

# MSB III Mid-Term Review

**Mainstreaming environmental  
management in Masibambane 3**

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## **INTRODUCTION AND CONTEXT**

This review focused on determining whether ‘environment’ as a cross cutting issue is being **effectively mainstreamed** into the Masibambane programme, and whether any redirection is required for the latter half of the programme. The brief included providing an assessment of the relevance, effectiveness and efficiency of the mainstreaming of environment as a cross cutter consideration in MSB3.

The result of our combined economic growth and social development forces is a continuously increasing demand for a finite resource. “When water resources of acceptable quality can no longer be provided in sustainable quantities” writes the UN in its World Water Development Report 3, “the outcome can be the overexploitation of aquatic ecosystems. The ultimate losers are the exploited systems and the organisms, including humans, dependent upon them for survival and well-being”.<sup>1</sup>

According to the SA Environment Outlook published by DEAT in 2006, some of the most significant drivers of environmental change originate outside of the sectors responsible for their management. Thus, while environment is seen as the core responsibility of DEAT, the water sector, with DWAF as the chief regulator and sector leader, is a key driver of environmental impacts on water as a national and regional resource. “Environmental management” according the DWAF 2008 draft Strategic Framework for mainstreaming environment “must be seen as an essential part of the core business of the water sector, if the sector is to fulfill its mandate”<sup>5</sup>. This mandate is outlined in excellent legislative framework and policy guidelines, which are outlined in section 2 below.

The DWAF Water Services Sector mandate is “to ensure effective, sustainable, professional and equitable access to water services for all” (DWAF, 2001). This mandate has a strong emphasis on the social environment “within the context of a healthy physical environment as well as a sustainable economic focus”. (DWAF, 2008)<sup>2</sup>.

Water availability (scarcity) is a fundamental constraint to development for southern Africa. SA has already allocated 98% of its water resources at a high assurance of supply<sup>3</sup>. The concomitant degradation of these resources will ultimately mean greater cost to purify secondary source water to become potable.

In short, the findings of this rapid review were of great concern: despite excellent policy, legislation and intent, the review found no strong evidence that environmental management is being mainstreamed throughout the sector. The main challenge is in carrying policy through to the delivery point effectively, with the main obstacle being low awareness and wide disregard for environmental issues at service level, where it is not

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<sup>1</sup> UNESCO, 2009: United Nations World Water Development Report 3 - Water in a Changing World.

<sup>2</sup> DWAF, 2008: Strategic Framework for mainstreaming environmental management into the South African water sector (draft, version 1, prepared by CSIR).

<sup>3</sup> Turton, A: 2008: Three Strategic Water Quality Challenges that Decision-Makers Need to Know About and How the CSIR Should Respond. Unpublished

seen as relevant but rather as a necessary evil. This is attributed to environment and sustainability not being institutionalized across the water sector. This results in a lack of awareness by planners and water users, and political pressure to fast track delivery, often at the expense of sustainable planning. On the whole, water and environment don't speak to one another, and are 'managed' in isolation.

On a very positive note, the WfGD framework does give strong credence to environmental factors as a sustainability pillar, and environmental considerations and management are strongly embedded in the framework through its clearly articulated principles.

Our country is on the brink of a water crisis. Officially this is not the case, but the indicators are there, and the warning lights are flashing. It would be nationally prudent to avert such a crisis before we actually need to admit that it has indeed arrived. This can be done through DWAF strongly mainstreaming environmental management within its regulatory role, and acting efficiently, now. This role needs to acknowledge and activate the function of effective environmental management across the entire scope of the water sector, in order for the sector to deliver on its mandate of national water security.

This document explores what exactly is meant by 'environment' within the MSB3 context and how it has been addressed, its relevance to the water sector and Masibambane objectives, what strategies are in place for its integration, how and where it is effectively and efficiently mainstreamed, and where improvements can be made through redirection of resources or attention.

## **RELEVANT POLICY AND LEGISLATIVE FRAMEWORK**

The key Acts which guide and govern the water sector are listed below, and are supported and brought alive by a range of other policies and strategies developed mainly between 2001 and 2004.

These are concisely outlined in chapter 2 of the draft Strategic Framework for Mainstreaming Environmental Management in the Water Sector<sup>5</sup>, developed by the CSIR in conjunction with DWAF, in March 2008, and do not require repeating here. The contents and relevance of this draft document are discussed in more detail later.

The key Acts are:

- Constitution of the Republic of South Africa (Act 108 of 1996)
- National Water Act (36 of 1998)
- National Environmental Management Act (107 of 1998)
- Water Services Act (108 of 1997)

The main policies and strategic frameworks which facilitate implementation of the legislated environmental intent are as follows:

- DWAF Environmental Implementation and Management Plan, 2001
- DWAF Environmental Management Framework, 2002

- Strategic Framework for Water Services, 2003
- National Water Resource Strategy, 2004
- Integrated Environmental Management Strategy and toolkit (IEMS), 2004 (DWAF, adapted from NEMA)
- IWRM (Integrated Water Resource Management) under KPI 9, and dealt with in a separate section of this report
- WC & DM (Water Conservation & Demand Management): The overarching regulation, authorization, compliance monitoring and enforcement process. Includes Working for Water and 2020 Vision awareness raising.
- WfGD (Water for Growth and Development): the current water sector framework which is still in draft form for discussion and adoption by cabinet. Founded on 27 core principles which bring to life the water and associated legislation, with a grounding in pillars of sustainability.

