Partners for Water and Sanitation

Note on project reports

The following report has been prepared by Partners for Water and Sanitation in response to a project Terms of Reference.

The content of the report is based on the opinion of the author(s) and does not necessarily represent the opinions of the wider PfWS partnership, or the project funders.

Partners for Water and Sanitation

Support to South Africa's Department of Water Affairs' (DWA) Water Use Efficiency Directorate: National Water Conservation (WC) and Water Demand Management (WDM) Programme

Post-visit Report

Submitted by:

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Support to South Africa's Department of Water Affairs' (DWA) Water Use Efficiency Directorate: National Water Conservation (WC) and Water Demand Management (WDM) Programme

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1 Introduction

1.1 Objectives

As stated in the project's Terms of Reference developed in August 2009 this project was designed to support the Department for Water Affairs (DWA) Water Use Efficiency (WUE) Directorate to progress their water conservation (WC) and water demand management (WDM) objectives which are given below:

1. To carry out research to determine what represents good practice in implementing WC/WDM in both the international and South African contexts.

2. To come up with a solid well researched WC/WDM national program that will be rolled out to the local government sector in order to meet the WC/WDM targets as set by the DWA Director- General

3. To create country-wide awareness and build capacity around WC/WDM in Local Government Water Service Authorities (WSAs) and Water Service Providers (WSPs).

4. To contribute significantly to improving Water Service Provider sustainability and viability (financial, environmental, social and operational).

5. Assist to create a platform for mutual lesson learning and sharing related to this subject matter amongst municipalities and their partners (for example, the agricultural and Industrial, Mining and Power generation sector partners in the country).

1.2 Deliverables

The deliverables for this support project stated in the Terms of Reference (August 2009) were further refined in the telephone-conference held on 12 February 2010. They are:

1. Provide specialist overview of good international practice in WC/WDM implementation, covering developed and developing countries (a report of up to 10 pages)

2. Participation in a study tour to observe and comment on local practice

3. Inputs on the WC/WDM national program that will be rolled out to all sectors, but specifically:

    - Advise on the development of material for WC/WDM educational and awareness campaigns, with particular emphasis on local government
    - Advise on the training needs of the local government sector to build capacity on WC/WDM
    - Advise on the development of WC/WDM component in the business plans of the WSAs and WSPs (both local government structures)
    - Advise on setting up of WC/WDM targets in local government

1.3 Scope and structure of this report

This report is the 'post-visit report' prepared by the UK support partners following the study tour in South Africa of 15-19 March 2010.

Following this introductory section on objectives and deliverables the main document is split into three sections covering:

- observations made during the study tour
- recommendations – technical, economic, legislative, social
- summary and conclusions.

A reference list an other useful documents and websites can be found in the final section.

2 Observations during study tour

2.1 Background context to water conservation / water demand management programmes

Prior to the study tour, representatives from the Water Use Efficiency (WUE) directorate of the National DWA office made available relevant documentation on the water conservation / water demand management (WC / WDM) programme to the UK Partners. Further details were discussed at the first meeting of the study tour on 15 March 2010 at the DWA offices in Pretoria and throughout the week that followed. Points of particular relevance included:

- South Africa is a water scarce country but the constitution guarantees the right to sufficient water and the Water Services Act (1997) sets out the right to free basic water.
- The proportion of water put into the distribution network that is non-revenue is very high owing to a combination of leakage (30-40%), non-payment of water charges and unauthorised connections / use. This leads to financial sustainability issues for the water service providers.
- The organisation of South Africa's Government in 'spheres' (not 'tiers') leaves national departments such as the DWA with little jurisdiction to direct the activities of the municipality service providers.
- On 11 February 2010 in his State of the Nation speech President Zuma pledged that measures would be put in place to reduce water losses by half by 2014.

2.2 Johannesburg Water

A meeting was held on 16 March 2010 between representatives from Johannesburg Water (JW) National DWA, Regional DWA and the UK Partners. After this meeting at JW's office in Marshalltown, Johannesburg, site visits were made to view pressure reduction schemes at Parktown Dunkeld and Sandton.

