

Western Cape Integrated Water Resources Management Action Plan

2011

**Executive
Summary:
Status Quo
Report**

EXECUTIVE SUMMARY

INTRODUCTION

The need for joint National and Provincial action towards managing the water resources in the Western Cape Province was identified during the Water INDABA in November 2009. In response, the governance structures are developing an Integrated Water Resource Management (IWRM) Action Plan for the Western Cape Province. The initiative is a cooperative government interaction between the Provincial Department of Environmental Affairs and Development Planning (DEA&DP), the National Department of Water Affairs, the Provincial Department of Local Government, the Provincial Department of Agriculture, the Provincial Department of Transport and Public Works and CapeNature.

The overall aim of the IWRM Action Plan is to guide water resources related activities towards meeting the growth and development needs of the region, as well as to protect water resources from environmental degradation. The plan will identify short, medium and long term actions to guide implementation of projects/activities towards achieving integrated water resource management in the Western Cape, as follows:

- Short (1-5) years);
- Medium (6-15 years); and
- Long term (15 years +).

The development of the IWRM Action Plan is being undertaken in two Phases. Phase I involves information gathering, culminating in the production of this Status Quo Report. Emphasis has been placed on the institutional management issues since there are numerous reports on the technical problems and solutions. Phase II involves development of the IWRM Action Plan itself. Each phase incorporates public engagement sessions at various representative areas within the province. The IWRM Action Plan links into the Provincial Water Sector Plan.

STUDY AREA

The Western Cape is comprised of four Water Management Areas (WMAs), viz. the Olifants-Doorn, the Berg, the Breede-Overberg and the Gouritz, and small section of the Fish to Tsitsikamma, as shown in **Figure A**.