The above policies provide for a very clearly articulated framework for effective environmental management, based on sound understanding and relevant intervention. The relevance to sustainable environmental management at the level of intent is very high.

The Masibambane website has a draft 'Strategic Framework for mainstreaming environmental management into the water sector' (March 2008) compiled with support from the CSIR. This document focuses on the policy framework, and on the linkages between water resources and water services. This strategy has not been endorsed by DWAF due to its lack of practical implementation direction and content, and the project has in fact been put on hold. This is discussed further below under the section on effectiveness.

### **RELEVANCE OF ENVIRONMENTAL MANAGEMENT WITHIN MSB3**

Environment is difficult to define in a neat way, and yet is an over arching issue for the water sector, which is fundamentally dependent upon a finite but brilliantly cyclical resource, within a natural system which has the ability to regulate and cleanse itself. It is our impacts upon this resource cycle which will determine whether we will in fact have some for all forever. When we speak of 'environment' as a cross cutter in the Masibambane programme, it reflects the mega framework within which the water sector operates. When one tries to extract exactly which objectives (as defined in the 12 KPIs and 8 EU Finance Agreement objectives) are affected by 'environment' one finds it truly is a 'cross cutter', inextricably reaching across, affecting and affected by all of these objectives and indicators.

In terms of Masibambane's objectives, the EU Financing agreement items 1, 3, 5, 6, 7, 8 bear reference to cross cutting environmental consideration requirements: *sustainable (item 1) and proficient (3) water management, through clear policy direction, regulation (5), CSO support (5) and financial review (6), with WSPs effectively and efficiently meeting standards (7), and where sustainable ecosystem based IWRM contributes to social development (8).*

The 12 MSB3 KPIs all require environmental sustainability considerations in planning and delivery, e.g. addressing sanitation backlogs deals directly with an environmental contamination challenge.

There is no clear articulation of environmental objectives or definition of what is meant by 'environment' as a cross cutting issue within the Masibambane programme. It is an inherent 'given' – simply, environment must be considered in the water management equation. It is also a simple supply and demand issue: connection between resource management (supply) and service delivery (meeting demand) over the long term. The water sector machine cannot run on an empty or dirty tank.

Of great relevance here is the *Water for Sustainable Growth and Development* (WfSGD) framework. This acronym has in recent documents been shortened to WfGD, which is of concern, as sustainability is the key factor here. The underlying paradigm of WfGD means that water and related services are a part of the equation of sustainable economic, social and environmental development. The economic, social and environmental benefits of improved water supply and sanitation and water resource are, therefore, essential ingredients of national decision making for the economic development of South Africa<sup>4</sup>. The current WfGD framework, and its clearly stated 27 underpinning principles, is seen as fundamentally relevant to and geared towards mainstreaming of environmental management across the water sector. The framework is evidently based on a sound consideration of environmental sustainability factors, and if endorsed by Cabinet could provide the much needed thinking shift for integrating environmental management within the sector.

*DEAT defines environmental management as aiming to ensure that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment" (DEAT, 2006).*

In the context of this guiding policy framework, with its programmes and strategies, we have various drivers, activities and attitudes which make the water sector machine deliver on a daily basis. It is at this local and regional level where the negative environmental impacts are occurring, and where mainstreaming of environment is becoming ineffective. It is at implementation level that we need to focus efforts on shifting the way we do things (i.e. business unusual) in order to mitigate the long term impacts on water as a sustainable resource.

### ***Environmental challenges in the sector beyond Masibambane 3***

It is exigent to assess the effectiveness of environmental mainstreaming within the Masibambane programme alone, as the latter is currently restricted to supporting a limited set of activities within a broad and complex sector. It is proposed that the environmental

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<sup>4</sup> DWAF, 2008: Assessment for release of the first variable tranche of funding 2007/2008 (P.D. Naidoo & Assoc).

funding within Masibambane be one of general support in order to be most effective. In order to do this, it necessary to understand the key existing risks and threats to environmental sustainability across the sector, as well as the key functions under DWAF's mandate with respect to environmental management. This is dealt with further in section 4 below. The effectiveness of current environmental management considerations with respect to each element can then be briefly explored, and recommendations made for improvements in mainstreaming, possibly through redirection of the MSB3 budget for environmental management.

Climate change is a particularly relevant environmental challenge to the entire water sector. Climate change is a fundamental driver of changes in water resources, and an additional stressor through its effects on external drivers<sup>5</sup>. The symbiotic relationship between water and agriculture is implicit, and if the nation is to continue developing, food production will need to keep pace. "Climatic driven changes" indicated Minster Hendricks in her address to the Climate Change Response Policy summit<sup>6</sup> have an impact on water availability in the soil and on production, while impacts of climate change on agricultural production will have a simultaneous effect on water availability." Climate change is being superimposed on an already complex hydrological landscape, making its signal, and responses thereto, difficult to isolate, yet making its influence felt throughout the water sustem<sup>5</sup>.

