

# STRATEGIC WATER PARTNERS NETWORK SOUTH AFRICA



**CREATING SHARED VALUE THROUGH  
INNOVATIVE PARTNERSHIPS**



Strategic Water Partners Network  
SOUTH AFRICA



water affairs  
Department:  
Water Affairs  
REPUBLIC OF SOUTH AFRICA



2030  
Water  
Resources  
Group



# Shared value through innovative partnerships

Minister Edna Molewa - Minister of Water and Environmental Affairs

## THE STRATEGIC WATER PARTNERS NETWORK –

South Africa (SWPN-SA) is one of South Africa's most innovative public and private sector partnerships. The objective of the SWPN-SA is to help close South Africa's projected water gap in 2030 through collaboration and partnership projects with strategic national impact. In 2013, I am excited to see a committed group of stakeholders comprising officials from the Department of Water Affairs (DWA) and representatives from the private sector turn into a functional team that is making progress which would not have been possible without this dynamic partnership. The dedication SWPN-SA members have shown reflects South Africa's multi-stakeholder understanding of our water challenge and a conviction to resolve this together, making a tangible difference for our people, our economy, our environment and our country.

## Turning commitment into action

Since its formation in 2011, the SWPN-SA has organised itself into working groups which are mapping, charting and implementing projects that strengthen and support water management strategy and practice. Within the network, innovative ideas are being developed that leverage the strength of the DWA and the private sector – a key cornerstone of the innovation of this structure. Through this partnership the DWA and the private sector are both gaining shared value. As a result of consolidating leadership, resources and technical capability, this partnership is yielding early and tangible results.

## Partnership and its integration into policy

In the second National Water Resource Strategy, the DWA states that businesses that are dependent on water can no longer take this resource for granted regardless of the industry or sector they operate in. Decreasing water availability and reduced reliability of supply will increase competition between businesses and local communities for this resource. In this context, government and the private sector face increasing pressure to work together to forge new types of partnerships to address the water risks and challenges facing the country.

The DWA has identified strategic priorities which are explicit in defining the role of the SWPN-SA. These priorities are crucial to freeing up fresh water and identifying and securing new water sources for the future. The SWPN-SA is an identified instrument of the National Water Resource Strategy for South Africa and has a high priority in government to help progress and implement the strategy. To this end, officials from the DWA have been active in the SWPN-SA to ensure alignment with the strategy. This engagement reflects the over-arching support that the SWPN-SA has.



## Partnerships for water security and development

The private sector and the DWA are working on securing new water sources for South Africans – the public first and then for business and industry. As the SWPN-SA, we consider securing new water sources as a race against time. We have to succeed and, therefore, our resolve is unquestionable. The implementation of the projects identified will be a telling judgment of the effectiveness of the partnership and will provide a new mechanism for public-private engagement.

I would like to acknowledge the contribution of all SWPN-SA members who have demonstrated leadership, and committed time, expertise and resources towards making the SWPN-SA a reality. The continuing support of pioneer investors – including SABMiller, who's initial investment kick-started the SWPN-SA – remains crucial to the partnership. Investors who have made contributions to the SWPN-SA in 2013 include Anglo American, BHP Billiton, Eskom Holdings SOC, Nestlé, Sasol, the South African Breweries (SAB) and 2030 Water Resources Group (2030 WRG) – most of whom were initial partners. The NEPAD Business Foundation's role as secretariat has proved important and has facilitated continued dialogue amongst members within the working groups on projects.

Our partnership with the 2030 WRG helped to jointly conceive the SWPN-SA. Working with pioneer companies and with support from the 2030 WRG and World Economic Forum we realised the SWPN-SA. These role players all continue to be active in the network. In my capacity as a member of the 2030 WRG Governing Council, I hope to share our SWPN-SA experience and the lessons we have learned with other countries. The SWPN-SA already shares what has been learned with other networks globally through 2030 WRG country partnerships.

Most importantly, I highly commend the diligence of SWPN-SA members and their continued efforts to commit their organisations to this project. Ongoing co-operation and partnership will be essential in taking the SWPN-SA to the next level.



# Changing the water situation in a new collaboration

Message from the Co-Chairs: **Trevor Balzer** (Acting Director-General, Department of Water Affairs) and **Andre Fourie** (Head of Sustainable Development at SAB)

### THE SWPN-SA IS A UNIQUE INITIATIVE WHICH

we are honoured and excited to co-chair. This forum represents public and private sector interests on a single platform, evolving a new form of partnership to resolve South Africa's water challenges into the future. The SWPN-SA functions on the understanding that only through active collaboration can both sectors gain shared value and unlock progressive water projects.

Notably, the progress that has been made by the SWPN-SA to date is testament to the potential that partnerships have in addressing South Africa's water challenges.