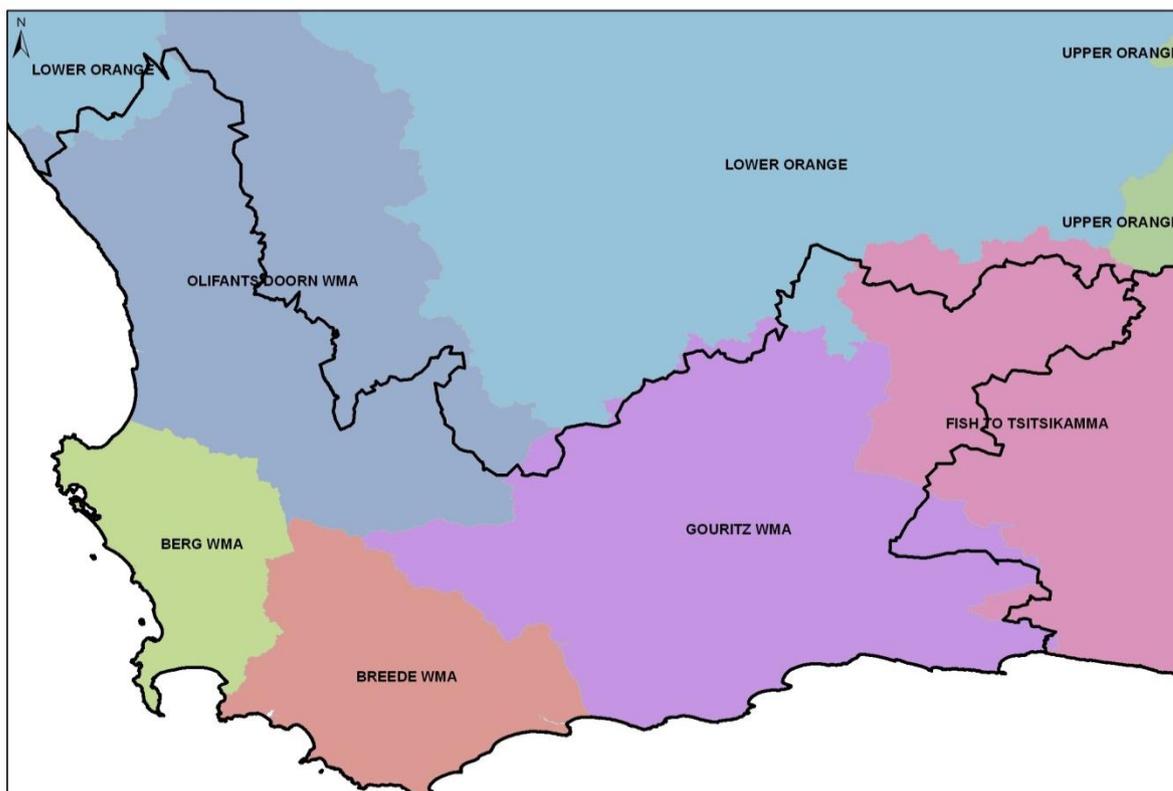


Figure A Water Management Areas of the Western Cape

Within the Province there are five District Municipalities (viz. West Coast, Eden, Central Karoo, Cape Winelands and Overberg) and the City of Cape Town Metropolitan Municipality. In total, there are 30 municipalities across the Province. Water resources are managed on a catchment scale, i.e. per WMA; whereas actual water use is aligned according to municipal boundaries (which overlaps WMAs). This leads to overlaps and gaps between managing institutions, priorities, etc. The IWRM Action Plan is targeted at the whole Western Cape Province, and attempts to resolve these overlaps through best use of existing information, sometimes presented at regional level and sometimes at discreet catchment level, whichever best supports the particular topic being addressed.

SCOPE OF THIS DOCUMENT

This report consists of the following themes for which data was collected, assessed and gaps synthesised as part of Phase 1:

- Integrated Water Resource Management
- Legislative Review
- Institutional Arrangements

- Existing Strategies and Plans
- Water Resources Management
- Water Quality.
- The Berg Water Management Area
- The Breede Water Management Area
- The Gouritz Water Management Area
- The Olifants-Doorn Water Management Area
- Land Use
- Climate Change
- Public Participation

The Executive Summary summarises the gaps identified, synthesises the main problems and provides broad recommendations which require further discussion during the development of the Action Plan in Phase 2. By its very nature, IWRM involves many over-arching, integrated, inter-linked and often complex considerations.

PROPOSED GAPS AND RECOMMENDATIONS

This section provides an overall analysis of the problem areas and gaps which have been identified during Phase I of the project, and which are described in the detailed chapters of this report. The purpose of this synthesis is to present the findings and to give an overall picture of the state of IWRM in the Province, and where efforts need to be focused to ensure that IWRM is effectively and sustainably implemented into the future. It provides a base for the commencement of Phase II of the study, which involves formulating the IWRM Action Plan.

It is clear that many of the problems and gaps identified in this study are multi-layered and inter-connected and mainly relate to implementation, governance and management. This makes it difficult to distil out individual problems, and to avoid any repetition. The key problem areas facing the water resources of the Province have been identified and are presented.

1 INSTITUTIONAL CAPACITY AND FUNCTIONS

A major obstacle to effective integrated water resources management is the lack of adequate capacity and shortage of technical resources in all spheres of government, and most areas of water services. Some of the key challenges in institutional capacity and functions have been identified as:

Continuity of Leadership

Shifts in the senior management of various Departments and local authorities, and a short term of office at the municipal scale, often lead to posts being vacant or filled by replacement officials either having different priorities than their predecessor. This break in continuity of leadership impacts on the decision making processes and often on the previous focus.

Institutional Functions

The appropriate profile of institutional participation in any water resource management process is essential in terms of who will do it, when will it be done, how will it be monitored, who will pay for it, and who will be custodian of the initiatives. Persons able to influence those decisions are the ones that need to be involved.

Occupational Specific Dispensation (OSD)

The Occupation Specific Dispensation, while being of commendable intention (and much needed initiative), requires a long period for implementation. The number of vacancies unfilled due to deemed “unsuitability” of candidates is of concern. The criteria and limitations of the OSD are crippling the Departments’ and the sustainable and effective management and administration of the provinces. For example, there is insufficient staff to carry out essential monitoring and enforcement activities, as well as limited appropriate representation at necessary intergovernmental discussion forums, meetings, workshops, etc. This can impact on decision-making and delayed implementation of projects has associated cost implications (escalation), as well as impacts on employment opportunities.