### *A snapshot of the status of water resources in SA*

According to EWT SA (Endangered Wild life Trust), 80% of the natural structure and function of our freshwater ecosystems is threatened or has been lost. This is problematic because rivers and wetlands in a balanced system have a natural ability to 'clean' themselves (diluting, processing, filtering, storing and releasing clean water). Due to human modification, this function has been damaged, through over loading of contaminants (sewerage and toxins) and abstraction beyond critical ecosystem reserves, resulting in the loss of dilution and natural flushing capacity. Over 7000 cases of cholera across the country<sup>7</sup>, plus dead fish and crocodiles (Vaal and Olifants rivers) are the immediate indicators that the balance is out and the natural functions are hindered.

DEDEA Eastern Cape Compliance unit indicated that almost every perennial river in the province is facing pollution problems of varying degrees, mainly attributed to defunct and poorly managed, overloaded and badly managed waste water treatment works.

In the UNDP 1999 index of 50 countries with the least annual renewable water available per person and projections for water stress and scarcity, South Africa is the 11th most vulnerable country<sup>8</sup>. The threat of climate change and its unknown long term effects on water availability compound this risk-ridden status.

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<sup>5</sup> UNESCO, 2009: United Nations World Water Development Report 3 - Water in a Changing World

<sup>6</sup> Hendricks, L: 03/03/2009 Address to the Climate Change Response Policy Development summit

<sup>7</sup> [www.ewt.org.za](http://www.ewt.org.za)

<sup>8</sup> DWAF, Nov 2008: Water for Growth and Development Draft framework (version 1)

Although not officially accepted, almost all DWAF and all DEAT personnel interviewed indicated that we are facing a rapidly looming water crisis, with some areas having already having to deal with crisis situations in terms of pollution and reliability of supply at municipal level. Less than 50% of WSAs interviewed indicated that they monitor quality and quantity of water discharged into the environment, with less than 25% indicating meter monitoring efficiency. Almost 60% of the respondents indicated that their major challenge is with O&M (operation & maintenance) of systems. Regional DEAT compliance staff interviewed indicated that their major problem is linked to pollution control, based on municipal poor operational performance management of effluent. The situation is expanded further below in section 3.4. This has dire implications for sustainable achievement of the WfGD objectives, where supply will not be able to meet demand, and the cost of extracting and purifying contaminated water may become astronomical.

### ***Key risks & threats to ecosystems and environment from the water sector***

The following is a concise but not exhaustive list of key environmental factors requiring effective redress in the water sector.

- **RAW WATER QUALITY:** this is compromised through various means:-
  - **poor asset maintenance:** over 65% of municipal waste water treatment plants are experiencing problems with disinfection of raw sewerage<sup>9</sup>. This is attributed to obsolete and overloaded infrastructure, and results in discharge of untreated effluent, contamination of river and wetland systems, and reduced dilution capacity of these systems.
  - **poor solid waste management:** blocked stormwater drains and polluted aquatic systems from run-off borne litter constrain effective functioning, leading to flood damage, physical impacts and water borne diseases.
  - **technology choices :** the failure of waterborne sanitation systems also poses a much higher pollution threat than the dry sanitation systems with related health and environmental impacts. Failures typically include blocked sewers with overflowing manholes, breakages of sewer pipes and ineffective sewage treatment. Inappropriate choices often based on lack of understanding.
  - **excessive nutrient, chemical and silt load** from fertilizer run-off, poor land management, chemical and toxin effluent from mines, high silt and litter loads from poorly planned and managed developments. Excessive concentrations can result in cholera and cyanobacterial bloom.
  - **capacity constraints:** technical, managerial and human resource skills shortages, combined with inadequately skilled contractors and operators, and lack of monitoring and accountability.
  
- **RESOURCE SUPPLY / QUANTITY CONSTRAINTS:**

<sup>9</sup> DWAF, Nov 2008: Water for Growth and Development Draft framework (version 1)

- **fast tracking of service delivery** to address back logs is often at the expense of sustainability, e.g. projects not designed with future demand and increase (due to funding shortages or in order to deliver on time for budget compliance or electioneering).
- **Poor catchment management** through overgrazing, frequent burning and poorly managed forestry. This impacts negatively on the ability of the upper catchment to absorb and release rainwater, mitigate flood run-off and recharge groundwater.
- **Illegal water use** through abstraction, connections and non-compliance with license conditions.

A survey of WSA management<sup>10</sup> corroborated these statements. 42% WSAs indicated that obtaining good quality water is a challenge, and 53% of respondents indicated insufficient water availability. 60% indicated that water demand management is a significant challenge.

Turton<sup>11</sup> outlines three strategic water quality challenges, namely a national quest for *sustainability, human health and climate change adaptation*, through better collaboration between the scientific community, society and government. DWAF is seen as a key driver for addressing these challenges, in its role as regulatory sector leader.

The WfGD framework identifies many of these challenges, and proposes means for addressing them. The Minister has admitted that the process of developing the framework has forced the government to confront some hard truth about challenges in the sector<sup>5</sup>, but that we *must* move from the era of identifying problems to the era of implementing solutions. Nowhere is this more relevant than for sustainable water supply, being inextricably dependent upon resource integrity and healthy ecosystem function for its long term function.

The effectiveness of mainstreaming environmental considerations within MSB3 and the wider sector are discussed below, in relation to the key challenges identified above, and in terms of the EU financing objectives and KPIs.