South Africa's water challenges are real and tangible. According to a study by the 2030 Water Resources Group, South Africa is facing a 17% demand-supply gap by 2030. The main consumers of water have traditionally been the agriculture, manufacturing, energy, mining and residential sectors. Collectively, these groups contribute the greatest portion to Gross Domestic Product (GDP), making their use of water a critical part of South Africa's economic ecosystem.

### Water for South Africa

Water is a developmental commodity and government prioritises distribution and consumption in a manner which is socially just. The consumption of water by

the private sector is important for South Africa's socio-economic development, while residential consumption assures decent living conditions. It is for these primary reasons that the public and private sector have taken on such an ambitious collaboration. It is also for these reasons that we cannot afford to fail.

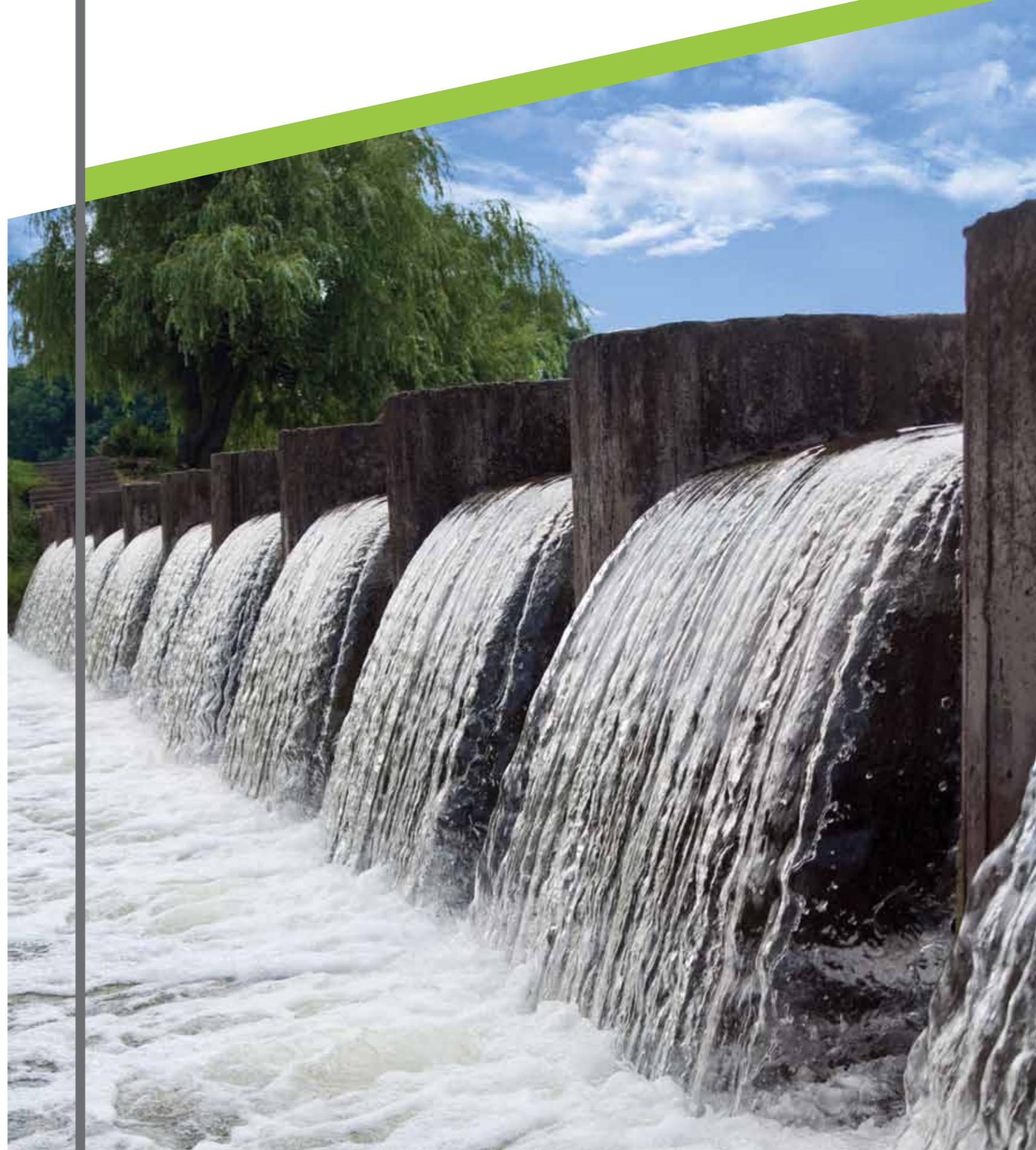
### Action in partnership

The SWPN-SA has structured members into dedicated working groups who have exchanged ideas and are developing projects. Among these projects are those that aim to conserve water, reduce leakages, expand the capacity of local municipalities, and provide the private sector with incentives to further expand effluent treatment and re-use initiatives they are already undertaking. The initiatives are based on a global developmental approach which is cognisant of the needs and expectations of water users.