Highlights in the WC / WDM activities being undertaken by Johannesburg Water included:

- Two new advanced pressure management schemes that are near completion. These schemes are not the first such projects to be implemented in JW's system; it was reported that there is a 'long history' of pressure management.
- The development of a hostel retrofitting scheme to address internal leaks and inadequate plumbing. It was encouraging to hear that whilst JW are funding the capital costs of the scheme they are looking to the housing authorities to commit to undertake future maintenance of the retrofits. It was not immediately apparent however that these negotiations were being successful.
- A range of WC / WDM measures were being implemented and there was evidence of financial control / monitoring for each scheme.
- The 'Water Warriors' public education campaign that uses 'celebrities' as ambassadors to communicate key water saving messages.

Figure 1: Pressure reduction schemes at Parktown Dunkeld (left) and Sandton (right)

In addition to the highlights listed above it was also encouraging to see strong enthusiasm from the regional DWA staff and a keen interest in being more involved in schemes at a ground level in the future to help drive progress further.

Areas presenting significant **opportunities for improvement** at JW included:

- Although pressure management schemes have been implemented the water savings associated with these interventions were not available. Assessing reductions in water losses achieved by each scheme is essential to demonstrate their cost-benefit (which may prove useful in supporting future scheme proposals) and to ensure the system is fully optimised and no further gains can be made.
- The apparent lack of staff ownership and commitment to the President's water loss reduction target of one half by 2014. It was not obvious that any integrated planning activities were being undertaken to develop a strategy of schemes with appropriate estimated savings that would meet the target.
- It was unclear what commitment exists to active leakage control principles such as district / zonal metering, targeting and having dedicated detection staff.
- The recruitment and retaining of appropriate staff. Specific issues were discussed surrounding the lack of recognised skill sets and defined training programmes for leakage detection technicians.

2.3 Setsoto Municipality

A meeting was held on 17 March 2010 between representatives from Setsoto Municipality, national DWA, regional DWA, consultants (funded by DWA) and the UK Partners. After this meeting at Setsoto Municipaility's office in Ficksburg a site visit was undertaken to view leak repairs in a township.

Highlights in the WC / WDM activities being undertaken by Setsoto Municipality included:

- The completion of a detailed study by consultants (funded by DWA) including an assessment of the current water balance situation, analysis of potential WC / WDM activities and the development of a future strategy.
- A small team of local plumbers have been trained in visible leak repairs to supply pipes and domestic water fittings in the township. This relatively low-cost project can be deemed a success as there were demonstrable water loss reductions.

- A ‘knowledge, attitude and perception’ survey regarding water use issues was carried out by consultants on local residents. This, in combination with the employment of local plumbers, helped achieve high community awareness of the programme of WC / WDM measures.
- The recognition of the President’s water loss reduction target and a desire to achieve it to ‘serve the community’.

Figure 2: Leak repairs in Ficksburg Township

Areas presenting significant **opportunities for improvement** at Setsoto Municipality included:

- Improving in-house staff capacity – some employees commented on possible under-staffing issues and their own lack of knowledge in some areas of their job’s responsibility. Additionally, whilst the study by consultants appears to have been very thorough it was not immediately apparent that adequate knowledge transfer to municipality staff had occurred so that they are likely to remain dependant on external consultants for future assessments and strategy development.
- It was not apparent that significant mapping information on the water distribution network was available in paper or a GIS format. Baseline information systems such as this are inevitably a pre-cursor to enabling WDM schemes such as pressure management projects to be implemented in the future.
- There is currently no active leakage detection team – the only leaks that can be fixed are those which are visible. Improved baseline information and enhanced monitoring of flows within and between defined distribution zones would enable non-visible leaks to be identified.
- Revenue recovery for water services was reported as being very low (20–50%) making the municipality very dependent on external funding sources. The current projects funded by DWA are due to end in 2010 and it was not clear that business plans were in place to secure funding for future schemes. Additionally, there are no budget allocations for the ongoing maintenance of the improved plumbing fittings and supply pipe networks beyond the current DWA project.
- Whilst the small team of plumbers was a positive step, the reasonably simple act of pipe repairs was hindered by a lack of specifically designed tools making working on and around the pipework more difficult. Essentially a one man operation had two or more staff involved and took twice as long as necessary.

2.4 Emfuleni Municipality

On 18 March 2010 representatives from national DWA, WRP Consultants and the UK Partners made a site visit to the Sebokeng / Evaton pressure management scheme.

