

# Incentivising Young Social Science Perspectives in the SADC Water Sector: Building a Forum for Young Scholars in Transboundary Water Governance

IM Jacobs & S Nienaber



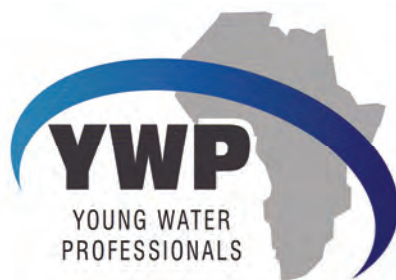
# **Incentivising Young Social Science Perspectives in the SADC Water Sector: Building a Forum for Young Scholars in Transboundary Water Governance**

**IM Jacobs and S Nienaber**

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**Water Research Commission**

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**Natural Resources and the Environment (NRE)  
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The publication of this report emanates from a project entitled *Incentivising Young Social Science Perspectives in the SADC Water Sector: Building a Forum for Young Scholars in Transboundary Water Governance* (WRC Project No. K8/937).

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## EXECUTIVE SUMMARY

This report documents the progress of the one-year Water Research Commission (WRC)-funded Consultancy K8/937/1, awarded to the Council for Scientific and Industrial Research (CSIR) during 2010-2011. This Consultancy project entitled, *Incentivising Young Social Science Perspectives in the SADC Water Sector: Building a Forum for Young Scholars in Transboundary Water Governance*, aimed to establish and build collaborative linkages and partnerships between key institutions and networks in order to create an active community of young scholars interested in transdisciplinary research collaboration and information exchange on the topic of transboundary water governance. The YSF project therefore focussed its attention on Southern African water issues and their governance implications around specific themes, with the explicit goal of producing an agenda for future research. This report examines the degree to which it achieved these objectives.

Firstly, this report outlines the project's main research questions as perceived by young professionals in the water sector. This is articulated as the main challenges facing the water sector in Southern Africa in a period of emerging global change. Traditionally, technical and scientific communities have been called on to produce the responses and solutions to previous sectoral challenges. However, new and emerging challenges and complexities, such as climate change, eutrophication, acid mine drainage, skills flight and social inequality, are demanding more integrated levels of ingenuity and expertise from a diverse set of disciplines. Given this realisation, there is growing recognition of the need for more transdisciplinary responses to the challenges facing the water sector. But there are still very few social scientists working on water issues, there are few truly transdisciplinary research initiatives being pursued, and the challenge of creating the space for scientists, government officials and other stakeholders to work together around common areas of concern, remains difficult. Additionally, young social scientists are often unaware of how their skills can be applied, and indeed, are needed in the sector. The K8/937/1 Consultancy was therefore developed by several young water professionals who sought to address these challenges by establishing a forum for young professionals to grapple with these issues and come up with solutions of their own.

This report makes a case for transdisciplinarity, not only as a supra-discipline, but also as a methodology and a way of thinking and seeing the world, and one that is particularly conducive to the mindset and generational characteristics of a younger generation of water professionals, who are more comfortable working in a multi-, or even trans-disciplinary environment.

In making this case, the report provides an overview of the Young Scholars Forum (YSF) in Transboundary Water Governance, summarises main events organised within its ambit, and documents primary outputs. Additionally it highlights two of the project's main components: capacity building and the development of collaborative partnerships, both of which included multi-faceted ways in which to pursue the dual objective of incentivising transdisciplinarity as well as building the capacity of young professionals in the sector. The report concludes with a description of the way forward in terms of the sustainability of the forum beyond the Consultancy's one-year funding cycle, and presents a plan for continued and mutually-beneficial collaboration with the Southern African Young Water Professionals (SA YWP).



## **ACKNOWLEDGEMENT OF THE “OVER AND ABOVE”**

The success of the consultancy project would not have been possible were it not for the immense support, guidance, wisdom and dedication of several individuals, institutions and networks, all of whom went far beyond their job descriptions and institutional commitments.

Firstly, our sincere gratitude must go to Dr. Jo Burgess, the Consultancy’s Project Manager at the Water Research Commission (WRC), for her guidance, encouragement and belief in the merits of this initiative as well as the role that young professionals can, and do play in the water sector. She has gone way beyond the call of duty and has been an active participant and mentor in the organising of many project-related events.

Secondly, we would like to thank the WRC for providing the financial support to help us obtain resources in the coordination of events, and in so doing, for its efforts to incentivise transdisciplinarity in the water sector. Additionally, the Council for Scientific and Industrial Research (CSIR) provided the structural support to see the project to fruition. Institutions such as the WRC and the CSIR make significant contributions to the professional development of young water employees over and above their institutional obligations and their efforts should be commended. This commitment and support is a clear indication of the growing recognition, by institutions in the water sector, of the need to build capacity in transdisciplinarity in order to foster a sector that is equipped to respond to the challenges of water management and governance. We are also indebted to several South African tertiary institutions, most notably, Cape Peninsula University of Technology, the University of Johannesburg, the University of Pretoria, Stellenbosch University, the University of the Western Cape, and the University of Cape Town, and their very committed and enthusiastic staff in various departments, who showed tremendous interest in this initiative and eagerness to collaborate in the organisation of events.

Finally, we are indebted to the Water Institute for Southern Africa (WISA) and the International Water Association (IWA) for opening up their networks. Particularly and especially, we would like to recognise the central role of the South African Young Water Professionals (SA YWP) in providing the support base, the membership, the vision, instrumentality, and the many hands that made this initiative the success that it was. The leverage displayed by the SA YWP network in terms of its provision of broad coverage to ensure uptake of transdisciplinarity proves that SA YWP is certainly a key player and sector leader in representing young professionals and making them heard. It is through this network that this Consultancy will grow into a sustainable working group driven and managed by young water professionals.