With greater and more effective use of public and private sector resources and relationships, we believe that our impact will be felt at the level where the greatest challenges are for both government and private sector. This partnership is a way to chart new mechanisms that are more responsive to the challenges we face. In 2013 and beyond, we foresee the partnership implementing many projects that members have identified. Our future is secured only if our partnerships succeed.

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# Reviewing our challenges in the water sector

## IN THE INAUGURAL SWPN-SA PUBLICATION

titled 'Closing the water gap by 2030', the SWPN-SA presented South Africa's global water challenge: a 17% water demand-supply gap by 2030. In 2012, the SWPN-SA commissioned a review of challenges in three priority areas: effluent and wastewater treatment management, water efficiency and leakage reduction, and agriculture and irrigation water use. This internal study informed the priority areas of intervention for the partnership to explore. A number of critical areas for action were identified in the thematic working areas.

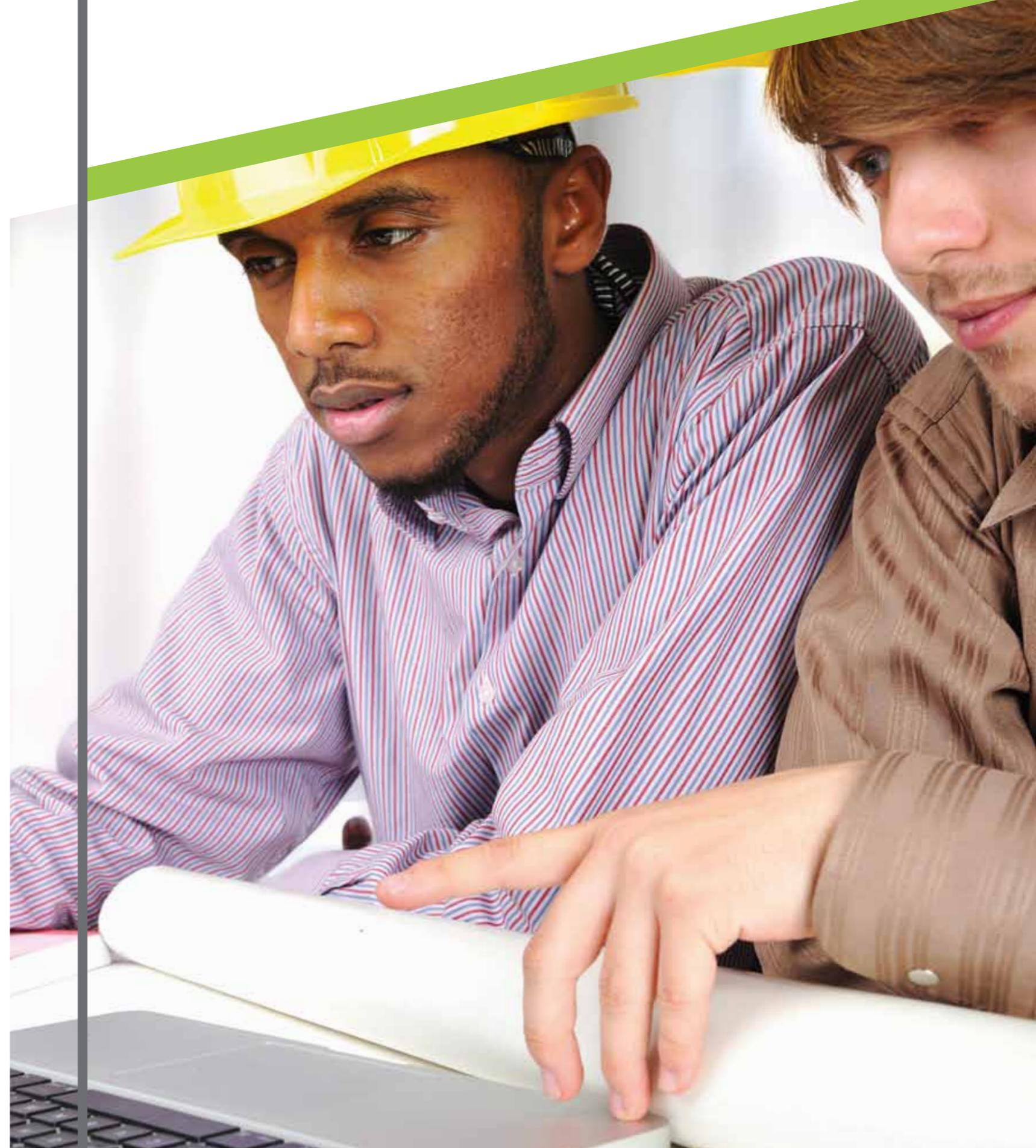
The Department of Water Affairs (DWA) released the second draft National Water Resource Strategy (NWRS 2) in October 2012. This strategy reviews the state of water in South Africa: challenges, solutions and priority actions the Department of Water Affairs intends to undertake. The strategy identifies key policy and structural changes which would effectively assure success in South Africa's efforts across sectors to close the water demand-supply gap.