Highlights in the discussion of this single scheme that has been undertaken for Emfuleni Municipality included:

- The installation of world-class infrastructure with large, measurable water and cost savings for the municipality.
- The maintenance and further optimisation of the assets over a 5-year period to protect initial water loss reductions.
- The involvement of the community (especially schools) in an awareness programme so that the project took a dual approach of applying an engineering solution in conjunction with educational activities.

Figure 3: Sebokeng / Evaton pressure management scheme

Areas presenting significant **opportunities for improvement** at Emfuleni Municipality included:

- Improving the uncertain future of asset ownership by the municipality – the contract with WRP Consultants ends in June 2010 and the municipality needs to make a commitment to take over the future maintenance requirements of the scheme.
- Further reductions in network water losses in the two townships could be made from improved zonal flow monitoring to enable non-visible leaks to be identified and fixed. Such 'active leak detection' measures have not yet been explored.

3 Recommendations

To fulfil the deliverables of this support project this section of the report will make a number of recommendations based on observations made during the study tour.

The recommendations have been split into four categories of interventions (technical, economic, legislative and social) to follow the overall structure of the DWA's WC / WDM programme.

3.1 Technical interventions

T1: Dedicated 'water teams' in each municipality
Current capacity and skills shortages need to be addressed within each municipality. It is recommended that municipalities are encouraged to create dedicated water teams with the correct balance of knowledge and skills to perform their full function in-house. To facilitate this, they will need to develop appropriate recruitment procedures and associated training and mentoring programmes for staff to reduce staff-turnover and increase the retention of qualified employees.

Water teams should look to include staff with skills in water balance assessments, strategy development, data management and monitoring, finding and fixing leaks, business planning and public awareness. Where external consultants are currently used, the municipalities should look to recruit staff to perform these duties in-house. Bringing new employees with strong skill sets into the water teams in this way will help to organically grow capacity though knowledge transfer between employees. If appropriate staff are recruited, trained and motivated to deliver their key goals the additional labour costs may well prove to be cost-neutral through reduced water losses.

In the UK, working for a water company is well regarded. They are typically viewed as businesses that reward their staff well and foster an environment of continued professional development for all employees regardless of their position within the organisational structure.

Water companies in the UK, such as Wessex Water, typically have organisational structures that include Water Resources Planning and Leakage teams responsible for areas including those listed below:

TEAM	WATER RESOURCES PLANNING	LEAKAGE
KEY RESPONSIBILITIES	• Water balance assessments • Data management and monitoring • Supply demand balance forecasting • Business planning and strategy development • Water efficiency customer awareness and information • Regulatory reporting on activities	• Active leakage control • Pressure control analysis • Pressure control maintenance • Annual leakage budget forecasting • Leakage strategy delivery • Repair and maintenance • Detection and repair response time service level agreements • Flow monitoring / data collection

T2: Additional capacity required in DWA (Water Use Efficiency directorate in particular)
Observations made during the study tour and recommendations presented in this report suggest there is a greater role that the DWA (WUE) could play in driving progress in national and municipality WC / WDM programmes. Current capacity in the national and regional teams however is inadequate to enable their sphere of activity to be expanded further than it already reaches. Great benefits could be gained if the DWA are facilitated to increase their capacity to perform from two particular additional roles (which are described more fully in later sections):

1. working more closely with municipalities on their integrated development plans

2. establishing statutory reporting requirements for municipalities on their WC / WDM activities to the DWA

It is recommended that additional resources are made available to expand the staffing numbers of the DWA (WUE) to grow their capacity to more effectively drive the WC / WDM programme.

T3: The establishment or strengthening of knowledge sharing forums for municipality and DWA staff
Observations made during the study tour suggested that knowledge and skills in areas of relevance to WC / WDM are not at the same level in each municipality. Each municipality that was visited, however, appeared to have developed skills, knowledge and experience in some specialist areas. To help build capacity it is recommended that knowledge sharing forums are established for staff from each municipality to meet with their counterparts in other municipalities on a regular basis to discuss common issues and share ideas. If the framework for such a forum already exists it should perhaps be strengthened to involve more municipalities.