## **EFFECTIVENESS: WHAT IS MASIBAMBANE DOING TO ADDRESS THESE ENVIRONMENTAL CHALLENGES?**

### ***Budgetted MSB3 objectives***

There is no currently accepted strategy for mainstreaming of environment within the Masibambane programme. The draft Strategic Framework for mainstreaming environmental management (March 2008), mentioned in section 2 above, was the key environmental

<sup>10</sup> March 2009 Independent WSA survey for MSB 3 review, by Strategy & Tactics team.

<sup>11</sup> Turton, A: 2008: Three Strategic Water Quality Challenges that Decision-Makers Need to Know About and How the CSIR Should Respond. Unpublished

activity funded through the MSB3 programme, and which has not been achieved, due to unclear communication between DWAF and the service provider (CSIR) regarding expectations and outcomes. The project had been put on hold at the time of writing.

The Strategic Framework document, albeit not yet accepted, does however provides a useful outline of the legislative and policy framework for mainstreaming environment, as well as identifying 3 priority areas for possible implementation focus:

- Infusing environmental management throughout the water services cycle – understanding the core business of the water services sector, as well as mitigating environmental impacts and addressing climate change related issues.
- Co-operative governance and integrated planning – planning across the three tiers of government involved in the water sector, finding best practice, monitoring and reporting.
- Supporting comprehensive management at local level – how local level development can be effectively supported by business unusual environmental management approaches, using IEMS guidelines.

In place of the unsanctioned March 2008 draft framework, the sector leader, through its Environment and Recreation Unit, is internally developing an environmental management policy, within which strategic frameworks for practical local implementation will fit, once the nature and direction of environmental interventions are clearly identified. The current implementation guidance is drawn from the Integrated Environmental Management Series (IEMS) developed in 2004 by this Unit. There is discussion around developing a comprehensive combined strategy for all of the cross cutting topics, including environment, but this was not viewed as a practical direction by DWAF personnel.

Some of the MSB environment funding was also allocated towards internal development of environmental management strategies by the Environment and Recreation Unit. These are based on the existing, and good quality, policies and toolkits previously developed, with the aim of enhancing their applicability at local level. This is a highly relevant approach, as most of the environmental impacts and challenges are being faced at municipal delivery level, and this is where clear guidance and compliance enforcement is most required.

This failure to finalize a strategic framework for mainstreaming environmental management would superficially constitute an ineffective use of MSB3 funding for environment as a cross cutter. On the contrary, it is proposed that this withdrawal of an unsatisfactory framework reflects great responsibility on the part of the sector leader. Rather than simply deliver a sub-standard document which is not seen as having practical applicability, the responsible officials in the environmental management sphere elected to 'do the job properly' by redirecting the task, and applying first principles. The MSB Environment co-ordinator and other officials involved admitted that the failure to approve an acceptable document was partly attributable to misunderstanding on the original brief between DWAF and the CSIR.

No other national environmental intervention programmes have been directly funded through MSB3 as far as can be ascertained, and thus no benchmarks exist for performance measurement with respect to effectiveness and efficiency. The Department is currently

exploring practical implementation strategies for management rather than compromise, viewing environment as a critical sustainability pillar for the Water for Growth and Development framework. These strategies include finding means of supporting the identified challenges at municipal level, where most of the negative impacts on sustainability of both resource and supply appear to be occurring.

### *Integration across the MSB3 objectives*

The effectiveness of environmental mainstreaming as a general cross cutter on a sector wide implementation level, rather than as a line item budget performer, varies across the provinces, and across KPI themes.

The EU Financing agreement objectives summarized in section 3 bear reference. It must be noted that each objective and KPI is reviewed in detail in specific reports. In terms of the relevance of each objective to *environment as a cross cutter*, and the effectiveness of *environmental mainstreaming* within each objective, a summary and initial rating is given below. Note that this is *purely from an environmental cross cutting perspective*, and ratings for actual performance may differ in the detailed reports:

FINANCING AGREEMENT ITEM & RELEVANT KPIS	FINDINGS	RATING
1) Stakeholder collaboration for sustainable water management (KPIs 11 and 12)	<ul style="list-style-type: none"> <li>• Good at national level, especially with DPLG, DEAT, SALGA. (see section on KPI 11 report)</li> <li>• Varied across regions, decreasing at local level. Improvement since MSB3</li> </ul>	4
2) CMAs established and operational (KPI 8)	<ul style="list-style-type: none"> <li>• Only 3 established and functional. Limited attention to ecosystem services. (see KPI 8 report)</li> </ul>	3
3) Municipalities proficient in water resource management and water services roles (KPIs 1, 2, 3, 4, 5, 6, 7)	<ul style="list-style-type: none"> <li>• This is where most of the environmental problems occur, with negligible environmental consideration in planning or monitoring, and severe lack of compliance with legislation and regulations.</li> </ul>	1
4) DWAF a strong leader providing policy direction, regulation and sector support (KPIs 8 and 9)	<ul style="list-style-type: none"> <li>• Excellent policy direction and intent at national level, and some good findings at regional level. Regulation is challenged by capacity constraints, with sector support from environmental perspective improved since MSB2. Room for improvement with collaboration.</li> </ul>	4
5) CSOs able to provide support and advocacy to the sector (KPI 10)	<ul style="list-style-type: none"> <li>• CSO playing a major role as environmental watchdogs and supporters. Toll free hotlines well utilised, and many cases of active civil society driven attention to problems particularly with regard to pollution at local and catchment level.</li> <li>• Greater scope for CSO and private sector involvement</li> </ul>	5