We believe that young professionals will play a vital part in facilitating change in the water sector. The youth are dynamic enough to take change in their stride, while having the mentorship of distinguished water professionals and key institutions for guidance. We are the ones faced with the consequences of the environmental threats, and we are passionate about improving the situation. More than this, we aim to improve the way things are done in a fun and positive way, while still maintaining economic relevance and scientific excellence. YWPs are more comfortable working in a multi-, or even trans-disciplinary environment than the baby boomers on whom we still rely so much, making us well suited to tackle the challenges facing us today in a communicative, team-based manner. We are comfortable working in a global environment, but we need institutional players and key individuals to support us, and this project recognises their efforts.

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## **ABBREVIATIONS**

CPUT	Cape Peninsula University of Technology
CSIR	Council for Scientific and Industrial Research
DAFF	Department of Agriculture, Forestry and Fisheries
DST	Department of Science and Technology
DWA	Department of Water Affairs
ERWAT	East Rand Water Care Company
IWA	International Water Association
SA YWP	Southern African Young Water Professionals
SADC	Southern African Development Community
UCT	University of Cape Town
UJ	University of Johannesburg
UP	University of Pretoria
UWC	University of the Western Cape
WHRU	Water and Health Research Unit (University of Johannesburg)
WISA	Water Institute of Southern Africa
WRC	Water Research Commission
YSF	Young Scholars Forum in Transboundary Water Governance
YWP	Young Water Professionals



## **1. INTRODUCTION**

The Southern African Development Community (SADC), as a region, faces a wide variety of water-related challenges and problems. Some of these problems have been around for decades and others are new or emerging issues. In order to address these 'old and new' challenges and complexities it is essential to achieve more integrated levels of ingenuity and expertise from a diverse set of disciplines and actors.

Historically, the SADC water sector has been dominated by skilled natural scientists and engineers. This has led to a high degree of technical and scientific innovation and expertise in the sector. However, this innovation has had less impact than it could have because the socio-political, socio-cultural, socio-economic relevance and utility of these technical solutions have not always been adequately considered. In order to create meaningful, relevant and lasting solutions to the perennial and changing challenges that the water sector faces; it is critical to achieve a balance between technical, natural and social science inputs, and also to include a wide spectrum of actors in dealing with the problems (e.g. scientists, government actors, civil society and so on).

Presently, however, there are limited numbers of social scientists working on water issues, there are few transdisciplinary research initiatives being pursued, and the challenge of creating the space for scientists, government officials and other stakeholders to work together around common areas of concern, remains a difficulty. The paucity of Southern African research conducted in social science disciplines can potentially be reflected in the lack of young Southern African scholars interested in this topic, the lack of awareness by young researchers that a community of young researchers exists in this field, and/or the lack of awareness that working in the water sector is a viable career option for social scientists.

Given the described situation, it is evident that there is a need to draw more social scientists to the water sector, develop interest and expertise in transdisciplinary research in the region, and create space for different types of actors with a stake and interest in water issues to learn to understand each other and work together on common areas of concern. In response to this need the Young Scholars Forum (YSF) in Transboundary Water Governance in SADC has been formed.



## 2. WATER CHALLENGES IN SADC AS PERCEIVED BY YOUNG PROFESSIONALS

The water resources of the Southern African Development Community (SADC) are highly sensitive and complex to understand, govern, effectively use and fairly distribute. This reality is created by many overlapping factors. Firstly, the SADC region contains 21 international river basins to which one or more SADC member states are riparian, which results in complex hydrological linkages across national borders within the SADC region on the mainland (Turton and Ashton, 2008). Thus, water is fundamentally a shared resource in our region.

Secondly, some of the most economically developed Southern African states such as South Africa and Botswana, have limited water resources, which may constrain future economic development (Ashton, Hardwick and Breen, 2008; Turton, 2003; 2008b; Turton and Ashton, 2008).

Thirdly, a spatial development pattern exists where several key cities or centres of economic development (such as Johannesburg, Pretoria, Harare, Bulawayo, Francistown, Gaborone and Windhoek) are not located on rivers, lakes or seafronts but instead, have been built on or near watersheds or continental divides\* (Oberholster and Ashton, 2008; Turton, 2008; Turton, Patrick and Rascher, 2008). This has resulted in the dependency of these cities on water that has to be pumped uphill, and subsequently, has caused severe sewage return flows as these rivers are additionally burdened with transporting waste material, most of which enters downstream water storage reservoirs (Oberholster and Ashton, 2008: 2).

Fourthly, there are pronounced developmental differences in SADC rendering some countries more effective than others at mobilising necessary human, financial and technological resources to address water scarcity and related human welfare needs. Finally, SADC is confronted by numerous social challenges, such as population growth, urbanisation, climate change, refugee movements, and outbreaks of disease which impact on water needs and use. This makes it imperative to work carefully with this resource to ensure its availability, at an affordable price and good quality, to existing and future generations.