Given the number of municipalities and geographical areas covered it would likely be most appropriate for the forums to function within regions / provinces. Inevitably each regional forum will require some small administrative duties (e.g. develop and maintain email distribution lists and arrange regular meetings), ideally these should be allocated to individual 'champions' to prevent (at least initially) any budget or 'forum membership fees' to be required.

Similarly, it may be useful for DWA staff to develop their own knowledge sharing forums to help build capacity within their own organisation.

The UK water industry benefits from a small organisation (of 11 full time members of staff) known as **Water UK**. The association is funded by its water company members to provide a framework for the water industry to engage with government, regulators, stakeholder organisations and the public. It also represents water companies at a national and European level. Water UK's core objectives are centred on developing "sustainable water policy – actions and solutions that create lasting benefit by integrating economic, environmental and social objectives".

Water UK administrates over 30 specialist forums for staff in different water companies to share knowledge, ideas and ask advice from each other using either the email distribution list or at the quarterly conference meetings. The framework provided by Water UK helps water company members to identify gaps in knowledge areas and then assists in the co-ordination of necessary actions to address the gaps. Current forums include: Water Efficiency Network, Water Resources Network, Leakage Network and Metering Network.

Another UK organisation that enables water companies and their regulators to work together to share ideas and address knowledge gaps is **UKWIR** (UK Water Industry Research). UKWIR was set up by the UK water industry in 1993 to provide a framework for the procurement of a common research programme. UKWIR's members comprise 24 water and sewerage undertakers in England and Wales, Scotland and Northern Ireland. Over the last 15 years, UKWIR have facilitated collaborative research to the value of £80m resulting in over 750 reports delivered to members.

Work is often carried out in collaboration with government departments and regulators and some work is also done in collaboration with research organisations internationally. The majority of work is put out to open tender to a wide range of companies, academic institutions and other organisations in the UK and overseas.

The research programme is currently divided into the following topic areas: drinking water quality and health; toxicology; water resources; climate change; wastewater treatment and sewerage; sewage sludge; water mains and services; sewerage; leakage and metering; as well as customer and regulatory issues.

T4: Development of baseline water information held by municipalities
Municipalities should be encouraged to improve the quality of their baseline water distribution information. The lack of accurate network maps or GIS and limited use detailed flow monitoring zones appears to be currently restricting accurate water balance assessments and the advancement of pressure control activities and active leak detection in some areas.

It is recommended that the DWA lobbies appropriate funding bodies to favourably recognise municipality business plans that propose investments to strengthen the quality of essential baseline information.

3.2 Economic interventions

E1: Improved co-ordination between municipality business planning and WC / WDM strategic objectives with greater involvement and guidance from DWA
The current municipality Integrated Development Planning (IDP) process does not appear to be well co-ordinated with national WC / WDM strategic objectives. It is recommended that the DWA strengthen their involvement in the IDP process and contribute to each phase of the Plan's formation. Municipalities would undoubtedly benefit from greater guidance from the DWA on appropriate visions, development objectives, development strategies and specific projects that address WC / WDM issues and work towards, amongst other objectives, the President's water loss reduction target.

In addition to greater direct involvement with the municipalities, it is recommended that the DWA lobby other Government offices such as the Department of Provincial and Local Government (DPLG) and Department of National Treasury (DNT) to raise awareness of the importance of WC / WDM and ways in which they should seek to ensure municipalities incorporate appropriate strategies in their business plans. A key issue that requires attention and possible policy reform is the availability of funding for municipality operating budgets. Financing capital infrastructure projects, such as pressure reduction schemes, appears to be made possible through a variety of budgetary sources including the DPLG's Municipal Infrastructure Grants (MIG), the DWA's Water Services Projects or pubic-private partnerships. Municipality operating budgets for activities such as active leak detection or the ongoing maintenance of assets however are constrained by the income generated by service charges and property rates. In municipalities where the recovery of service charges is very low and the total operating budget very stretched it is inevitable that the allocation of operating budgets for WC / WDM activities will be deemed of lesser importance than some other services the municipality is responsible for delivering. It is recommended that the DWA works with DPLG and DNT to find ways of assisting municipalities to finance ring-fenced operating budgets for WC / WDM activities and that appropriate auditing measures are implemented to ensure the budget is used as intended by their IDP.