A determining factor for the success of the strategy is the ability of government to work effectively with different stakeholders. The private sector and, specifically, the SWPN-SA were mentioned as priority partners and stakeholders in the water sector. It remains important to broaden the participation of civil society and environmental NGOs in the initiative.

## Partnerships – A core part of strategy

The priority actions identified in the NWRS 2 will be driven by a range of players across the spectrum, with the DWA playing a critical co-ordinating role, as well as monitoring implementation.

The SWPN-SA is an active group of private sector companies, DWA representatives and other stakeholders, including civil society organisations and municipalities, committed to delivering water projects that reduce the water demand-supply gap. There are many platforms where the DWA and the private sector engage both formally and informally. As a dedicated forum for collaboration and constructive engagement, the SWPN-SA is a joint action platform that turns dialogue into collaborative projects meant to refresh modalities of public-private relations. The SWPN-SA has built the key foundations for a long-term public-private partnership.



# Building on the strengths of the public and private sectors

## IN LIGHT OF THE DIAGNOSTIC WATER BALANCE

study highlighted in the 'Closing the Water Gap by 2030 – SWPN-SA, 2011' publication, there is great potential for the SWPN-SA to create shared value. The ultimate focus is on eliminating the projected gap between water supply and demand in South Africa by 2030, and sooner in some catchments. The SWPN-SA is composed of representatives from private sector companies, government and civil society, and water sector experts.

## Why SWPN-SA

The purpose of the SWPN-SA is to identify key water projects that could have a positive impact on the country's water balance over the coming decades. The SWPN-SA is an informal but carefully structured institutional innovation to use the best of the strengths of the public and private sectors. It does not replace mandated organisations that have important roles to play in policy and regulatory engagements between government and the private sector. It is explicitly a platform for co-operation between the Department of Water Affairs and the private sector. There are other forums where the private sector can be critical of government and exert policy influence. The SWPN-SA is aimed at constructive dialogue that develops water sector projects with substantial potential impact to be implemented jointly by the public and private sectors.

This platform assures speed and resolute decision making – particularly in the project conceptualisation phase. The SWPN-SA also enhances buy-in from both public and private sectors, thereby fast-tracking implementation.

## Thematic working groups

The SWPN-SA is divided into three working groups based on three priority areas identified: effluent and wastewater management, water efficiency and leakage reduction, and agriculture and supply chain.

These working groups discuss and evaluate project ideas which have the greatest potential impact within the framework of the problem statement identified. The project ideas merge public and private sector capacity, interests and competence.

The private sector in South Africa recognises the increasing water security risk. Taking appropriate action will reduce the associated risk exposure. There are several aspects to this, depending on whether water risk impacts on the company or its supply chain. Furthermore, an important consideration is whether the management of the risk is within the direct control of the company or lies outside its sphere of influence. The SWPN-SA recognises the need for each private company to engage its own unique water

challenges and to address shared water risks through collaboration with others. However, the SWPN-SA is currently not geared to deal with the specific water interests of individual companies. It is aimed at the catchment or national interest and engaging on key water issues impacting on the future of the country rather than the water risks in particular sectors.

The SWPN-SA recognises the global challenge to water security while being focused on dealing with priority water challenges in South Africa. It firmly believes that partnership and collective action are critical pillars for addressing the projected water gap between supply and demand in the country.





# Effluent and wastewater management

“The Department of Water Affairs has been extensively **engaging with business** to create private/public partnership platforms for business to support and invest in municipal infrastructure to reduce water risks.”

Trevor Manuel, Minister in the Presidency for National Planning speaking at the National Development Plan launch

## RE-USE TREATED EFFLUENT AND WASTEWATER

is an important priority in freeing up fresh water, securing water, and broadens the range of alternate sources for water supply.

In evaluating urban effluent, lack of information availability and asset registries were clear limitations. Within metropolitan areas, conveyance systems (used to transport urban effluent) are in bad repair and recently installed infrastructure is in some instances of sub-standard quality (CSIR/July 2007). Furthermore, a large number of wastewater treatment systems are not meeting effluent discharge standards due to inadequate knowledge and under-investment in infrastructure. Additionally, municipal political leaders do not prioritise wastewater management systems.

## Re-using effluent and wastewater

According to the NWRS 2, in 2000, re-use of water (mainly water flowing back to rivers) accounted for 14% of all available water. The return flows of urban areas to rivers are about 50% of the water being used. Re-use could

Mines operating in the Witbank area are required to manage excess mine water through treatment and discharge into the streams to ensure an acid-neutral effluent. As the absorptive capacity of the streams is generally lower than that required to absorb the full mine discharge, mining partners collaborated to build a desalination plant as a joint venture between Anglo American and BHP Billiton. More plants have been planned in the short term.