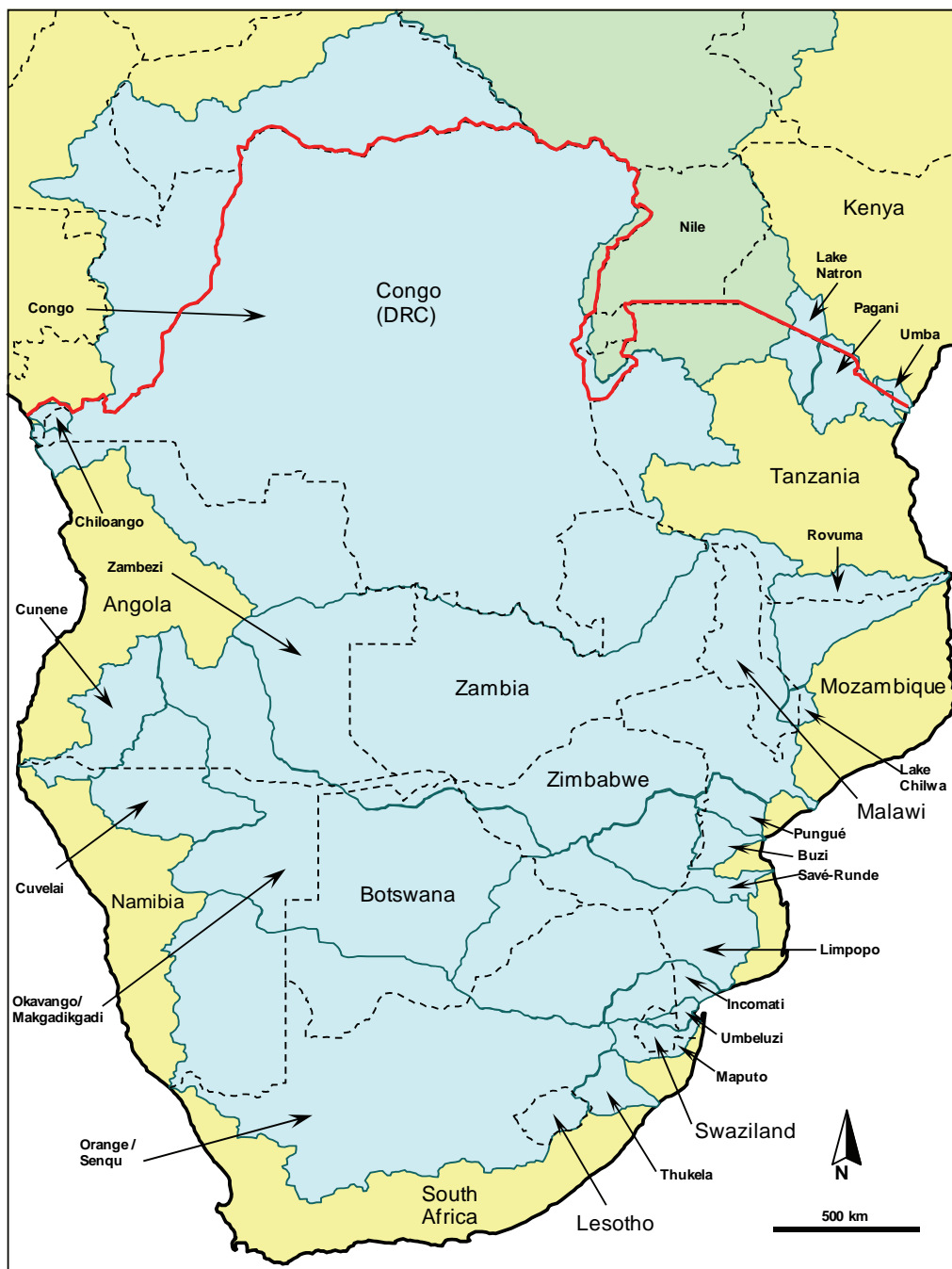
*Transdisciplinarity is about rising to the challenge of working together in a time of complexity; understanding the concepts, contributions and language of different disciplines; and addressing sector challenges by integrating the perspectives of different actors into comprehensive solutions for the water sector.*

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\* A continental divide is defined as the line following the “height of land,” or the drainage divide on a continent such that the drainage basin on one side of the divide feeds into one ocean or sea, and the basin on the other side either feeds into a different ocean or sea, or else is endorheic.

Traditionally in the water sector, technical and scientific communities have been called on to respond to the concerns of the water sector. However, times are a changing. New and emerging challenges and complexities, such as climate change, eutrophication, acid mine drainage, skills flight and social inequality, are demanding more integrated levels of ingenuity and expertise from a diverse set of disciplines. Specifically, addressing the governance challenges facing the water sector necessitates expertise from a diverse set of transdisciplinary backgrounds. No amount of technical and scientific ingenuity is adequate if the solutions generated are not relevant, digestible and acceptable to the specific socio-political and socio-economic contexts of our time.

All these issues will affect and be affected by the way in which water is managed. Thus:  
***“Governance issues form the central obstruction to sound and equitable water sharing and management” (UN, 2006)***



**Map 1: Shared River Basins in Southern Africa (red line demarcating SADC boundary)  
 (Ashton and Turton, 2009)**

Given this realisation, there is growing recognition of the need for more transdisciplinary responses to the challenges facing the water sector. Transdisciplinarity is about rising to the challenge of working together; understanding the concepts, contributions and languages of different disciplines; and integrating the perspectives of different actors into comprehensive solutions for the water sector. One of the hindering factors to transdisciplinarity is the reality that there is an ongoing lack of social scientists dealing with water issues. This can be, at least in part, attributed to university curricula that do not adequately equip social science students with the skills needed to grapple with environmental issues; funding agendas that tend to favour natural science methodology and thus support less social science research; and an organisational bias favouring natural scientists and technical experts in research organisations.

This is tied to the (mis)perception that 'hard science' is more accurate and valuable than the 'soft' and often qualitative science of social scientists. Despite these challenges, there is growing recognition of the need for social scientists equipped with skills, understanding and passion for governance issues in the water sector. A social science presence is important as social scientists have unique expertise in cultural, behavioural and societal realities. This equips them with the skills to interpret subjective, objective, inter-subjective and structural aspects of society. This aids understanding of the social developments, needs and drawbacks of a context. Also, social science has a familiarity with institutional capacity building mechanisms and thus can offer critical support to the bodies and individuals that are mandated to manage water in the region. Furthermore, a primary goal of social science is to influence public policy by general practical knowledge that can help policy-makers make informed decisions and in so doing help to foster more effective policy and governance options.