In the UK, national objectives for WC / WDM set by relevant Government departments are fairly well aligned with water company business planning processes through a range of regulatory mechanisms. The privatisation of the UK water industry in 1989 led to the activities of UK water companies becoming heavily regulated. The regulatory bodies and their key areas of responsibility are outlined Table 1.

Table 1: UK water industry regulatory bodies and their remit

Regulator	Remit
Office of Water Services (Ofwat)	• Economic regulator. • Reviews company Business Plans and sets maximum price limits for customer bills that allow companies to finance and fulfil their required functions. • Monitors and audits that outputs specified for each company in the final stage of the business planning process (known as the determination) are met. • Can impose financial penalties on companies that do meet required outputs / targets.
Department for Environment, Food and Rural Affairs (Defra)	• Government department which sets the overall policy framework. • Sets standards and drafts legislation. • Decides whether company Water Resources Management Plans are acceptable or whether a public inquiry or inquest is needed.
Environment Agency (EA)	• Environmental regulator. • Principal adviser to the Government on the environment; leading public body for protecting and improving the environment. • Reviews water company Water Resources Management Plans (WRMP). Advisor to Defra on acceptability of company WRMPs and whether guidelines have been followed.
Consumer Council for Water	• Represents 'the voice of the customer'. • Handles water company customer complaints; represents consumers in policy-making process

Drinking Water Inspectorate	• Water quality regulator • Drinking water quality monitoring and enforcement.
European Union	• Sets European water, wastewater and environmental legislation / standards.

Every 5 years Water Resource Management Plans (WRMP) are produced by each water company in order to fulfil their statutory obligations to their regulators the Environment Agency (EA) and the Department for Environment, Food and Rural Affairs (Defra). The WRMP is a key (and required) component in the development of each company's Business Plan which is also a statutory requirement for a regulatory body - Ofwat, the economic regulator.

The development of a WRMP follows a methodology developed by UKWIR and approved by the EA, Defra and Ofwat. The methodology known as the Economics of Balancing Supply and Demand (EBSD) offers a consistent process for each company to develop cost effective future strategies. The basic EBSD / water resources planning process is explained further in Wessex Water's WRMP (see appendix / references).

The EA also provide a set of Water Resource Planning Guidelines and require that a standard set of Water Resource Planning tables (MS Excel spreadsheets) are completed by each company.

One of Wessex Water's technical appendices to the WRMP is the Water Efficiency Strategy report. It is not produced as a statutory obligation but helps to clearly set out and communicate the future strategy to regulators and other stakeholders (see appendix / references).

3.3 Legislative interventions

L1: Statutory duty for municipalities to report annually on WC / WDM activities to DWA
One of the requested deliverables from this support project was to offer advice on setting up WC / WDM targets in local government. Observations made during the study tour such as the lack of staff capacity, the lack of integrated water demand management planning and a lack of ownership and acceptance of the President's water loss reduction target, suggest that municipalities may not currently be in a position that would make target setting appropriate.

Any target should always be SMART: Specific, Measurable, Achievable, Realistic and Time-bound. Meeting these criteria within the WC / WDM context in an appropriate manner currently seems unfeasible.

It is recommended, however, that municipalities are given an annual statutory duty to **report on** their WC / WDM activities to the DWA. Activity reporting in this way could be used as a pre-cursor to future target setting. Once a couple of years of data have been provided by municipalities, the DWA will be better informed to set appropriate targets.

The activity report should be designed in a standard format suitable for use by all municipalities. It should capture key information on activities undertaken over the pervious 12-month period such as:

- Pressure reduction schemes – with estimates of achieved water loss reductions.
- Retrofitting schemes – with estimates of achieved water loss reductions and numbers of households involved.
- Numbers of domestic meters installed.

- Leak repair team activities – number of staff in the team, number of leaks repaired.
- Educational activities – such as numbers of people attending public meetings on water conservation, number of visits made to schools to raise awareness.
- Improvements made to baseline information – such as numbers of meters installed to improve zonal flow monitoring

It is recommended that the DWA produce an annual summary report outlining common themes and highlighting any municipalities that appear to be performing particularly well with regard to WC / WDM. Ideally, at least some municipalities would be audited to ensure the accuracy of the information they provide.