FINANCING AGREEMENT ITEM & RELEVANT KPIs	FINDINGS	RATING
	is required to augment DWAF's capacity to address challenges such as municipal waste management, river health programmes, reserve determination, educational outreach, etc.	
6) Review of alternative financing mechanisms for sustainable delivery of water services and water resource management. (KPI 7 and indirectly all KPIs)	<ul style="list-style-type: none"> <li>• Relevance to payment for ecosystem services, as entrenched in principles outlined in WfGD and in section 5.3</li> <li>• WfGD framework creates scope for exploring appropriate mechanisms for financing and implementing resource management options.</li> </ul>	4
7) WSPs operating effectively and efficiently, meeting norms and standards. (KPI 7)	<ul style="list-style-type: none"> <li>• Woefully lacking – this level is the chief source of pollution through not meeting waste water treatment norms and standards.</li> <li>• Poor understanding of environmental compliance intent. 90% of WSA respondents indicated that they did comply with NEMA and WSA licensing, with 88% of projects authorized. This is not corroborated through one-on-one interviews which reflected a poor understanding of the processes, and a view that environment is a necessary evil to be accounted for in project planning.</li> <li>• Dealing with sanitation and water supply backlogs seems to be successful in terms of meeting targets, but not with respect to compliance, as indicated in the CSIR Spot check assessment mentioned earlier.</li> </ul>	1
8) Sustainable ecosystem based IWRM contributing to social development. (KPI 9)	<ul style="list-style-type: none"> <li>• Reserve determination is very poor and contributing to negative impacts on the wider ecosystem. It is concerning that licensing is taking place without high confidence reserve determination across the regions.</li> <li>• Licensing backlogs are experienced across the regions, with section 27 compliance a major challenge. This is resulting in much illegal water use by frustrated applicants.</li> <li>• Compliance Monitoring and Enforcement unit is beginning to address many of the regulation problems with respect to long term water management, and is a good mechanism to encourage improved WC&amp;DM practise.</li> <li>• WfGD principles will go a long way to improve on IWRM effectiveness and are seen as very <i>pro</i> sound environmental management.</li> </ul>	3

Effectiveness is difficult to track if planning has no benchmarks. For example, the Water Services Sector in the Eastern Cape has 5 clearly articulated and realistic goals within a 5 year plan, but there is no annual action plan for benchmarking, so it is impossible to measure whether these are being effectively achieved. The Masibambane-driven co-

ordination of regional water services via the provincial forum would appear to be effective in addressing delivery of these 5 goals, highlighting the need amongst stakeholders from WSAs for “institutionalization of a planning culture for Water Service Development Plans” through incorporation of environmental considerations in planning for sustainability.

An example of ineffective environmental considerations can be seen in the long term impacts on raw water quality through poor infrastructural development and management, as discussed earlier in section 3. It is not only obsolete and poorly managed infrastructure which creates pollution problems, but rapid and badly planned or monitored development through addressing backlogs. This scenario can be gleaned in the findings of a late 2008 spot check assessment<sup>12</sup> of a range of completed and under-construction water and sanitation projects which address backlogs. The assessment indicated no improvement in compliance since the last assessment in 2006/7, with general non-compliance with RDP and DWAF norms and standards in housing developments, at schools and clinics, and at rural household level. This will lead in the medium and long term to negative impacts on ecosystem integrity and water quality, through beneficiaries reverting to the use of surroundings in favour of non-functioning sanitation infrastructure, as well as under functioning and overburdened waste water treatment works. The causes of non compliance were based mainly on poor technical design and finish, plus limited training in use (health and hygiene, operation and maintenance) for beneficiaries, plus no handwashing facilities. This indicates a lack of capacity to manage and monitor, as well as lack of effective training programme implementation.

### *Core sector leader functions affecting and affected by environment*

- **DWAF'S REGULATORY FUNCTION**

To protect the Reserve (the water set aside for basic human needs and ecological sustainability), DWAF advocates an Integrated Water Resource Management (IWRM) approach. This refers to the co-ordinated development and management of water resources to maximise social and economic development, while ensuring equitable and sustainable utilisation of the water resource.

Resource Directed Measures (RDM) is a water resource management strategy that together with the Source Directed Control (SDC) strategy - intends to ensure an integrated and balanced approach to water resource utilization, taking into account the social, economic and environmental requirements<sup>14</sup>. Meanwhile the River Health Programme (RHP) assists in classifying the health of water resources and delivers ecological information required to support the rational management of rivers and other water resources.

At present, the actual situation in terms of effectiveness looks fairly poor. Detailed reserve determination based on a comprehensive assessment has only been done for an estimated 5 river systems, of which only one is being implemented. Low confidence desktop reserves have been determined for 900 out of the 1 486 Quaternary level

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<sup>12</sup> CSIR, October 2008. Spot check Assessments of MIG-funded water and sanitation projects - Final Report April 2007

catchments<sup>13</sup>. Some of the main constraints are finances (reserve determination is a lengthy and costly business), the fact that the classification system has not been finalised, and the serious lack of capacity. No MSB3 support has been received for this process. This knowledge and the management thereof is fundamental to DWAF's regulatory role, and to sustainable resource management, and should be a core focus for environmental management focus within MSB3.