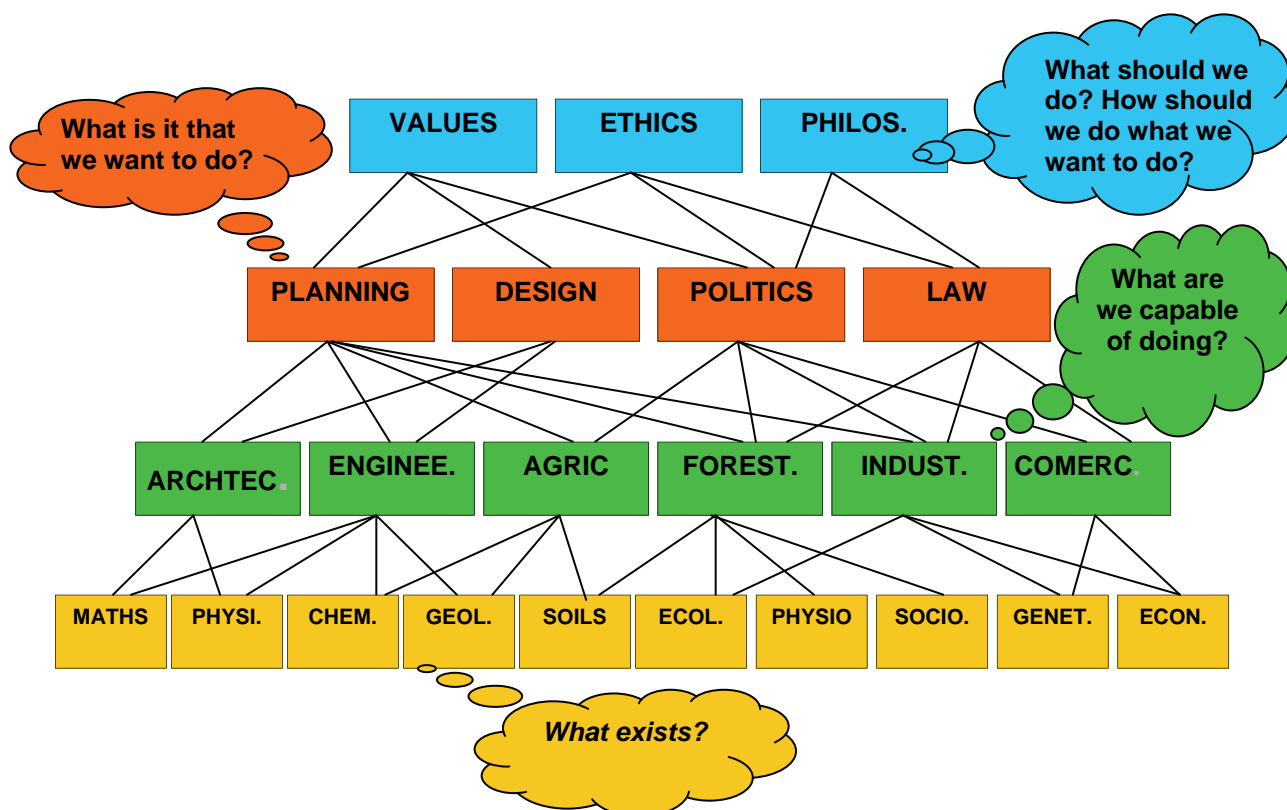
Transdisciplinarity is therefore about rising to the challenge of working together in a time of complexity; understanding the concepts, contributions and language of different disciplines; and addressing sector challenges by integrating the perspectives of different actors into comprehensive solutions. Given the complexity of the challenges facing the water sector in the SADC region and the obvious value of transdisciplinarity in responding to these issues; several young water professionals sought to address these challenges by establishing a forum for young professionals to grapple with these issues and come up with solutions of their own.

## **2.1 A Transdisciplinary Focus for Governance**

Transdisciplinarity, as defined in this project, is more than a new discipline or supra-discipline, but is a different manner of seeing the world, which is in many ways more systemic and more holistic than before. Transdisciplinarity extends enquiry through different levels of reality and organisations. By working through the lens of multiple perceptions to understand different facets of reality; transdisciplinarity facilitates deeper understanding of complexity and complex problems. This understanding is only possible through the collaboration of multiple actors. Transdisciplinarity therefore transcends the notion of a new and innovative research methodology in the sense that it is more than a way of conducting research, but rather the 'position' or 'approach' a scientist takes in his or her strategic thinking regarding problem solving.

Max-Neef (2005) suggests that there are two ways of understanding transdisciplinarity. There is the so called 'weak' and 'strong' version of the concept. Weak transdisciplinarity works as described in the diagram below. An action can be considered transdisciplinary when there is evidence of more than one block, on each of the levels, being present. Thus, 'weak' transdisciplinarity is a type of method for doing transdisciplinary work which calls on multiple different actors to answer various types of questions when grappling with a complex problem (Max-Neef, 2005).





**Figure 1: Max-Neef Conceptualisation of Transdisciplinarity (Source: Max-Neef, 2005)**

Strong transdisciplinarity, on the other hand, is more than just a method to more systematically solving complex and changing problems. It is a unique positionality and approach to science and dealing with problems. Transdisciplinarity, in this sense of the word calls on actors to grapple with the short-comings of binary, linear and rationalist logic that dominates the scientific field. It calls us to grapple with reality in such a way that we acknowledge that reality is “that which resists our experiences, representations, descriptions, images or mathematical formalisations” thus different levels of reality are accessible through different levels of perception. There is permeability between different levels of reality which allows for links to be formed between these different levels. The ‘project’ of transdisciplinarity, in this sense, is then about developing a thinking capable of establishing feedback loops in terms of concepts such as whole/part, order/disorder, observer/observed, system/ecosystem, in such a way that they remain simultaneously complementary and antagonistic (Max-Neef, 2005).