The UK water industry has a long history of regulatory reporting stemming from the privatisation of the sector in 1989. All water companies have a statutory duty to make an annual return to the economic regulator, Ofwat, covering their activities in the previous financial year. Owing to the time of year it is completed and audited it is known throughout the industry as the "June Return". Water companies are required to present information on a variety of areas including:

- Key outputs (level of service indicators) – such as promoting the efficient use of water, water use restrictions and supply interruptions.
- Non-financial measures – such as numbers of new domestic meters installed, volumes of water abstracted and delivered to customers, volumes of leakage.
- Regulatory accounts and financial measures – such as profit and loss accounts, balance sheets, operating costs and asset maintenance costs.

UK water companies benefit from having appropriate capacity in terms of staff resources and data management systems to enable such information requirements to be met each year. The accuracy of information presented by each water company in their regulatory returns is assessed every year by independent auditors.

Two key regulatory reporting and target areas in the UK water industry that are relevant to WC / WDM are: (1) promoting water efficiency and (2) leakage and its economic level.

(1) As a condition of their licence to provide water, every UK water company has a statutory duty to promote the efficient use of water to its customers. Compliance with this responsibility has been monitored since 1998 through activity reporting in 'Table 1 of the June Return'. Information required to complete Table 1 includes numbers of cistern displacement devices distributed, garden water butt sales generated, domestic and commercial water audits undertaken, toilet and tap retrofits and household supply pipes repaired or replaced. A commentary describing how each of these activities has been undertaken is also required.

Starting in 2010 Ofwat is introducing water efficiency targets for all water companies. Each company's individual target is based upon saving one litre of water per property per day through approved activities. The targets were initially introduced as non-mandatory to give companies 18-months to develop appropriate strategies to meet the target and work collaboratively (via UKWIR) with Ofwat to agree appropriate assumptions for the number of litres saved by a range of potential activities.

(2) At the UK's 'Water Summit' in 1997 Government raised concerns at the high levels of leakage reported by some water companies. The conference led to many regulatory changes in the water industry not least the setting of mandatory leakage targets for all companies. Each company's leakage target is set against their Economic Level of Leakage (ELL) which is the level of leakage at which any further reduction would cost more than the benefit derived from the water saving. On an annual basis each company reports on its performance against its ELL target in Table 10 of the June Return.

3.4 Social interventions

S1: National water conservation awareness campaign in partnership with large business organisations

Public awareness campaigns often have the greatest impact if rolled out nationally rather than locally. Although some municipalities appear to be making good progress in public engagement at a local level a more far reaching campaign could be delivered with national DWA backing and co-ordination. Many large business organisations have significant corporate social responsibility (CSR) programmes and may be interested in forming a partnership with DWA to deliver an awareness campaign to help meet some of their CSR objectives and improve or maintain their corporate branding.

Similar partnerships between Government water or environmental departments and commercial enterprises have been successfully applied in other countries. The UAE, for example, has launched a 'Water Heroes' awareness campaign as a partnership between The Environment Agency of UAE, Abu Dhabi Media Company, WWF and HSBC Bank.

Such partnerships should be arranged so that DWA focus on developing appropriate information and messages for the campaign and the partner business organisation offer their capacity and expertise in advertising and media relations. Funding from partner businesses could make it possible to deliver the awareness campaign with high exposure using media channels that would not be available for use within existing municipality or DWA budgets.

To develop a shortlist of businesses to approach as potential partners it will be important develop an understanding of which South African enterprises have environmental and ethical credentials that it would be appropriate for the DWA to align themselves with.

As a starting point, a simple internet search revealed the following two businesses that may be suitable and interested in developing a partnership with DWA on water conservation awareness:

- **SABMiller plc** have a clear existing commitment to water issues evidenced by:
  - The announcement of World Water Day on 22 March 2010 on their website homepage.
  - The 'sustainable development' section of their website contains position statements on water use efficiency.
  - Use of the media 'tag-line': "making more beer but using less water".
- **Standard Bank of South Africa** has a developed CSR programme which is centred around 3 key areas: Education, Health & Wellness and Enterprise Development. It is possible that this organisation would be interested in aligning a water conservation awareness campaign with their activities on education and health & wellness.

S2: National programme of water conservation education in schools
The national DWA should work to develop their relationship with the Department for Education and lobby for water conservation education to be a compulsory element of the curriculum. Delivery of such an awareness programme could be incorporated into primary science or geography based lessons on the water cycle.