It should be noted that DWAF's regional Forestry sections assist the Authorisation units with assessing licensing of afforestation applications. This activity qualifies as a licensable water use under Section 21 of the National Water Act, deemed as being a stream flow reduction activity. Macro planning as set out in the National Water Resources Strategy (NWRS) as well as Reserve determinations are pre-requisites for sufficient water assessment. In future, forestry suitability maps that cover water as well as aspects such as biodiversity and agriculture, will be used as a planning tool for the forestry sector, particularly small-scale communal plantations. This is an important function with respect to catchment management, which is discussed further below.

DMs / WSAs have water quality monitoring officers, who indicate that they do get DWAF support. Those interviewed admitted a lack of capacity to actively address the local quality issues.

The inability of irrigated agriculture to schedule irrigation properly leads to inefficient water use. Further improvements in the enforceability of volumetric allocation are likely to improve the effectiveness of water use in all sectors, especially in irrigation, where water supply is constantly under pressure. Stricter enforcement and incentives for "water savers" should therefore be implemented<sup>14</sup>. This indicates a direct need for improved monitoring and enforcement.

- **COMPLIANCE AND ENFORCEMENT**

The recent establishment and active launch of the Compliance Monitoring and Enforcement Unit (CME or 'blue scorpions') is applauded by all stakeholders as an obligatory and long overdue move in actively enforcing DWAF's regulatory role. The unit is fully in line with statutory provisions, and had made bold steps in state versus state proceedings to enforce compliance with water law.

The DWAF CME Unit is apparently collaborating well with DEAT at national level with compliance enforcement. This is assisting with efficiency and response time, particularly with pollution incidents. The CME unit is being rapidly rolled out in the regions in conjunction with DEAT's existing compliance units. This is very effective in the Free State and Gauteng areas, and appears to be reduced with geographic distance from Pretoria, with some regional DEAT offices indicating that they are not effectively collaborating and are often 'doing DWAF's compliance enforcement job' where DWAF lacks capacity.

They find they have to fill the gap regularly where DWAF does not actively enforce compliance. DEDEA Eastern Cape indicates that almost every municipality across the

<sup>13</sup> Interview with Deputy Director SWRR, DWAF.

<sup>14</sup> DWAF, Nov 2008: Water for Growth and Development Draft framework (version 1)

EC has sewage and pollution problems, and almost every perennial river is stressed with varying levels of contamination. Under the NEMA section 28 'Duty of Care' clauses, DEAT have to respond to daily complaints about pollution, related mainly to municipal waste water treatment works with obsolete infrastructure, capacity of infrastructure being exceeded, poor performance of facilities and staff, lack of technical operational expertise and little or no upgrade funding availability.

CSOs are providing an essential service in alerting DWAF and DEAT to problems, being the eyes and ears on the ground. Two excellent examples of successful civil society intervention are in the Ndlambe Local Municipality where the Bushman's river community took Ndlambe to court and won, over a sewage pollution incident and consequent clean up in the Bushmans river. The well covered SAVE versus Emfuleni Municipality saga over extensive pollution on in the Vaal river set important precedent for improved accountability by municipalities to their constituency.

The national CME indicates that they are actively facilitating service level compliance, by issuing directives for non-compliance (e.g. with license conditions or for excessive effluent release), requesting a business plan within 30 days from the transgressing municipality, and providing emergency funds to remedy the situation according to the directive and business plan. The CME Unit recognises that budget for improvement of ailing infrastructure is a challenge at local level, and is making efforts to assist local municipalities to comply.

It is acknowledged that DWAF has staff constraints with respect to monitoring and enforcement, and that they are doing a fairly good job under the circumstances. The new Waste Act provides a mandate for DWAF to be policing pollution, but they 'just cannot keep pace' with the huge monitoring and enforcement needs at local level.

- **ENVIRONMENTAL AWARENESS**

There is no planned or structured environmental education outreach within the MSB programme budget. DWAF however has a range of outreach initiatives including the 2020 Vision project (mainly aimed at school level awareness of water issues), plus its sanitation support initiatives, including health and hygiene training. These initiatives however are all underspent, in both the 2007/8 and 2008/9 budget years.

There appears to be limited collaboration between DWAF and DEAT at provincial and regional levels with respect to education and awareness outreach, at all levels, from schools through to municipal WSP officials. Limpopo province reported some success with collaboration, where dedicated DEAT support was assisting with driving and championing the environmental outreach efforts in the region, especially targeting schools.

Action appears to be limited to theme days such as Arbor and Water week, with limited continuity in between.

On a positive front, more than 90% of the surveyed WSAs reported that they have an environmental officer, and that this officer assists with environmental awareness issues and legislative requirements such as NEMA and Water Act authorizations. 88% of these respondents were familiar with the Water Act and NEMA basic requirements.

- **CATCHMENT MANAGEMENT**

Integrated water resource management requires a shift in priority to include support for basic catchment ecosystem functions, being the chief source of our water supply. The concept is explained well in the Ecosystem Services Trading model outline produced by the Institute of Natural Resources and Maluti Drakensberg Transfrontier Project<sup>15</sup> in conjunction with DWAF and DEAT. DWAF National supports the payment of watershed/ecosystem services (PES) concept in the WfGD framework principles and section 5.3. Simultaneously the sector leader wonders if it is able to implement this essentially long term programme under the current capacity constraints. DEAT EC corroborates this view. The model has yet to be implemented on a pilot or wide scale, but shows signs of being a viable resource and supply augmentation option.