The transdisciplinary project is arguably, particularly suitable for a younger generation to adopt. Given generational features, albeit generalised, young professionals are more comfortable working in a multi-, or even trans-disciplinary environment, making them well suited to tackle today’s challenges in a communicative, team-based manner. In this regard, young professionals are strategically placed to take up the challenge of transdisciplinarity in the water sector. They are less bound by the constraints of their disciplines, and can more easily “jump disciplines” to grapple with complex issues in a transdisciplinary manner. Secondly, the millennial generation (or Generation Y), within which most “young scientists” fall, bring a team-oriented work ethic to the workplace. This combined with a greater proficiency with technology provides a perfect recipe for cutting-edge and innovative solutions – a new way of thinking to understanding and addressing complexity, sustainability and transdisciplinarity.

### **3. OVERVIEW OF THE YOUNG SCHOLARS FORUM (YSF) IN TRANSBOUNDARY WATER GOVERNANCE**

#### **3.1 What is the YSF?**

The YSF is a WRC-funded initiative that strives to raise awareness about, and build capacity in, transdisciplinarity and transboundary water governance in the SADC water sector. YSF is an issue-driven, collaborative initiative for students and young water professionals, and one which encourages the recognition and mutual respect of multiple perspectives. YSF hosts a variety of workshops and events which aim to facilitate transdisciplinary, collaborative work for students and young water professionals to grow their competence in dealing with complex water-related problems. This forum also specifically commits to incentivising the Social Sciences in the water sector both by creating awareness of the need for social science skills in the sector; and to make social scientists aware that there are fruitful career opportunities in the water sector.

#### **3.2 What are YSF's aims?**

- To build a community and network of young water professionals interested in water governance in SADC;
- To create opportunities for younger and more experienced water professionals to interact and share knowledge;
- To increase the social science literature output relating to water issues by young water professionals, and to provide opportunities for individuals to collaboratively publish and grow professionally;
- To increase the awareness of the need for transdisciplinarity in the water sector; and
- To incentivise social science perspectives in the water sector.

#### **3.3 What is unique about YSF?**

This forum is unique in a number of ways. Firstly, it is focus-driven in that it looks, specifically, at the transdisciplinary and governance dimensions of water in SADC. Secondly, YSF encourages a proactive, theme-based agenda which allows young professionals to identify challenges in the SADC water sector in a focussed and directed manner. Thirdly, the forum encourages members to holistically engage with water issues in SADC through the integration of a variety of perspectives and actors. Fourthly, YSF has a series of linkages to the wider national and global water community and networks. For example, it has become a sub-division of the Young Water Professionals initiative in South Africa, and is affiliated with the Water Institute for Southern Africa (WISA), the WRC, and the International Water Association (IWA). This links YSF members to a wide, network of water professionals that can support them as they grow in their careers.

## 4. SUMMARY OF YSF EVENTS IN 2010

In collaboration with the Southern African Young Water Professionals (SA YWP), WISA, the IWA, as well as several tertiary institutions in South Africa, YSF was able to coordinate and co-host a wide range of events under this Consultancy.

**Table 1: Summary of YSF Events in 2010**

DATE	EVENT TITLE	THEME	DESCRIPTION	AUDIENCE
19 March 2010	YWP Gauteng Chapter Launch, University of Johannesburg	From water to health: Where do you fit in?	An interactive role-playing exercise exploring cholera as a transboundary disease was run, entitled, "Coordination of Cholera Preparedness and Response in SADC: who takes the lead?" Dr. TG Barnard, presented a paper on "Looking back at Delmas 2007: Evidence of a multi-pathogen diarrheal outbreak"	The event was attended by UJ undergraduate and postgraduate students from Environmental Health, Zoology, and Civil Engineering departments, the Water and Health Research Unit (WHRU), young water professionals from ERWAT, and young water professionals from the Department of Water Affairs.
10 May 2010	YWP departmental dialogue	Being heard in water policy debates	A theoretical presentation about evidence-based-policy-making was given by the CSIR. The Department of Water Affairs presented on how evidence is utilised in their daily work and the challenges faced in this regard. Participants then engaged in an interactive role-playing exercise entitled "The White Paper on National Water Policy for South Africa: A complex policy development process for a complex array of actors".	The event was attended by young professionals and students from the: Political Science Department at UP, CSIR, Department of Water Affairs, Department of Agriculture, Forestry & Fisheries, Sedibeng Water, University of Johannesburg, and Kings College in the UK.
19 – 22 Apr 2010	WISA Biennial Conference event	A Brownbag Brainstorm on Transdisciplinarity was coordinated, entitled, "New Kids on the Block looking to Address South Africa's Old and New Water Challenges"	Reflections were encouraged on some of the major challenges facing the Southern African Water sector; on the challenges facing young professionals in the water sector; and on the value of transdisciplinary thinking and practise to respond to issues facing the water sector.	A diverse group of young water professionals from a wide set of institutions, who were all participants of the WISA conference, attended this event.