In the UK, most water companies employ Education Advisors who visit schools and deliver classes throughout the academic year. Although the material delivered in each class may vary depending on the age group and particular topic focus, water efficiency messages are nearly always touched upon. Whilst the out-reach of such water industry based education programmes perhaps do not have a significant impact they do serve to supplement compulsory the National Curriculum based education on how humans interact with their environment and issues of sustainability.

Recently at Wessex Water, our water efficiency specialists worked with our educational staff to develop an educational pack suitable for 7 – 11 year olds. The pack can be used in the classroom by teachers and also contains materials that can be taken home to spread the messages to the whole family. Included within the pack are a water use check-sheet, a booklet containing facts, water saving tips and games and a set of stickers and bookmarks with water efficiency messages.

It is recommended that standard educational materials are developed for water conservation with DWA backing. The development of such materials could also be embarked on as a partnership between national DWA and business organisations to help alleviate funding and capacity issues. As described in Recommendation S1, commercial enterprises may welcome the opportunity to meet their CSR objectives.

An increasingly successful initiative being applied in the UK is the Eco-Schools award programme. Eco-Schools is one of five environmental education programmes run internationally by the Foundation for Environmental Education (FEE). Nearly 14,000 schools in the UK have registered for the programme which provides advice and support to help them address a variety of environmental themes including water use. Schools are encouraged to reduce their water consumption by assessing how much they use every day by looking at their meter, identifying leaks and drips, adapting the flow rate on taps and reducing the amount of water used in toilets. They are also encouraged to calculate the associated reductions in water charges arising from reduced water use.

There are 46 countries around the world that run the Eco-Schools programme, linking more than 40,000 schools and 8 million children. In 2003 the programme was launched in South Africa with support from by WWF-SA and the Wildlife and Environment Society of South Africa (WESSA), endorsement from the Department of Education and funding from TetraPak.

The South African initiative differs significantly from the programmes run in Europe, in that it has been re-orientated to focus on strengthening the national curriculum and supporting its implementation, thereby supporting educators and their capacity development as well.

It is recommended that if links between the DWA and the Eco-Schools programme in South Africa do not already exist, the DWA should ask to become involved so they can use the existing Eco-Schools framework as a vehicle for embedding water conservation and demand management education and awareness in school activities.

4 Summary of recommendations

Summary list of recommendations:

Technical
T1: Dedicated 'water teams' in each municipality
T2: Additional capacity required in DWA (Water Use Efficiency directorate in particular)
T3: The establishment or strengthening of knowledge sharing forums for municipality and DWA staff

Economic
E1: Improved co-ordination between municipality business planning and WC / WDM strategic objectives with greater involvement and guidance from DWA

Legislative
L1: Statutory duty for municipalities to report annually on WC / WDM activities to DWA

Social
S1: National water conservation awareness campaign in partnership with large business organisations
S2: National programme of water conservation education in schools

5 References and other useful documents and websites

Wessex water documents

Water resources management plan – draft plan for consultation (2008) available here: http://www.wessexwater.co.uk/water-and-sewerage/threecol.aspx?id=578
Final plan to be published and available in late April 2010.

Water efficiency strategy (2010) – not currently available online, can be sent as attachment.

Water efficiency website – new site under development; to be launched April 2010).
Strategic alliance with water saving device retailer "Save Water Save Money":
www.wessexwatershop.co.uk

International examples of community engagement / education

Egypt: public awareness on water scarcity - http://ces.aed.org/pdfs/Egypt1.pdf

United Arab Emirates "heroes" campaign: http://water.heroesoftheuae.ae/en

Eco-schools Foundation for Environmental Education (FEE) international website:
http://www.eco-schools.org./

Eco-schools South African website (administrated though WESSA):
http://www.wessa.org.za/index.php/Programs/Eco-Schools.html

Knowledge sharing forums

International Water Association (IWA): www.iwahq.org/

4th Global Leakage Summit 2010: http://www.global-leakage-summit-2010.com/

Water UK: http://www.water.org.uk/

UK Water Industry Research: http://www.ukwir.org/site/web/content/home

UK water industry methodologies

Economics of Balancing Supply and Demand (UKWIR report)

Environment Agency water resources planning guidelines:
http://www.environment-agency.gov.uk/business/sectors/39687.aspx