.000
Projectors	1	0	1	Lump sum of 4.550 Euro	4550	4.550
Total to be financed						151.350

Annex 7: Revenue Details (Abstraction Charges)

Overview of abstraction made by NAWEC, sales value of produced water and projected payment to NWRMA					
	NAWEC			Payment to NWRMA	
	Abstraction (m3)	Sales value(GMD)	Sales Value/m3 (GMD)	Per m3 abstracted	Total Projected Payment (2015)
2010	27.781.445,00	152.240.000,00	5,48		
2011	28.309.264,00	126.473.463,00	4,47		
2012	29.930.553,00	225.864.000,00	7,55		
Total	86.021.262,00	504.577.463,00			
Average	28.673.754,00	168.192.487,67	5,87	0,25	7.168.438,50

Source: Public Utilities Regulatory Authority (PURA) Annual Report 2012

Water Use Charges - abstraction for boreholes using submersible pumps/using more than 3600 M3/year		
Purpose	Required NWRMA inputs Cost Elements	Attached Unit Costs (GMD)
Water charge to abstract more than 3600 M3/year from a specified source (borehole) for a specific purpose.	Annual Management Fee	500
	Review of permit type, use, location, suitability. Done by Sr. Water Permit and Charging Officer - one day	1.907
	Monitoring visit by Hydrogeological Field Assistant	8.232
	Added value of minimum 3600*0,25 GDM	900
	Total	11.539
Suggested rounded up yearly water use charge (borehole) for private sector		12.000

Water Use Charges - Diversion using more than 10 M3/day		
Purpose	Required NWRMA inputs Cost Elements	Attached Unit Costs (GMD)
Water Charge to divert more than 3600 M3/year from a specified source for a specific purpose.	Annual Management Fee	500
	Review of permit type, use, location, suitability. Done by Sr. Water Permit and Charging Officer - one day	1.907
	Monitoring visit by Hydrological Field Assistant	8.232
	Total	10.639
Suggested rounded up yearly water use charge (diversion) for private sector		11.000

Water Use Charges - Impoundment of more than 1000 M3		
Purpose	Required NWRMA inputs Cost Elements	Attached Unit Costs (GMD)
Water Charge to impound more than 1000 M3 of water from a specified source for a specific purpose.	Annual Management Fee	500
	Review of permit type, use, location, suitability. Done by Sr. Water Permit and Charging Officer - one day	1907
	Monitoring visit by Hydrological Field Assistant (only every second year)	4.116
	Total	6.523
Suggested rounded up yearly water use charge (impoundment) for private sector		7.000

Annex 8: Revenue Details (Permits, Fines and Water Quality Monitoring Charges)

Borehole Drilling and Groundwater Use Permit - unit cost - for boreholes using submersible pumps/using more than 3600 M3/year (A)			
Purpose	Required NWRMA inputs/Cost Elements	Attached Activity	Costs (GMD) incl. 100% overhead on staff
Purpose Approving the location and intended purpose of a borehole (design and drilling contractor).	Avail application documentation. Printing cost/HR implications of selling and maintaining application.	Fixed charge	500
	Internal review of application (review design and qualify drilling contractor) and approve no. of site visit(s), determine max. volume to be abstracted	2 days works for Sr. Water Permit and Charging Officer and 1 days for Sr. Hydrogeologist	5.720
	Site visit(s)	Water Permit and Charging Officer input - 2 days + field mission expenses	16.677
	Process application for approval.	One day work for Sr. Water Permit and Charging Officer (100% overhead)	1.907
Total Borehole Drilling and Groundwater Use Permit COST			24.804
Rounded up Borehole Drilling and Groundwater Use Permit Fee (A)			25.000

Borehole Drilling Permit (A)	2015	2016	2017	2018	2019
Initial projected annual applications of 15	375.000	500.000	625.000	750.000	875.000
Drilling demand is projected to start with 15 wells and on average growth by 5 wells year on year.					