DATE	EVENT TITLE	THEME	DESCRIPTION	AUDIENCE
17 Sept 2010	University of Stellenbosch event	Being heard in water policy debates	A theoretical presentation about evidence-based-policy-making was given by the CSIR. Participants then engaged in an interactive role-playing exercise entitled "The White Paper on National Water Policy for South Africa: A complex policy development process for a complex array of actors".	Political science and international relations students from the Department of Political Science at Stellenbosch University attended this event.
20 Sept 2010	UCT YSF Event	From water to health where to you fit in?	An interactive role-playing exercise exploring cholera as a transboundary disease was run, entitled, "Coordination of Cholera Preparedness and Response in SADC: who takes the lead?"	Engineering, geology and environmental education students attended this event, as well as WESSA representatives.
21 Sept 2010	UWC	Being heard in policy debates	A theoretical presentation about evidence-based-policy-making was given by the CSIR. Participants then engaged in an interactive role-playing exercise entitled "The White Paper on National Water Policy for South Africa: A complex policy development process for a complex array of actors".	UWC students studying range land ecology, marine science, marketing/ economics, biological science, political science, biodiversity and conservation biology attended this event.
22 Sept 2010	UWC Institute for Water Studies	Being heard in policy debates	A theoretical presentation about evidence-based-policy-making was given by the CSIR. Participants then engaged in an interactive role-playing exercise entitled "The White Paper on National Water Policy for South Africa: A complex policy development process for a complex array of actors".	Honours students doing the IWRM course as well as master's students from UWC attended this event.

DATE	EVENT TITLE	THEME	DESCRIPTION	AUDIENCE
23 Sept 2010	CPUT YSF Event	From water to health where to you fit in?	An interactive role-playing exercise exploring cholera as a transboundary disease was run, entitled, "Coordination of Cholera Preparedness and Response in SADC: who takes the lead?"	Engineering students from CPUT attended this event.
23 Sept 2010	WISA Western Cape Chapter event	Seawater Desalination	Presentation on the latest desalination options in SA was followed by an introduction of YSF to the Western Cape WISA branch.	Senior water professionals, mostly engineers, and YWPs attended this event.
29 – 30 Nov 2010	Symposium	"Exploring transdisciplinarity to address change in the SADC Water Sector: Establishing the role of social scientists in this vision,"		Representatives from universities (WITS; UCT; UP; UJ; UKZN, Monash); Utilities companies (Johannesburg water); Dutch Embassy; Research Councils (CSIR; WRC); Consultancies (Muondli Consulting and Projects CC); Governmental departments (Department of Agriculture, Forestry & Fisheries); NGOs (WESSA)

#### 4.1 Launch of the YWP Gauteng Chapter at the University of Johannesburg (UJ)

The YWP Gauteng chapter was officially launched on the 19 March 2010. The event, hosted by the University of Johannesburg, was attended by the UJ undergraduate and postgraduate students from Environmental Health, Zoology, and Civil Engineering departments, the Water and Health Research Unit (WHRU), along with young water professionals from the East Rand Water Care Company (ERWAT) and Department of Water Affairs (DWA). In total 70 delegates attended and 20 undergraduate environmental health students applied for YWP (WISA) membership. The half-day event explored the theme, *From water to health: Where do you fit in?* and included an overview of YWP-Gauteng aims, benefits and plans for 2010 by Gauteng chapter chair, Ms. Renay Van Wyk (UJ).



**Photograph 1. Students gather at the Launch of the Gauteng YWP Chapter and YSF event.**

In line with the theme, students engaged in an interactive role-playing exercise during the first half of the event. The role playing exercise explored cholera as a transboundary disease and was entitled, Coordination of Cholera Preparedness and Response in the region: who takes the lead?

Due to the complex web of actors in cholera response in the SADC region, this exercise encouraged students to “jump disciplines” and explore the topic from a multiplicity of perspectives in group engagements. These collaborative exchanges encouraged the recognition and mutual respect of multiple perspectives, and highlighted the value of interdisciplinary in responding to complex water-related challenges.

Here, the Forum was officially introduced to the YWPs for the first time.



**Photograph 2. Dr. Inga Jacobs (CSIR) introduces YSF to students.**



**Photograph 3. Dr. Jacobs (CSIR) facilitates interactive discussion on Cholera response strategies in the SADC region.**





**Photograph 4. Students from the University of Johannesburg and young water professionals present their views on the responsibilities of key actors in dealing with Cholera in the region.**

For the second half of the event Dr. TG Barnard, voted the Best Speaker at the YWP 2010 Conference, presented a paper on: *Looking back at Delmas 2007: Evidence of a Multi-pathogen Diarrheal Outbreak*. This event was simultaneously informative, as well as fun and interactive. The participants threw themselves whole-heartedly into the challenges posed by the simulation activity and were stimulated by new ideas through the various presentations and interactive sessions. This was a testament of the vibrant group of young professionals emerging and moving into the water sector in Gauteng.

#### **4.2 YSF quarterly event at the University of Pretoria (UP)**

On 10 May 2010, the University of Pretoria Political Sciences Department hosted the second YSF event jointly coordinated by the YWP Gauteng chapter, YSF and the CSIR, entitled “*Being heard in water policy debates*”.

The event was attended by young professionals and students from the Political Science Department, the CSIR, the Department of Water Affairs (DWA), the Department of Agriculture, Forestry & Fisheries (DAFF), the University of Johannesburg (UJ), and Kings College in the UK.

The issue of the science policy interface was explored in a number of ways. Firstly, a theoretical presentation about evidence-based-policy-making was given by the CSIR, and former students of the University of Pretoria’s Political Science Department. This provided an overview of the issue. This was followed up by a presentation from DWA who offered reflections “about policy makers, from policymakers” particularly looking at how evidence is utilised in their daily work and the challenges thereof.