Ecological sustainability must be supported, with the aim of internalising external environmental costs into the water price. Based on current pricing practice, the true economic value of the water resource itself is not explicitly captured by water managers and users in decision-making<sup>16</sup>. To ensure that the economic costs or benefits foregone in one particular use of water over another are internalised in decision-making, it is necessary to understand what the actual value of water is, especially where monetary values cannot easily be assigned to the worth of non-consumptive functions such as maintenance of human life and ecosystem sustainability<sup>16</sup>.

Establishment of reserves is a key concern here.

Establishment of CMAs is dealt with under a separate section of this report, and is at present primarily an institutional challenge. Their effectiveness with respect to environmental management is paramount, and due attention must be paid to integration of suitably skilled staff.

## **EFFICIENCY**

It should be noted that the allocated budget for environmental management was underspent by almost 90% in the 2007/8 year, and only 30% has been spent to date in the 2008/9 year. No specific deliverables can be attributed to this expenditure, other than a draft strategic framework which for all intents and purposes has been abandoned in favour of developing a more practical strategy internally. Some budget was spent internally on revision and realignment of implementation strategies for an environmental management programme, but further clarity is required.

Some observations with respect to the unsatisfactory efficiency of implementation are reflected in other expenditure anomalies with relevance to environmental mainstreaming, mainly in the areas of sanitation and awareness, with examples provided below:

- 2007/8 EU budget of R400 000 for Environmental Management (HO047) was unspent.

<sup>15</sup> MDTP, 2007: Payment for Ecosystem Services: developing an ecosystem services trading model for the Mweni and Eastern Cape Drakensberg areas.

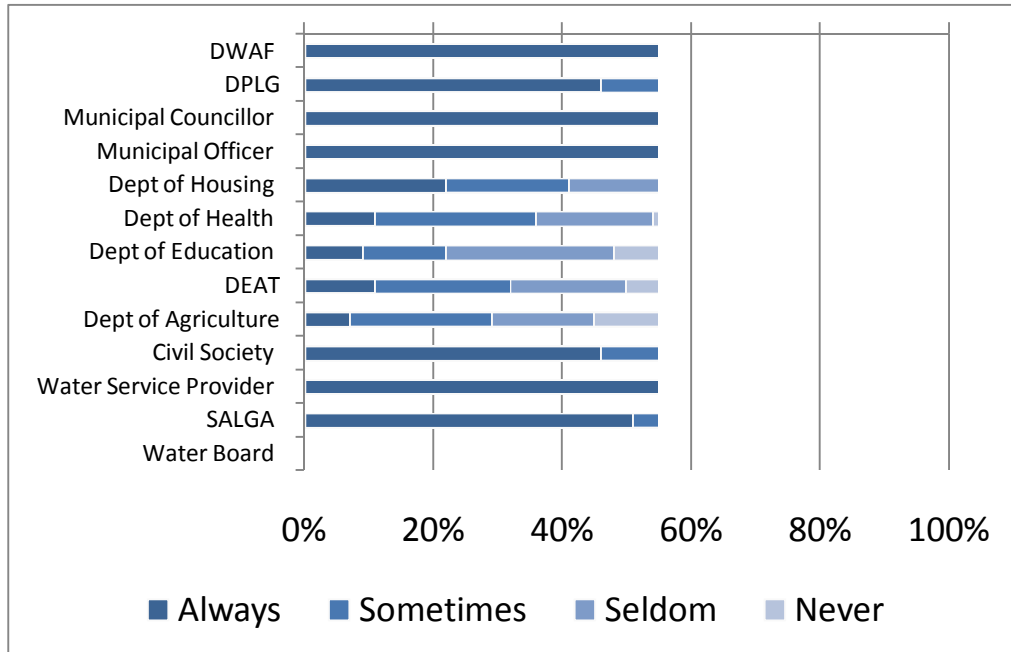
<sup>16</sup> DWAF, Nov 2008: Water for Growth and Development Draft framework (version 1)

- HO168 Water Conservation & Demand Management had zero budget but spent R46,958,731 – albeit it inefficient budget management, it is commendable as a directly ‘environmentally’ related programme.
- Chris Hani Water Conservation & Demand Management had R2m unspent
- Sanitation programme support to the sector had no budget, but spent R1,5 million last year.
- National sanitation advocacy and revision of the sanitation strategy had a zero spend.

This reflects a need for a revised understanding of what we mean by ‘Environment’ and where support for mainstreaming is allocated across the MSB budget. Recommendations for improvements are made below in section 7.