The plant uses membrane technology in a reverse osmosis process, modified to achieve 99% efficiency in salt removal. The plant accepts effluent from five mines and treats it to potable water standards. From there, the water is supplied to local municipalities.

This is one example of collective action that the SWPN-SA seeks to expand. Other examples are the Steve Tshwete regional scheme, Highveld Water Balance and Krielmatla regional scheme.



be significantly increased with re-use of return flows in coastal cities, where it would otherwise drain into the sea. The DWA completed a Water Reconciliation Strategy for the Olifants River Catchment in 2011 showing that the system is projected to run into a water deficit by 2017. The Reconciliation Strategy proposes to implement projects both to reduce the water requirements and increase the water resources yield. One of the key water reconciliation strategies is the development and utilisation of water from mining operations. Estimates show that mine water is expected to contribute 11% in fulfilling future water requirements in the catchment.

Effluent re-use is not common in South Africa, except insofar as most of the municipalities in Gauteng use water abstracted from rivers in the Integrated Vaal River System, whose base flow is maintained by discharge from wastewater treatment works.

Progress is evident, such as the Witbank municipality which has supplemented its water supply with treated wastewater from the mines. Re-use is therefore becoming more acceptable and feasible due to increasing freshwater shortages which necessitate it, improved water purification technology and decreasing water treatment costs.

Effluent management is the responsibility of Water Service Authorities (WSAs), who face financial and capacity challenges. The regulatory environment allows WSAs to delegate the management of effluent to a water service provider, but this has not been done extensively in South Africa although it has some potential to address the challenges of under-investment, old technology and project management skills.

South Africa has the potential to treat and re-use more effluent and wastewater at potable water standard. For municipalities within the proximity of large private sector companies who have to treat water, this could be a mechanism to diversify the water supply mix in that area.

## Water policy, Institutional arrangements and pricing models for re-use of treated effluent

The mining sector, while it is a significant contributor to the country's economy, contributes to water pollution and generates excess mine water and acid mine drainage with high contaminant loads. Mining companies in South Africa are increasingly treating effluent before releasing it into the municipal water system, streams and rivers.

### Project opportunity

Mine water's treatment can be expanded or improved to produce more water that meets potable water standards. The benefit of this is three-fold:

- i) The amount of pollutants entering the environment are reduced
- ii) The amount of clean water required for dilution of pollutants is reduced and
- iii) Additional potable water is made available in the region.

Treating mine water to any "fit for use" quality is technically feasible and becoming more financially viable through rapid technological development. South Africa also has some reference installations that demonstrate the successful use of treated mine water for domestic water supply. In addition, using treated mine water to narrow the water imbalance on a catchment level and as part of the catchment level planning and reconciliation is a new concept. It may require the development of new institutional and financial models to ensure administrative and political oversight while using private finance and management skills. It remains important that local communities experience direct benefits from such new developments. This becomes business "un-usual", requiring crossing new institutional, organisational, contractual and disciplinary boundaries.

### SWPN-SA action

The Effluent and Wastewater Management working group has initiated this business "un-usual" project with the objective of turning mine water into the resource that it really is. DWA completed a Water Reconciliation Strategy for the Olifants River Catchment (a key mining area) in 2011 which shows that the system is projected to run into a water deficit by 2017.

A project by the SWPN-SA has brought together water quality experts from government, power generation and mining companies with finance experts to define and unblock constraints that limit the scaling up and replication of treatment and re-use of excess mine water and acid mine drainage (AMD), so that optimal policy changes, institutional arrangements and pricing models can be put in place in the future. This process brought together, for the first time, representatives from all sectors to debate and identify key constraints and jointly seek collaborative solutions. A significant result of this project is an agreed set of top challenges and recommendations for enhanced re-use of mine water to close the water gap.

### SWPN-SA impact

A marginal cost analysis of future water supply schemes makes the treatment of mine water a viable option for water supply that could make use of funds from industry and government.

Ultimately, this project is expected to lead to greater sustainable wastewater treatment and re-use and the release of substantial water back into the catchment. **Mine water could contribute about 11% of the water required to close the gap in the Olifants River catchment mentioned above.** The water gap-closing initiatives will have value for mining companies, industry, municipalities, government and citizens in the vicinity of mining operations.



# Water efficiency and leakage reduction

**“South Africa is not a water rich country. Yet we still lose a lot of water through leaking pipes and inadequate infrastructure. We will be putting in place measures to reduce our water loss by half by 2014”**

South African President Jacob Zuma, 2010 State of the Nation Address

## WATER USE IN THE URBAN SECTOR, INCLUDING

both domestic and industrial use, is estimated at about 25% of total consumption in South Africa, yet within that water consumption, studies show losses of up to 25%.

According to the NWRS 2, South Africa is faced with lack of proper operation and maintenance of infrastructure throughout the water sector, in particular for wastewater treatment plants, reticulation systems and water resources infrastructure. It is a growing concern that there is too little provision for the replacement or refurbishment of aging infrastructure.