Catchment Management Agencies

The function and mandates for the Catchment Management Agencies (CMAs) provides the framework for Integrated Water Resources Management. The CMAs are to be comprised of various roleplayers and stakeholders, and provides for the breaking down of “silos” between institutions, as well as across resources and resource management. The establishment of the Breede-Overberg CMA has provided a good example of this integration in action. However, the establishment of the remaining CMAs throughout the country has been put on hold for several years. A reduced number of CMAs has been proposed, however not yet approved.

Skills Development and Career Advancement

Where courses have been developed, this must be used and applied. Where limited training is available to address some of the core competencies (for example the training of process controllers or operators for WWTWs), then training material must be updated, improved, developed and then applied.

One of the possible issues that have been identified as a contributor to lack of capacity relates to the perception of a limited career path within government departments, specifically with respect to waste water treatment and water treatment plant operators. To ensure effective delivery of water and sanitation services, technical capacity and opportunity for that capacity to influence implementation decisions is vital.

Recommendations

- Priority and budget must be given to ensuring better institutional management of water, rather than concentrating only on technical solutions, which are well known.
- The establishment of the remaining CMA’s must be supported in order to provide the institutional framework for integrated water resources management.

- It is proposed that the implementation of the OSD is reviewed with the intention of a phased implementation approach. Consideration should be given to appropriate relaxation of those requirements that are proving to be “stumbling blocks”.
- Government Notice 2834 provides a clear standard for the minimum number of staff and the relevant training of staff for the management and operation of Water Treatment and Waste Water Treatment Plants. Standards should further be developed to guide Municipalities on the minimum requirements for the general operation, maintenance and management of water service infrastructure, e.g. for reservoirs, length of pipelines, pump stations, etc.
- An on-going training programme, specifically catering for the development of the necessary skills and competencies for operating and maintaining WTWs and WWTWs, is essential. This appears to be a significant gap in the Province. These could potentially be driven through a FETWater Network. Conditions could be placed on large developers (together with other partners including local government), to develop and support the training of resources and skills development up to the level of controllers and operators. In developing such training materials, or programmes, ex-officials and consultants should be included in the process, so to ensure as much institutional memory as possible is captured into the training programmes.
- Develop a monitoring and evaluation programme to monitor the success of the training programmes.
- Establish an occupational class for water-related plant operators, and include this in the structure of the water-related technical services organogram.
- It is imperative that all water users have adequate water metering in place to be able to account for their water use and to produce a reliable water balance. This is the basic requirement for management of local water supply schemes, and is fundamental towards tracking the effectiveness of WCDM.

2 CO-OPERATIVE GOVERNANCE: INTEGRATED AUTHORISATIONS

A strong focus must be placed on the Intergovernmental Relations Framework Act (IGRFA). The necessary forums for technical discussions are taking place between the relevant Departments, but the attendance at the forums by the appropriate staff who can influence decision making is essential. Without this, conflicts in decision making are likely to occur, further impacting on aspects such as issuing of authorizations.

Approval processes and authorisations for developments are complex and time consuming. Cooperative governance is necessary to address the overlap in the requirements of the various statutes, such as Water Services Development Plans (WSDPs), Industry Waste Management Plans, Environmental Management Plans (EMPs), etc. Similarly there are overlaps in regulation and enforcement of the legislation, such as overlaps in directives, and conflicts between directives and authorisations. IGFRA should be working towards integrated authorising processes which would streamline timeframes for implementation of projects, reduce duplications of requirements across the various individual processes, and develop a holistic authorisation permit through cooperative governance.

Recommendations

- Develop a protocol for the issuing of integrated authorisations for specific activities. Applications would then be driven by a lead authority but reviewed and commented on by all necessary authorities. Conditions of authorisations should be arranged according to legislative requirements, and then monitored by applicable authorities accordingly

(this in turn is limited to capacity challenges). Appeals could be made via the lead authority's office and the nature of the appeal shared and discussed jointly by all relevant authorities.