## **CONCLUSIONS**

- Limited consideration for or attention given to environmental management within MSB3. At budget performance level it has been limited to developing a strategic framework for mainstreaming environment, which was rejected at the time of writing. This has been an ineffective and inefficient use of the budget up to mid term.
- There is good intent for integration of environmental management as a sustainable foundation for the water sector across DWAF at national and regional levels, but its effectiveness is diluted down through local management and at delivery level, where it is negligible.
- A wide range of impacts on environment from activities and issues across the sector are becoming entrenched through the commendable WfGD framework. The 28 Principles have sustainable underpinning, with a strong theme of environmental considerations and impacts coming through clearly. This framework is seen as a redeemer for neglected environmental concerns.
- The relationship between Resource Directed Measures (RDM) and Source Directed Controls (SDC) requires substantial improvement<sup>9</sup> through effective IWRM strategies applicable for different situations. Reserve determination is woefully behind, but has not been an MSB supported activity.
- General environmental awareness is low, and environment is often perceived to be limited to compliance with NEMA legislation, rather than as the ecosystem upon which the entire sector is based. This needs some serious attention and effort in order to shift thinking towards meaningful sustainability.
- Recommendations made under MSB2 were not implemented.
- Participation of the Departments of Environment, Education and Health is low in the provincial sector water forums (see graph below). Collaboration is varied across the sector, with good practice contrasted across a spectrum by poor collaboration between stakeholders.



**GRAPH 1: Regularity of participation of stakeholders in provincial water forums**

(source: S&T survey of MSB Provincial Water sector forums, March 2009)

## RECOMMENDATIONS

The following recommendations are made with respect to effecting **effective** environmental management, as a foundational sustainability pillar for delivering on the mandate of the water sector. Environment has to be institutionalized as a foundation for planning. Endorsement and approval of the WfGD framework will go a long way to achieving this, and set the tone for implementing strategic long term ecosystem conservation measures. This requires a strong champion and regional support network, to carry out the recommendations below.

- WIDESPREAD AWARENESS / EDUCATION:** Increased public and service level awareness around practical WC&DM strategies is essential. It should not just focus around water or arbor week, but be entrenched as a national priority, where our resources are protected through concerted efforts across the board, from policy makers, service providers and consumers right through to personal action. Awareness needs to be broadened to make it possible for everyone to participate, and include general domestic water conservation, clarity on authorization processes, use thresholds, legal issues, the water cycle, contamination, etc. This is particularly necessary for WSA and WSP staff who require increased and continued support from DWAF as the sector leader.

- **REGULATION ENFORCEMENT - ZERO TOLERANCE FOR RESOURCE ABUSE:** effective Compliance Monitoring and Enforcement (CME unit) establishment and DEAT collaboration is required in all regions to assist existing under-resourced units with monitoring and compliance, and to promote zero tolerance of water abuse. This must be accompanied by well functional IWRM, through redressing authorization backlogs, and completion of groundwater programmes (GRP) and reserve determination to improve understanding of the resource base. Need to develop clear practical guidelines for Water Act Section 27 compliance to facilitate and expedite the licensing process (under KPI 9), provide a clear picture on cumulative demand, and reduce illegal use. This requires consideration of the social impacts of not issuing licenses to commercial farmers, who are a major employment creation sector, especially in the Eastern Cape. Licensing also allows for efficient monitoring of water use, rather than it being 'off the radar'.
- **IMPROVE IWRM AND CATCHMENT MANAGEMENT THROUGH INVESTING IN RESOURCE PROTECTION & ENHANCEMENT:** Reserve determination MUST be attended to as a matter of urgency, with appropriate financing and technical capacity resourcing. The concept of payment for ecosystem services MUST be explored and implemented if we are to ensure long term resource integrity and supply. Our watersheds and upper catchments are in a poor state, especially along the Drakensberg escarpment which releases 70% of our consumable water supply. The WfGD principles clearly provide a mandate and direction for this resource augmentation activity to be implemented, and this should be done in conjunction with civil society and appropriately skilled.
- **EXPLORE APPROPRIATE AND ALTERNATIVE TECHNOLOGY:** Rainwater harvesting tanks, recycling domestic grey water, variations of non-water borne pit latrine design, subterranean run-off storage, etc. This needs to include exploration of attitudes to various technologies, and the sustainability of their delivery through acceptance and maintenance by target groups in the receiving social environment.
- **COLLABORATION , AND CLARIFYING RESPONSIBILITY:** Sector stakeholders including DEAT and DWAF WRM units must participate in regional / provincial MSB Forums for improved collaboration – these are an excellent information sharing, collaboration and networking mechanism between sector stakeholders at regional level. Clear roles for all stakeholders MUST be defined according to the existing legislation and policy, and carried out, with accountability for non-performance being identified through these regional forums, and addressed via relevant lines of departmental management. Collaboration must include improved sector wide accountability for environmental management and compliance.
- **INCREASED SUPPORT FOR WSAs:** Provide clear performance indicators and support programmes new WSPs and WSAs, through strategic support for DPLG and SALGA, in order to meet regulatory requirements. This can be done through improving and simplifying reporting framework for environmental management tracking e.g. proof of water use registration, RoDs where required, EMPs being

applied and monitored, health and hygiene training being effective in association with delivery of rural water and sanitation programmes.

Mainstreaming environmental sustainability will contribute significantly towards meeting the vision for the sector, which remains that of creating a robust and accountable water sector, which successfully meets demand for water security and reliable and effective water services, and enables equitable, environmentally sustainable economic growth and social development in South Africa<sup>17</sup>. The remainder of the Masibambane 3 programme period would do well to actively champion this cause through profiling environmental sustainability via the excellent WfGD framework and through general support across the sector and to local level through the above recommendations.

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<sup>17</sup> DWAf, 2008: Water Sector consolidated report, volume 1 2008.