### Using water better

Increasing water use efficiency in agriculture, industry and households will have a positive impact on South Africa's water security. Success in the implementation

of water conservation and water demand management measures by all water consuming sectors is essential if water restrictions are to be avoided. Municipalities can address problems by curbing losses due to leaking distribution systems.

Unsustainable water management translates into risks to human health, service delivery, the environment, employment and social and political stability. The NWRS-2 introduces business principles that will form the foundation of sustainable water resources and infrastructure management. One of these principles is striving for efficiency from source to tap and back – it is the first principle. This principle implies that the value chain from river or groundwater to wastewater should be considered in its totality when making water resource management decisions. The project idea being evaluated by the SWPN-SA is aligned to this first principle.

## “No drop” – Incentivising and facilitating municipalities to reduce water leaks

In addition to the long-term water gap expected in 2030, short-term water shortages have been forecast in some key water systems of the country. Long-term supply augmentation projects typically require more than 10 years to develop and cannot resolve the short-term gap. In addition, South Africa is a water scarce country and water conservation and water demand management (WCWDM) has to be implemented in order to balance short as well as longer term supply and demand. WCWDM initiatives are key, which is the focus of the projects being developed by the water efficiency and leak reduction working group. The main initiative being pursued is a water use efficiency rating system – the **No drop**, to encourage performance excellence through rewards and penalties.

### Project opportunity

A study by the Water Research Commission of South Africa estimates that close to a quarter of the total water in municipal systems in South Africa is lost through physical leakage. Water service trends analysis by the Department of Water Affairs also shows that on all key performance indicators, water use efficiency is the lowest performing.

The **No drop** is a simple-to-fill score card that assesses and ranks municipalities on water losses, revenue collection and water use efficiency (amount of water used per person per day). Municipalities can be compared to each other and their performance evaluated against the requirements of the law and best

management practice. Coupled with support in the areas requiring improvement, the scorecard has been shown to work well for improving drinking water quality.

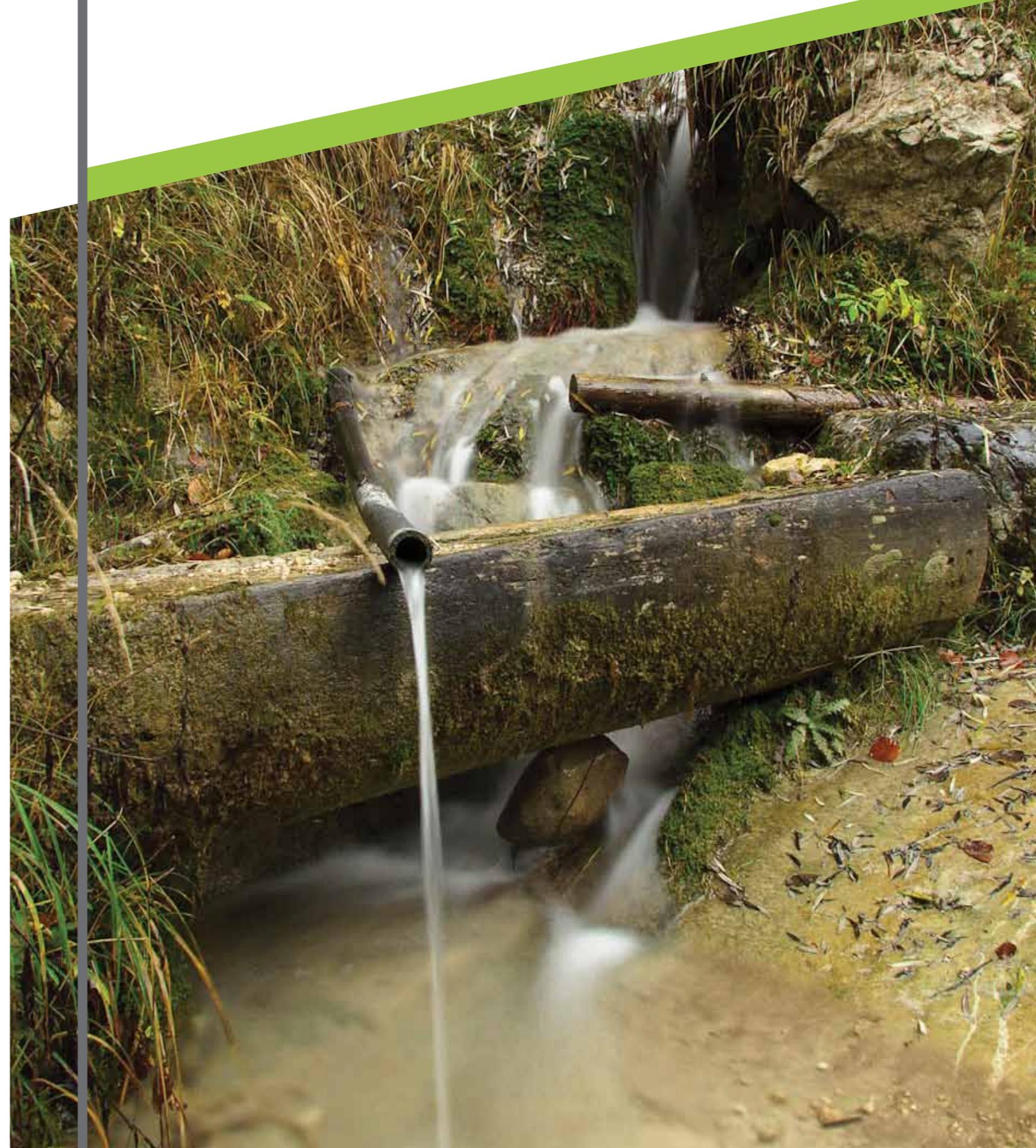
The **No drop** system is expected to help municipalities to reduce water losses and save expenditure that would have been used to expand water services.