- Streamline these various processes so that an applicant only need apply to one authority for approval. This will require a high level of cooperative governance between departments to deal with the various aspects of the application. The advantage will be a streamlined process to achieve the same objectives in a much shorter time-frame.
- Establish a centralised Water Working Group to co-ordinate all existing National, Provincial and Local Government forums that address water resource management in the Province, and link the information from these forums to a centralised library (see Section 12: Access to Information).

3 ENFORCEMENT AND LEGISLATION

The limited compliance and enforcement across all spheres of government and across legislation, from National legislation to municipal by-laws has been identified as a regulatory gap in terms of water resource management. These have been described hereafter.

Monitoring Compliance and Enforcement: Authorisations

The first step to compliance and enforcement is monitoring of activities against the permits or authorisations issued. However, limited monitoring of conditions of permits and authorisations is carried out in practice.

The conditions attached to authorisations must be such that they can be monitored realistically.

Non-compliance of the State

The issue of statutes being binding on the State poses a challenge to the regulation and sustainable management of the natural environment and especially water resources, both of the province and the State as a whole. In some instances, various Organs of State may be non-compliant themselves.

Conflicts within National Legislation

There are three main areas of the National legislation where existing and potential problems and conflicts have surfaced:

- Definitions: in many instances the problems or conflicts were located in the wording of, or in the inclusion/exclusion of activities from definitions in the Acts. For example, groundwater is not specifically specified as a water resource in the National Water Act.
- Plans: many of the Acts require the submission and authorising of various plans (e.g. Water Service Development Plan, Environmental Management Plans, Industry Waste Management Plans, etc.). The content of which overlaps both across the plans, as well as across the ambits of various legislation. If the plans are not compiled, reviewed and authorised in an integrated and cooperative manner, the potential for conflict and uncertainty arises.
- Directives: Several directives in terms of various pieces of legislation can be issued for the same set of facts for an offense. These directives may instruct

different activities, which in turn may have implications under other legislation. For example a set of mitigating actions in a directive in terms of the National Water Act may require EIA authorisation in terms of the NEMA, prior to that mitigation being carried out. Enforcement measures must therefore be cooperatively implemented between Organs of State.

Penalties of Statutes

The penalties attached to some of the statutes may be too lenient to deter illegal behaviour. In some cases paying an Admission of Guilt fine would be cheaper than following the required authorising process, which can also be a lengthy one. Law Enforcement officials will try link offences to the NEMA because the penalties are more severe (R10 million). More severe financial penalties should be considered than those currently specified under the NWA (R10 000.00), CARA (R500.00) and in Municipal By-laws.

Recommendations

- The NEMA makes provision for enforcement against particular decision-making individuals of an offending organisation and thus is not limited to the organisation as a whole. This should be applied to all including Organs of State. The relevant Organ of State or the relevant officials responsible decision-making that leads to non-compliant or illegal activities could be held accountable for failing to comply with legislative requirements. This could have a two-fold purpose. Firstly, it could increase the priority of ensuring compliance among Organs of State. Secondly, it will raise the profile of compliance within the Water sector.
- A legislative review is being commenced by the Department of Water Affairs to update the National Water Act. The conflicts, gaps and problem areas identified in the Legal Review of this report should be submitted towards that initiative so as to help identify the areas that require addressing in the amendment of the Act.
- Where plans fall on the Provincial sphere of competency, discussions between the relevant implementing Departments regarding a MoU should be held. The MoU should look at integrating (not just coordinating) the various overlapping plans, such that one plan can be generated that addresses all the requirements of the various statutes. The plans should be reviewed and approved cooperatively by the government departments. Monitoring against the plans could then happen cooperatively.
- Identify specific actions that would require authorisation under other statutes, or develop a MoU with those particular Departments to cooperatively enable each piece of legislation to be addressed and enforced as necessary. This may be carried out at Provincial and Regional office levels as well, but must not conflict with the National Strategy.
- Review the penalties attached to the statutes relating to environmental management resources management, and update appropriately, e.g. the NEMA.
- Continue rollout of Environmental Management Inspectorate (EMI) training. Although the powers of EMI do not cover the ambit of municipal bylaws, the training provides a holistic approach to natural resources management and regulation. The Municipal Structures Act and the National Environmental Management Act (NEMA) need to be amended to give municipal officials power to implement NEMA and to be designated as EMIs.