Estimate for Field mission expenses	Cost(GMD)		
	Fatoto	Sibanor	Average
Return trip travel time - Kilo meters	800	130	465
Fuel(@8km/L)	100,00	16,25	58,13
Av. Daily fuel Cost of Return Trip	5.800,00	942,50	3.371,25
DSA/day:			-
- Driver	1500	1500	1.500,00
- Technician	1500	1500	1.500,00
Total DSA/day	3000	3000	3.000,00
Vehicle Amortisation cost/day			1.030,56
Total Daily Unit Cost of site visit			7.401,81

Water Diversion Application Permit (B) – unit cost for diversion of more than 3600 M3/year (B)			
Purpose	Required NWRMA inputs/Cost Elements	Attached Activity	Costs (GMD) incl. 100% overhead on staff
Approving the location, intended purpose and amount of a diversion.	Avail application documentation.	Fixed charge	500
	Internal review of application (location, suitability & review channel design) and approve no. of site visit(s), determine max. volume to be diverted	2 days works for Sr. Water Permit and Charging Officer, 1 days for Principal Hydrological Officer and 1/2 day Principal Water Resource Planning Officer	7.235
	Site visit(s)	Water Permit and Charging Officer and Sr. Hydrological Field Assistants inputs - 2 x 2 days + filed mission expenses	18.831
	Process application for approval.	One day work for Sr. Water Permit and Charging Officer	1.907
Total Water Diversion Application Permit COST			28.472
Rounded up Water Diversion Application Permit (B) Fee			30.000

Water Diversion Application Permit	2015	2016	2017	2018	2019
Initial projected annual applications of 3	90.000,00	150.000,00	210.000,00	270.000,00	330.000,00
Water diversion demand is projected to start with 3 and grow by a minimum of 2 applications year per year.					

Estimate for Field missions expenses	Cost(GMD)		
	Fatoto	Sibanor	Average
Return trip travel time - Kilo meters	800	130	465
Fuel(@8km/L)	100,00	16,25	58,13
Av. Daily fuel Cost of Return Trip	5.800,00	942,50	3.371,25
DSA/day:			-
- Driver	1500	1500	1.500,00
- Technician	1500	1500	1.500,00
Total DSA/day	3000	3000	3.000,00
Vehicle Amortisation cost/day			1.030,56
Total Daily Unit Cost of site visit			7.401,81

Impound Water Permit (C) - more than 1000 M3 impoundment			
Purpose	Required NWRMA inputs/Cost Elements	Attached Activity	Costs (GMD) incl. 100% overhead on staff
Approving the location, intended purpose and design of an impoundment greater than 1000m3	Avail application documentation.	Fixed charge	500
	Internal review of application (location, suitability & review impoundment design) and approve no. of site visit(s), determine max. size of impoundment	2 days works for Sr. Water Permit and Charging Officer, 1 days for Principal Hydrological Officer and 1/2 day Principal Water Resource Planning Officer	7.235
	Site visit(s)	Water Permit and Charging Officer and Sr. Hydrological Field Assistants inputs - 2 x 2 days + field mission expenses	18.831
	Process application for approval.	One day work for Sr. Water Permit and Charging Officer	1.907
Total Impound Water Permit COST			28.472
Rounded up Impound Water Permit (C) Fee			30.000

Water Diversion Application Permit	2015	2016	2017	2018	2019
Initial projected annual applications of 3	90.000,00	150.000,00	210.000,00	270.000,00	330.000,00
Water diversion demand is projected to start with 3 and grow by a minimum of 2 applications year per year.					

Estimate for Field missions expenses	Cost(GMD)		
	Fatoto	Sibanor	Average
Return trip travel time - Kilo meters	800	130	465
Fuel(@8km/L)	100,00	16,25	58,13
Av. Daily fuel Cost of Return Trip	5.800,00	942,50	3.371,25
DSA/day:			-
- Driver	1500	1500	1.500,00
- Technician	1500	1500	1.500,00
Total DSA/day	3000	3000	3.000,00
Vehicle Amortisation cost/day			1.030,56
Total Daily Unit Cost of site visit			7.401,81