### SWPN-SA action

The **No drop** system supports targets set by the President and Minister of Water Affairs on water loss. Of all the strategies to reconcile supply and demand, water loss prevention is the least expensive. A lesson drawn from past incentive-based regulation activities is that to facilitate advancement on selected performance criteria, evaluation systems should be complemented with related tools. One such support tool is already being developed. This tool, which is a generic contract, allows rapid implementation of water loss reduction programmes while complying with current municipal procurement and financial management regulations.

### SWPN-SA impact

The cost-effectiveness of this project allows easy uptake by municipalities with quicker turn-around in terms of water loss reduction. Budgets allocated to water services expansion will have an effect of improving water availability and distribution. Ultimately, improved water security will be achieved for residents and businesses in municipalities where **No drop** service excellence is recognised.



# Agriculture and supply chain

**“We estimate that agriculture has the potential to create close to 1 million new jobs by 2030. To achieve this we need to expand irrigated agriculture by substantially investing in water resource and irrigation infrastructure.”**

Trevor Manuel, Minister in the Presidency for National Planning speaking at the National Development Plan launch

## THE AGRICULTURAL SECTOR USES IN EXCESS

60% of the water consumed in South Africa. Driven by water scarcity and the cost of water, the sector has employed initiatives to reduce water consumption since the droughts of the 1970s. While agriculture represents a small part of GDP, it has a considerable indirect effect through its high rural employment numbers. Commercial agriculture and small-scale farming are critical for food security in the country.

## Irrigation – losing valuable water

Only 1.5% of land in South Africa is under irrigation, producing 30% of the crop output. There is considerable potential for improvement in water use efficiency in the sector. In South Africa, river and canal conveyance system losses range between 30% and 40%. This could potentially be reduced to around half these levels.

## Vaalharts irrigation scheme

The agriculture sector loses valuable water through canal systems and inefficient irrigation across South Africa. The sector’s contribution to GDP and employment is of national importance which is why a mechanism to re-dress aging and inefficient infrastructure is necessary.

### Project opportunity

SWPN members in the food and beverage and agricultural retail sectors, realise agriculture’s vulnerability to water availability, water quality and water costs. Agriculture is also the greatest user of water. In South Africa’s largest and oldest irrigation scheme, the Vaalharts, about 20% of the water abstracted is lost through distribution losses. Further saving of about 10% of the water are possible through improved farming practices.

### SWPN-SA ACTION

The SWPN-SA is embarking on a project to define activities that could be of mutual value to its members and the farmers in the irrigation scheme.

### SWPN-SA impact

Rehabilitating irrigation schemes offers water saving opportunities and would increase unit productivity, which has been reduced by waterlogging and salinisation. The activities to rehabilitate the Vaalharts irrigation scheme could create jobs by making water available for new smallholder irrigators.



# Members & Partners

The SWPN-SA acknowledges the financial support of the following institutions



The SWPN-SA acknowledges working group chairs



The SWPN-SA acknowledges members whose commitment moves this partnership forward



# Reflections of SWPN-SA members



The SWPN-SA provides an ideal platform for Sasol to act on its Water Sense stewardship strategy, which incorporates the principle of collaboration among stakeholders to address shared water risks

Nolitha Fakude, Sasol



The real value of SWPN-SA is the private sector's taking lead and initiative - in partnership with government - to develop innovative solutions to reduce the water resources gap whilst contributing to the national development agenda

Nandha Govender, Eskom Holdings SOC



South Africa faces many water challenges. None of them are insuperable, but to address them will require the best talents the country can muster. The SWPN-SA can assist government by mobilising skills from the private sector to work together on the most urgent priorities. This is a win-win initiative since the whole country benefits from the water security that we currently enjoy - and will lose if we fail to sustain it