4 IMPLEMENTATION OF WATER CONSERVATION AND DEMAND MANAGEMENT

The effectiveness of WCDM in the province has been limited, not in terms of investigating options, but rather in implementation, monitoring and management. It is vital that this situation is remedied as a matter of urgency, and progress is made in reducing water consumption at all levels. One of the contributing reasons for the limited success of WC/DM is limited budgets.

Recommendations

- WC/DM must be a pre-requisite before undertaking further development of new water supply schemes. The use of treated waste water effluent or desalination needs to be explored more proactively and implemented where possible.
- Aim to ensure, as a minimum, that all water users (including municipalities and agriculture) have adequate water meters in place to be able to account for their water use in the form of an accurate water balance.
- Building regulations should be revised as necessary to specify that only water efficient fittings are permitted in new developments and in renovations/extensions.
- Currently, there is no direct funding available for the implementation of “soft” engineering WC/DM measures, but this may be changing through RBIG funding opportunities.
- WC/DM is regulated by both the NWA and the WSA and responsibilities for implementing it need to be clearly defined. There needs to be regulation of the municipalities (as the operators of the reticulation systems) in terms of implementing plans and strategies. Further these generally only address urban efficiencies. Sector efficiencies need to be regulated in terms of the NWA, either by the CMAs or DWA Regional Offices.
- Implementation of WC/DM needs to be elevated to a core function within the municipalities, with specific technical and management resources allocated.
- Municipalities should draft WC/DM implementation plans in line with their WC/DM strategies. WC/DM interventions must be adapted to the economic situation and geographic location of individual municipalities. Implementation action plans will differ between municipalities as certain interventions may be more viable than others. Similarly in promoting WC/DM, awareness will have to cater for different audiences. “One size does not fit all”.

5 ECOLOGICAL SUSTAINABILITY OF WATER RESOURCES

Environmental and ecological sustainability is a central focus of IWRM. The most direct implication for this is that the initiatives to implement the Ecological Reserve need to be prioritised and actioned as a matter of urgency. However, this has other wide-ranging consequences, especially with regard to planning and development and to water allocation. These aspects are discussed below.

Planning and Development Decisions

The Western Cape Provincial Spatial Development Framework emphasises sustainable development as a guiding principle, and stresses that this includes ecological integrity as well as social justice and economic efficiency.

Over allocations

In some areas in the Province, water has been over allocated, and the validation and verification process will need to confirm the extent of this. For example, the Olifants River Region in the Gouritz WMA is known to be one such area.

Implementation of the Ecological Reserve

The implementation of the Ecological Reserve will have a significant impact on water availability. In many cases it seems that it may be necessary to reallocate water from existing users (through compulsory licensing) for meeting the Ecological Reserve, which will be a difficult and costly process. Other initiatives towards addressing this problem include water-trading and targeted removal of Invasive and Alien Plants, for example.

Recommendations

- The need for compulsory licensing in some areas, to address over-allocation and implementation of the Ecological Reserve, may need to be fast-tracked.
- Ecological integrity should also be emphasised as part of sustainable development in all provincial plans, including the Western Cape Water Sector Plan.

6 WATER SCARCITY

Currently, the only WMA in the Province in which there is a surplus in terms of water availability, is the Berg WMA. This is as a result of the recently implemented Berg Water Project which came on line in 2007. Based on the last WMA-wide reconciliation undertaken for the ISPs (2005), the Gouritz and Olifants-Doorn WMAs were in a shortfall. The situation in the Breede WMA had been one in which there was considered to be a small surplus. However, based on the ecological flow requirements recently determined as part of the CMS process, this is no longer considered to be certain, and updated water availability estimates, based on latest hydrological and land use information is not yet available. Furthermore, conventional sources such as dams and run-of-river schemes have been developed or are in the process of feasibility study. Groundwater over-utilisation in some areas of the Province is a cause for concern, such as in the Ceres, Hex River Valley, Swartberg and Beaufort West areas for example. It is anticipated that one of the effects of climate change will be the increase in water requirements which will place even further stress on the water sources.