With this background information in place the participants then engaged in an interactive role-playing exercise entitled “*The White Paper on National Water Policy for South Africa: A complex policy development process for a complex array of actors*”. This exercise simulated the diverse set of role players that were involved in producing the water legislation that we have in South Africa today. By stepping into the shoes of the various actors involved in this policy development process, participants were able to understand the complexity of policy development, the way that evidence is generated to support a variety of, at times, conflicting stances, and the value of transdisciplinary

perspectives in dealing with complex policy issues. This event encouraged the recognition and mutual respect of multiple perspectives, and highlighted the benefit of transdisciplinarity, with young water professionals strategically placed to take up the challenges in the water sector.



**Photograph 5. Students from the University of Pretoria and YWPs from the Department of Water Affairs discuss the development of water policy in South Africa.**



**Photograph 6. Ms. Shanna Nienaber (CSIR) presents on evidence-based policy making.**

It not only offered participants an informative and thought provoking topic to explore and consider, it also served as a platform to introduce the YWP (Gauteng chapter) network as well as YSF, to another university community.

### **4.3 Workshop at 2010 WISA Biennial Conference**

At the WISA Biennial conference, YSF in collaboration with the YWPs hosted a brownbag brainstorming session to explore transdisciplinarity. This session was called “*New Kids on the Block looking to Address South Africa’s Old and New Water Challenges*”. At this event all young water professionals at the conference where invited to bring their lunch to the YWP Hub and participate in an informal, interactive event where they could meet other young professionals and discuss issues of mutual interest.

The event was facilitated by Dr. Inga Jacobs and Ms. Shanna Nienaber of the CSIR, who introduced YSF to the group and guided them through a debate around three broad themes. Firstly, the group brainstormed around what young water professionals perceive to be some of the most pressing challenges facing the South African water sector. Secondly, the group reflected on what the challenges are that face young professionals coming into the sector. Thirdly, by dividing into small theme-specific groups the YWP’s reflected on the value, as well as the challenges, of utilising transdisciplinary thinking in responding to some of the specific challenges facing the water sector (such as climate change, acid mine drainage, eutrophication).

This proved to be a well-attended and lively event where participants readily shared their views, engaged in debate, reflected on the value of transdisciplinarity and got to build some useful links with young professionals in their sector.



**Photograph 7. Ms. Shanna Nienaber introducing YSF to young professionals at the WISA Biennial brown bag lunch.**





**Photograph 8. YWP's enthusiastically participating in the brown bag lunch debate.**

#### **4.4 Western Cape Road show**

Between 17 and 23 September 2010, the YSF project went on a road show to the Western Cape. The aim of this road show was to generate awareness about the YSF forum in the Western Cape and also to develop capacity and awareness amongst students about two of the forum's main focus areas, transdisciplinarity as a response to complex problems; and creating space for social science work and thinking in the water sector.

To fulfil these aims the forum facilitated a variety of interactive workshops at various tertiary institutions, namely the University of Stellenbosch, the University of Cape Town, the University of the Western Cape, and the Cape Town Peninsula University of Technology. YSF also attended a WISA Western Cape chapter event to generate awareness about its aims and goals amongst the chapter.



**Photograph 9. A group of conservation biology and international political economy students from UWC listening to a presentation about evidence-based policy-making.**

The structure of all the workshops was designed to create space for students to interact and think on their feet. A combination of issue focussed presentations and interactive role playing games

were used. The role playing games looked at issues like response to regional water borne disease outbreak, bringing together the science and policy divide, the complex process of legislation development and implementation in the water sector and so on. The presentations and interactive games aimed not just to equip students with knowledge and information about specific issues in the water sector, but also illustrated the need for a complex transdisciplinary response to these problems, where a variety of disciplines (not least of all social scientists), along with other actors (such as non-governmental organisations, the media, government, communities) need to be involved.

Students were encouraged to see the benefits and the need for transdisciplinary thinking, how they can apply their diverse skills to the water sector, and that there is a community of young water professionals out there who have something to offer and who want to forge further collaboration. Students rose to the challenge of grappling with issues that many had never heard about before, and were willing to step out of their comfort zones when attempting the role playing games.



**Photograph 10. A group of Political Science and International Relations students at the University of Stellenbosch learning about South African water legislation.**

#### **4.5 YSF Symposium**

The YSF, in association with SA YWP, WISA and the IWA, hosted a hugely successful symposium on transdisciplinary and transboundary water governance on the 29-30 November 2010. The theme of the symposium, entitled "*Exploring transdisciplinarity to address change in the SADC Water Sector: Establishing the role of social scientists in this vision,*" encouraged participants to look innovatively at transdisciplinarity as a means to addressing the region's emerging change and challenges, specifically targeting the following sub-themes: Climate Change; Acid Mine Drainage; Water and Health; and Water Governance. The outcomes of the symposium were twofold: Firstly, it served as a forum where papers pertaining to the theme could be presented and constructively discussed and criticised between the young scholars themselves and also experienced professionals. Secondly, the results of the symposium would be made available as conference/workshop proceedings with a view to publish.





**Photograph 11. Symposium participants and guest speakers participate in the Guest Speaker Debate.**



**Photograph 12. Professor Willie Grabow sheds light on the need for social scientists in helping to address water and human health challenges in the water sector today.**

#### **4.5.1 Addressing Change through Complexity and Complexity with Change**

Global environmental change, such as rising demand and pollution, and the impacts of climate change, fuels uncertainty about the future of water resources and poses many challenges for effective water management. Water quantity is called to question due to increasing temperatures and diminishing precipitation. Water quality is declining largely because of mass pollution. Competition over water is increasing as demand rises for growing domestic, industrial and agricultural needs. And where governance structures are unable to manage increasing competition, divergent interests may trigger localised disputes with the potential for conflict.