Mike Muller, National Planning Commission



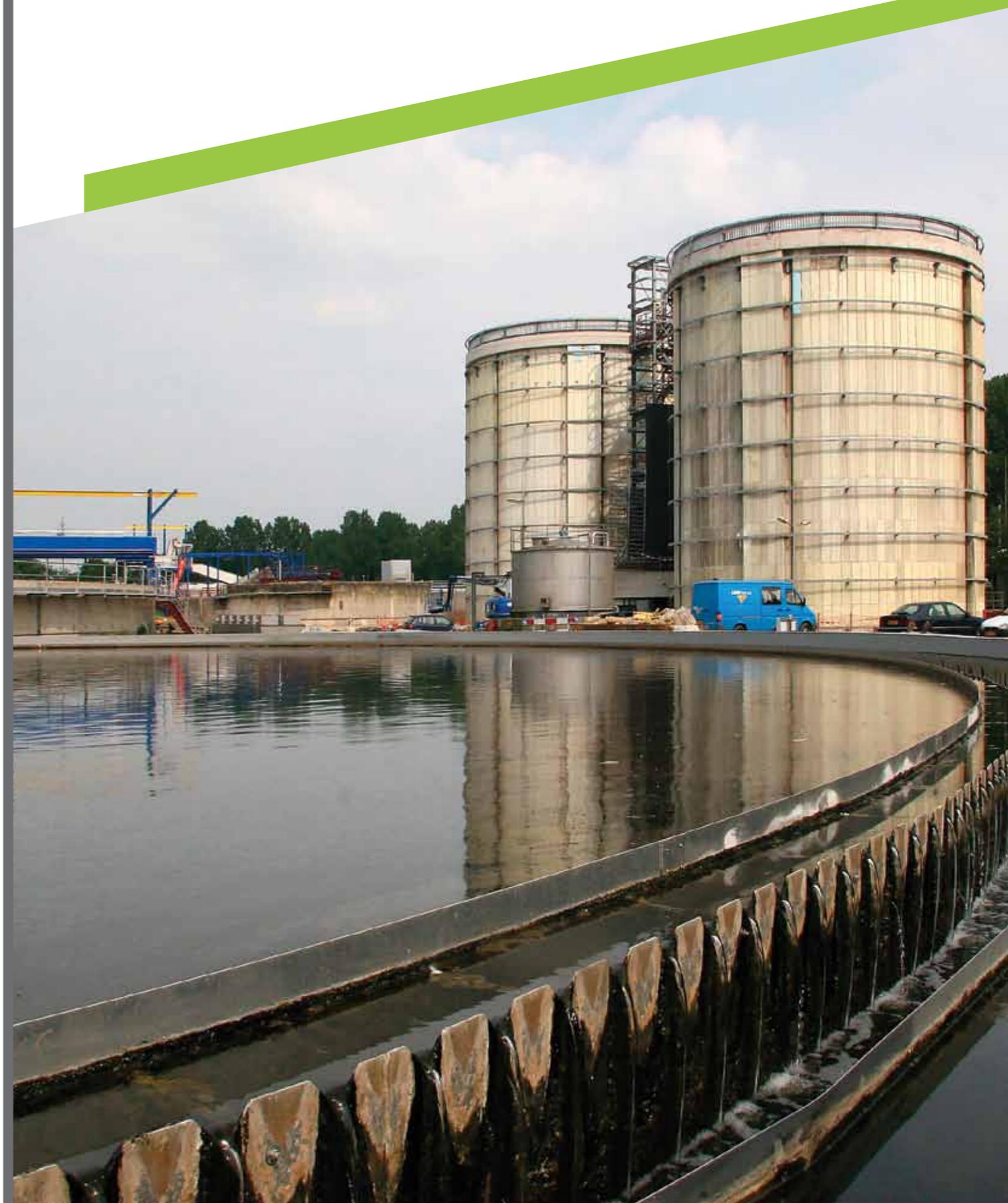
The challenges facing South Africa on water are complex and can be overcome by innovative solutions. The SWPN-SA creates a platform for collaboration of water stewards in key aspects of water management and through this partnership of government, industry, business and civil society, key issues are being addressed by collaborative innovations

Sanjeev Raghubir, Nestlé



The SWPN-SA provides a mandated vehicle for public and private sector collaboration that focuses on solutions. The traditional 'we and them attitude' is being addressed and we find great value in honest and committed deliberations

Andre Kruger, Absa



The SWPN-SA secretariat is hosted by the NEPAD Business Foundation, a neutral non-profit institution promoting public and private sector collaborations to achieve social and economic development across Africa.

## Contact Us

Project Manager  
Strategic Water Partners Network  
NEPAD Business Foundation  
3rd Floor, Mott MacDonald House  
359 Rivonia Boulevard, Sandton  
Johannesburg  
South Africa

Email: [Nick.Tandi@thenbf.co.za](mailto:Nick.Tandi@thenbf.co.za)  
[SWPN.Secretariat@thenbf.co.za](mailto:SWPN.Secretariat@thenbf.co.za)

Tel: +27 87 310 1888