Recommendations

- Implement a range of water restrictions. For day to day use the restrictions would be limited to the lower range, and during drought or water shortage times, the restrictions are escalated to the higher end of the range. This would then be linked to stepped tariffing, that provided water use is within the determined range, water pricing will be a certain amount, but when water use exceeds this, especially in times of high end range restrictions, the price of water will increase significantly.

- When making decisions on crop selection for agriculture, water availability in the selected area should be considered. Concepts such as virtual water trading should also be explored.
- All Departments requiring water for growth and development must attend the Western Cape Reconciliation Strategy Steering Committee meetings, in order to raise awareness of water scarcity among non-water management institutions, e.g. economic affairs.
- Similar to the public awareness campaign regarding electricity usage versus availability, similar public awareness campaign should be run, e.g. in the local newspapers, weather reports or a water dial aired during “prime time” on television, highlighting water availability for the area, versus water usage in the area. The aim would be to make the general public more aware on a day to day basis of water scarcity of the country.
- Expand existing programmes (e.g. DWAs 20/20 vision programme) into a co-ordinated and focused approach towards creating awareness of water scarcity and water demand management in schools through the curriculum

7 WATER QUALITY

Satisfying the water needs of the province requires that both the quantity of water be sufficient, and the quality of water be suitable for the users. The deterioration of the quality of the province’s water resources is one of the major threats to its capability to provide sufficient water of appropriate quality to meet developmental needs (including economic and basic human needs) while ensuring environmental sustainability.

Some of the major contributors to the deteriorating water quality are the following:

- Natural geology, notably in areas of Shale
- Discharge of effluent that does not comply with the required standards from many WWTWs in the province
- Return flows from intensive irrigation practices
- Runoff from dense urban settlements and areas with inadequate sanitation services

Recommendations

- In order to ensure that the water quality meets the developmental and environmental needs, it is essential to adequately monitor the quality of the resource. This is especially important as they will be coming under increasing stress from population growth, increased urbanisation, new contaminants, and climate change. Water quality monitoring data is thus critical for decision making, and existing efforts by the various monitoring institutions must be confirmed and where necessary intensified. Information sharing and access to information requires attention and a central shared database would be beneficial to all.
- Integrated water quality monitoring, using standard sampling and analysis protocols, is critical in each of the four WMAs, and this information must be fed to the central shared database.
- Where water quality issues occur at a location of high risk, continuous monitoring is recommended.
- Specific monitoring sites need to be identified for discharges from wineries and fruit processing industries.

- Increase and sustain efforts to enforce compliance with water quality standards and permit conditions.

8 GROUNDWATER

The demand for groundwater as a source of water supply in the province is growing. Different aquifers in the province have different recharge rates, and increased abstractions in some areas have led to overutilization. Examples include the Ceres, Hex River and Swartberg areas. It is becoming a matter of urgency for the groundwater resource to be more actively managed. This has been recognised by DWA, who have drafted the National Groundwater Strategy, which is a significant step in the process of raising the level of management of the groundwater resource.

Recommendations

- More effective and comprehensive monitoring of groundwater, particularly on an aquifer basis, rather than only on an individual borehole basis.
- More effective aquifer management is required to ensure that over abstraction is curtailed and not increased. In cases where over allocation has taken place, the validation and verification process must take its course. A cautionary approach to further allocation in stressed areas must be adopted.
- The conjunctive use of surface and groundwater is encouraged. Where interventions such as artificial aquifer recharge have been found to be promising, pilot schemes should be considered to test the benefits (for example at Sedgefield), but with stringent monitoring in place.

9 ALLOCATION OF BUDGET

Limited budgets to implement all aspects of IWRM from water resource planning to the development of new infrastructure, as well as to carry out the necessary maintenance and upgrading of existing infrastructure is a major barrier. It affects all levels of water resource management and water services provision. Key aspects are discussed in further detail below.