Type of Positions/Staff service	Salaries - 70% of normal levels	Allowances - 70% of normal levels	Pensions	ICS/Health Insurance	Basis for annual salary	Salary Cost per day (184 WD/year)	Staff Cost including Overheads (50, 75 or 100)		
	Monthly	Monthly	Annual	Annual	Annual		50	75	100
Director General (NWRMA)	13.125	7.000	29.925	180	271.605	1.476	2.214	2.583	2.952
Head of Accounting	7.917	8.050	18.051	180	209.835	1.140	1.711	1.996	2.281
Account Assistant	4.573	2.800	10.426	180	99.079	538	808	942	1.077
Head of ICT	7.917	8.050	18.051	180	209.835	1.140	1.711	1.996	2.281
MIS / Database Specialist	6.279	7.131	14.316	180	175.419	953	1.430	1.668	1.907
MIS / Database Assistant	3.276	2.450	7.469	180	76.361	415	623	726	830
ICT Assistants	3.276	2.450	7.469	180	76.361	415	623	726	830
Head of HRM	7.917	8.050	18.051	180	209.835	1.140	1.711	1.996	2.281
HRM assistants	3.276	2.450	7.469	180	76.361	415	623	726	830
Private Secretary to the General Director	2.252	1.750	5.135	180	53.342	290	435	507	580
Superintendent (in charge of Service Staff)	4.573	2.800	10.426	180	99.079	538	808	942	1.077
Support Staff	1.160	1.750	2.645	180	37.748	205	308	359	410
Technical Director (Deputy)	12.797	6.125	29.177	180	256.419	1.394	2.090	2.439	2.787
Principal Water Resource Planning Officer	7.917	8.050	18.051	180	209.835	1.140	1.711	1.996	2.281
Water Resource Planning Assistants	3.963	2.450	9.036	180	86.172	468	702	820	937
Sr. Water Permit and Charging Officer	6.279	7.131	14.316	180	175.419	953	1.430	1.668	1.907
Water Permit and Charging Assistants	3.963	2.450	9.036	180	86.172	468	702	820	937
Water Resource Enforcement Officer	3.963	2.450	9.036	180	86.172	468	702	820	937
Regional Coordinator	3.963	2.450	9.036	180	86.172	468	702	820	937
Regional Coordination assistants	3.276	2.450	7.469	180	76.361	415	623	726	830
Principal Hydrological Officer	7.917	8.050	18.051	180	209.835	1.140	1.711	1.996	2.281
Sr. Hydrogeologist	6.279	7.131	14.316	180	175.419	953	1.430	1.668	1.907
Senior Hydrological Superintendent	4.573	2.800	10.426	180	99.079	538	808	942	1.077
Sr. Hydrological Field Assistants	4.573	2.800	10.426	180	99.079	538	808	942	1.077
Hydrological Field Assistants	3.276	2.450	7.469	180	76.361	415	623	726	830
Hydrogeological Field Assistants	3.276	2.450	7.469	180	76.361	415	623	726	830
Workshop Technician	3.276	2.450	7.469	180	76.361	415	623	726	830
MIS Technician	3.276	2.450	7.469	180	76.361	415	623	726	830
Principal Scientific Officer	7.917	8.050	18.051	180	209.835	1.140	1.711	1.996	2.281
Scientific Officer	6.279	7.131	14.316	180	175.419	953	1.430	1.668	1.907
Sr. Lab. Technician	4.573	2.800	10.426	180	99.079	538	808	942	1.077
Lab. Technicians	3.276	2.450	7.469	180	76.361	415	623	726	830
MIS Technician	3.276	2.450	7.469	180	76.361	415	623	726	830
Principal RD Officer	7.917	8.050	18.051	180	209.835	1.140	1.711	1.996	2.281
RD Assistants	3.276	2.450	7.469	180	76.361	415	623	726	830

Details on fines/penalties

Offence	Usual Permit Cost (GMD)	Fine (GMD)	Accompanying Conditional Fine	2015
Drilling a borehole, impounding or diverting water (Operating / acting without a permit)	25.000	75.000	Closure of borehole, diversion or impoundment	150.000
Operating in breach of permit conditions given for a borehole, impounding or diverting of water	25.000	75.000	Closure of borehole, diversion or impoundment	150.000

Assumptions: Offences happening twice per year – and the fine is fixed at 3 times the cost of permit + cost of closure or suspension of operations.