Allocation of Municipal Budgets

Local Municipalities are under pressure to provide basic services to their constituents and consequently their budgets are already being stretched as far as possible. Non-payment for services further limits the revenue stream and the resulting budgets available to municipalities for water resource management and for essential infrastructure upgrading, operation and management.

There has been a shift in decision-making regarding budget implementation which has resulted in budgets for important technical projects such as the maintenance and upgrading of WWTWs and associated infrastructure (rising mains, sewer outfalls) not receiving the priority they warrant.

Another relevant point is the difficulty in allocating municipal budgets for the long term planning of 10 to 25 years, that is required for effective water resource planning. At Local Government level the focus tends to be on shorter term projects. Additionally, Municipalities often plan budgets on a short term basis, which makes it difficult to plan for the longer term. However, this is generally not a challenge at

larger Municipalities. In addition, there are often conflicts between the Municipal budget required and the budget allowed in terms of the Municipal Financial Management Act (Act 56 of 2003)(MFMA).

Allocation for Implementing the National Water Resources Strategy (NWRS)

The DWA has been implementing the steps in the NWRS nationally and in the province, and is making progress. The availability of budget to the country as a whole to accomplish a task of such magnitude is limited. As such progress is being made according to what is affordable. To date only the Breede-Overberg CMA (BOCMA) has been established in the province, and has recently compiled its draft CMS. Verification and validation of water use is underway in priority catchments, and the DWA plans to initiate a water availability assessment study in the Breede in due course.

Recommendations

- Strategic planning and budgeting for water-related infrastructure should be done consistently at all Municipalities across the Province, for a 10 to 25 year period.
- Proactive planning for drought preparedness is very important. Plans to cope with possible drought periods such as those recently experienced in Beaufort West and along the Garden Route have highlighted this need, and the necessary funding must be made available. Such plans must be communicated to the public on a regular basis (e.g. via monthly Municipal utility accounts).
- Proactive, Preventative Maintenance Plans for water-related infrastructure must be put in place.
- Budget cuts must not affect maintenance and development of essential water-related infrastructure.
- Ring-fencing of funds for water services development and infrastructure must be explored.
- Municipal budgets must comply with the growth specifications as set out in the MFMA.

10 PLANNING

Several of the problems identified throughout the project have been linked to planning matters and these are discussed below.

Water Resource Boundaries

Water Resources are managed according to catchment and Water Management Areas (WMAs), which are defined by topography. On the other hand land use and political administration is carried out according to municipal and provincial boundaries which do not necessarily correspond with topography or catchment characteristics. Furthermore, water supply schemes (such as the Western Cape Water Supply System) are often integrated across municipal, and in some cases, provincial boundaries. As such the disaggregation of water resource information to correspond with municipal areas is not easily achieved.

New Developments to Meet Water Availability

Municipalities need to ensure that new developments take water availability into consideration. Before approving new developments, a water balance should be carried out to determine whether there is sufficient supply to that area to meet the additional demand. This is not only limited to drinking water, but must include increased sanitation requirements, improved levels of service, and increased commercial and production requirements as well. Municipal rates and water tariffs are a primary source of income for the Municipality and are a vital source of revenue. Whilst development need not be discouraged, appropriate consideration of the increased water demand must be taken to ensure sustainable development.

Similarly, growth and development plans developed for the Province or for specific sectors do not sufficiently prioritise or address water availability as a limitation to growth.

EIA Process

The EIA process is managed at a provincial level, yet applications are site-specific, therefore adjacent properties intending to carry out the same (or similar) activities must still each individually conduct all of the same studies. In some areas Environmental Management Frameworks (EMFs) have been carried out, but full EIA applications are still required within these areas, instead of rather applying the EMF to limit the detail of the EIA process.

The EIA process must not be undermined by inadequate information. For example, where an EIA is undertaken for a new development, the Local Authority must verify in detail how that new development has been accommodated into their water services planning, in order to ensure that there is sufficient supply available to meet the increased water requirements and capacity at WWTWs.

DWA have in some cases effectively curbed new developments, for example in Swellendam, Grabouw, Villiersdorp, Gansbaai and Worcester, due to lack of sewer capacity to accommodate the new developments. Until such time as these network and treatment works have adequate capacity, these proposed developments will not be allowed.

Disaster Management

Guidelines for new developments are not always developed with a risk reduction framework in mind. Disaster Management is not readily geared for slow onset disasters such as drought and climate change.

Recommendations

- Economic and growth planning and environmental resources sustainability must be more integrated.
- Municipalities need to complete a water balance prior to approving new developments as well as ensuring sufficient treatment capacity.
- The provision of water services is dependent on recovery of costs for such services. Payment for water services must be encouraged and managed.
- Where land uses and WWTWs are impacting on identified NFEPA catchments, integrated strategies and priority actions should be developed by the relevant Departments and Local Authorities in order to prevent further degradation or threat to the NFEPA sites.
- Risk management, upstream catchment changes and watercourse characteristic changes must be taken into account via updated floodline estimates when physical catchment conditions may have changed.

- Where development is supported within 1:100 year floodlines, the guiding documents should be reviewed from a disaster management and risk reduction perspective.
- Early warning systems should be developed for slow onset disasters, e.g. drought and effects of climate change, that are linked to the Provincial Disaster Management Centre.

11 INFRASTRUCTURE OWNERSHIP

Some water resource infrastructure is owned by DWA but operated by others. For example the dams and canal infrastructure of government water supply schemes may still be owned by DWA, but are operated and maintained by Water User Associations. Where such infrastructure is old and in need of refurbishment, there is opportunity to significantly reduce water losses. However, the remedial measures are expensive and typically not affordable by the irrigation sector, who would stand to benefit from the reduced losses. DWA's raw water pricing policy is clear that the costs associated with bulk infrastructure development by the commercial irrigation sector be covered by that sector. This limits the opportunity to implement this component of WCDM in the agricultural sector. Examples include the refurbishment opportunity of the canal system downstream of Clanwilliam Dam and the canal systems within the Stompdrift-Kammanassie scheme in Oudtshoorn.

Recommendations

- Reconsider the funding models to encourage private investment where public funding is insufficient and to operate government infrastructure on a commercial basis.

12 ACCESS TO INFORMATION

Accessing information from various stakeholders is a challenge, ranging from practical difficulties in locating the actual data and obtaining it, to reluctance on the part of the relevant authorities to release the information, possibly due to its sensitivity.

Access to Information

A clear, streamlined procedure for accessing public information from the various institutions does not exist at the moment. Public information should include the quality of rivers and their management objectives, but would exclude information of a sensitive nature. Further, information is not stored centrally within the applicable Departments, or within the spheres of government. This makes it difficult to be aware of every provincial strategy/report/plan/policy etc. that has been drafted.

Data Quality

The quality of the data is very variable, and in some cases it is not satisfactory for effective use. This applies particularly to GIS data which in many cases does not have labels or metadata to explain the shorthand used in the database. A similar problem applies to obtaining the latest version of plans.

Recommendations

- Information should be fed through to a designated central library or database facility, so that it can be more easily accessed by government departments,

consultants and members of the public. This should be discussed horizontally and vertically between the different spheres of government. There is a possibility in the near future for provincial information to be housed in a central library located with the Premier's Office.

- Explore the possibility of establishing a call centre / web-based information access that links to the central library.
- Develop an integrated communications strategy between the relevant institutions to ensure a unified message regarding water scarcity and water conservation and demand management is presented.
- A standard list of abbreviations should be developed between the Departments, especially in GIS metadata, attribute tables, and map-keys. A full list of abbreviations should be included as metadata for all spatial data.
- The results of water quality monitoring carried out by various institutions should be centralised into a single database.
- A centralised monitoring and evaluation system needs to be in place to track progress made against plans developed.
- Data should comply with the relevant national standards and be validated.

WAY FORWARD TO THE IWRM ACTION PLAN

Phase 2 of the project will commence by prioritizing the gaps identified above and unpacking the problems and recommendations of this Status Quo Report, in order to develop the Action Plan. The Action Plan will identify the specific actions necessary to address the gaps and problem areas, the stakeholders responsible for implementing the necessary actions, the time frames, indicators to monitor implementation, and where possible an indicative cost of the implementation of the activities.