Annex 9: Overall NWRMA Budget (2015-19)

Personnel Cost (GMD)	2015	2016	2017	2018	2019
Personnel salaries	2.590.026	2.986.244	3.225.144	3.483.155	3.761.808
Personnel allowances	2.164.838	2.479.575	2.677.941	2.892.176	3.123.550
Pensions (19% of salaries)	492.105	567.386	612.777	661.799	714.743
ICS/Health Insurance	15.660	15.660	15.660	15.660	15.660
Total Personnel Cost (GMD)	5.264.643	6.050.881	6.533.539	7.054.809	7.617.780
Operational Cost (GMD)	2015	2016	2017	2018	2019
Local transportation	91.286	93.568	95.908	98.305	100.763
International travels	2.299.121	2.356.599	2.415.514	2.475.901	2.537.799
Motor vehicle running cost and maintenance	1.474.000	1.510.850	1.548.621	1.587.337	1.627.020
Water and electricity	502.563	515.127	528.005	541.205	554.735
Communication (Telephone, Internet & Postage)	756.926	775.849	795.246	815.127	835.505
Stationery	300.646	308.162	315.866	323.763	331.857
Maintenance of stations and equipment	688.049	743.092	802.540	866.743	936.082
Payment to TGMA for meteorological service	846.720	914.458	987.614	1.066.623	1.151.953
Operation of the Water Quality Monitoring and Control Unit.	222.000	239.760	258.941	279.656	302.029
Vehicle insurance	132.000	142.560	153.965	166.282	179.585
Board Costs	253.200	273.456	295.332	318.959	344.476
Audit Fees	62.116	67.086	72.452	78.249	84.508
Staff Training	5.678.401	5.678.401	5.678.401	5.678.401	5.678.401
Additional cost associated with adm. of permits and fees	133.796	191.138	248.479	305.820	363.161
Total Operational Cost	13.440.824	13.810.105	14.196.884	14.602.371	15.027.874
Total Personnel and Operational Cost	18.705.467	19.860.987	20.730.422	21.657.180	22.645.655

Revenues	2015	2016	2017	2018	2019
Groundwater Abstraction Charges (NAWEC)	7.168.439	7.189.227	7.210.076	7.230.985	7.251.955
Groundwater Abstraction/Use Charge (Others/Private)	180.000	240.000	300.000	360.000	420.000
Water Use Charges - Diversion using more than 10 M3/day	33.000	55.000	77.000	99.000	121.000
Water Use Charges - Impoundment of more than 1000 M3	21.000	35.000	49.000	63.000	77.000
Total Revenue from Abstraction Charges	7.402.439	7.519.227	7.636.076	7.752.985	7.869.955
Borehole Drilling Permit - A	375.000	500.000	625.000	750.000	875.000
Water Diversion Permits - B	90.000	150.000	210.000	270.000	330.000
Water Impounding Permits - C	90.000	150.000	210.000	270.000	330.000
Total Revenues from Permits	555.000	800.000	1.045.000	1.290.000	1.535.000
Drilling a borehole, impounding or diverting water (Operating / acting without a permit)	150.000	150.000	150.000	150.000	150.000
Operating in breach of permit conditions given for a borehole, impounding or diverting of water	150.000	150.000	150.000	150.000	150.000
Total Revenue from Penalties and Fines	300.000	300.000	300.000	300.000	300.000
Water Quality Monitoring Assessments (PURA)	259.840	285.824	314.406	345.847	380.432
Other Water Quality Information Requests	201.600	221.760	243.936	268.330	295.163
River and tributaries information requests	100.800	151.200	226.800	340.200	510.300
Rural water analysis	100.800	151.200	226.800	340.200	510.300
Total Revenue from Water Quality Services	663.040	809.984	1.011.942	1.294.577	1.696.194
Minimum Abstraction Registration Fees (to funded by Development Partners)	250.000	1.695.000	1.695.000	1.695.000	1.695.000
Minimum 50% of all international travel on duty to conferences etc.	1.149.560	1.178.299	1.207.757	1.237.951	1.268.899
All training / upgrading of staff expected to be supported 100% by DP	5.418.233	5.418.233	5.418.233	5.418.233	5.418.233
Total anticipated funding from Development Partners	7.077.961	8.551.700	8.581.158	8.611.352	8.642.300
Government Subvention	2.707.027	1.880.076	2.156.246	2.408.267	2.602.205
Total Anticipated Revenue	18.705.467	19.860.987	20.730.422	21.657.180	22.645.655