Because of the complexity and inter-relatedness of these challenges, water professionals have to grapple with a multiplicity of causal factors, actors, levels of scale and issue areas within any one challenge. As a way of helping the audience to conceptualise the complexity of the landscape in which water finds itself, a guest speaker debate was coordinated, where distinguished water professionals with extensive experience in their fields of expertise, were invited to participate.



**Photograph 13. Dr. TG Barnard (University of Johannesburg) facilitates the water and health discussion, as presenters, Jackie Brown (University of Pretoria/CSIR) and Cherie Ann Robertson (University of Johannesburg) discuss the multiple impacts of reduced water quality in Loskop Dam and water quality concerns in water filtration devices.**

During this two-day period the various symposium presenters and participants grappled with three broad themes or questions, through the specific issue areas of water and health, water governance, AMD and climate change. The three over-riding questions considered were:

1. How does transdisciplinarity relate to and support response to complex water related challenges in SADC?
2. How do we respond to water related challenges in times of change (both in a biophysical and a societal sense) and increased complexity?
3. What are the roles of young water professionals, and particularly of social scientists, in the SADC water sector?



Whilst the ideas and conclusions in relation to these questions have been multiple and vast, the main conclusions were that transdisciplinarity is a critical positionality and approach to systematically solving complex problems, and thus needs to be engaged with, and worked at, if we hope to achieve meaningful and impactful ways of dealing with the problems facing the water sector. However, it needs to be noted that the transdisciplinary project is not an easy one to pursue. It requires time, patience, willingness to step out of one's comfort zone, the will to resist over-simplifying issues and much more. We need to acknowledge that we live in dynamic times where change is an inherent part of our context. This demands that we are flexible, innovative and 'out of the box' in our response to problems. It also demands that we resist the urge to oversimplify issues. We must pursue complex thinking in relation to complex problems. Each and every young water professional can and should play a role in contributing to responding to the problems of the SADC water sector. There is a lack of social scientists in the sector presently and thus social science careers in the water sector need to be incentivised. All scientific disciplines need to make a concerted effort to learn to communicate with and build networks within and beyond the scientific community.



**Photograph 14. Participants discuss how to solve transdisciplinary challenges in multidisciplinary groups.**

## 5. SUMMARY OF YSF OUTPUTS

**Table 2. List of Outputs, Deliverables and Project-related Documentation**

OUTPUT	DESCRIPTION	APPENDIX
<b>YWP Conference Poster Presentation</b>	In January 2010 a poster was displayed at the conference entitled: "Incentivising Social Science Perspectives in the SADC Water Sector." This poster introduced YSF and why such an initiative is important.	<b>Appendix A</b>
<b>CSIR Emerging Researchers Conference Poster Presentation</b>	In September a poster was displayed at this conference entitled: "Promoting transdisciplinarity in the Southern African Development community's Water Sector." This poster introduced why transdisciplinarity is a necessary driving theme in YSF.	<b>Appendix A</b>
<b>YWP Newsletter: Four-part Series</b>	Throughout the course of 2010 and in early 2011, a four part popular article series was published in the YWP newsletter exploring themes of interest to YSF: <ul style="list-style-type: none"> <li>• PART 1: Are you a "soft and fluffy?" The Importance of Social Science Perspectives to the Water Sector – <i>By Inga Jacobs</i></li> <li>• PART 2: Research reports that 'grow dust on shelves' rather than being used in the 'light of day': Some musings about the science-policy interface – <i>By Shanna Nienaber</i></li> <li>• PART 3: What do millennials have to offer? Reflections on Sustainable Knowledge Transfer in the South African Water Sector – <i>By Inga Jacobs</i></li> <li>• PART 4: Getting transdisciplinarity right: What does this mean in the life of young, water professional? – <i>By Shanna Nienaber</i></li> </ul>	<b>Appendix B</b>
<b>Water Wheel Article</b>	Article entitled, <i>The Adventure of working together: Promoting Transdisciplinarity in the SADC Water Sector through the Young Scholars Forum (YSF) for Transboundary Water Governance</i> . <ul style="list-style-type: none"> <li>• Published in the Water Wheel September/October 2010</li> </ul>	<b>This article can be found in the Water Wheel September/October 2010 issue.</b>
<b>News Updates</b>	After many of the YSF events, popular articles were released about the event to create a sense of continuity in the forum and generate awareness about the forum.	<b>An example provided in Appendix C.</b>
<b>Symposium Programme</b>	A detailed structure for the November Symposium is provided here.	<b>Appendix D</b>
<b>Symposium Proceedings</b>	A summary of the November symposium is contained in these proceedings.	<b>For the full proceedings, please contact the WRC or the authors of this report.</b>
<b>PowerPoint Presentations</b>	<ul style="list-style-type: none"> <li>• YSF Introductory PowerPoint</li> <li>• Cholera PowerPoint</li> <li>• EBPM power point</li> <li>• Water Policy PowerPoint</li> <li>• Transdisciplinarity Power Point</li> </ul>	<b>Appendix E</b>

OUTPUT	DESCRIPTION	APPENDIX
YSF marketing flyers	To generate awareness about YSF, flyers were distributed at all events: at the WISA Biennial Conference, at the CSIR Emerging Researchers Conference, at the CSIR biennial conference, at the Young Water Professionals conference, at various university departments, through the WISA/YWP network, etc. A selection of these flyers is included in the Appendices.	Appendix F
Database	A database of people interested in YSF and the type of thinking it promotes has been developed over the year. This serves as a useful foundation for the YSF network.	For this information please contact the authors of the report.



## 6. CAPACITY BUILDING

It is widely recognised that capacity building and sustainable knowledge transfer are critical concerns for water sectors in Southern Africa. The loss of intellectual assets is a major threat to effective water management particularly in water-scarce countries such as South Africa where the onus has always been on the scientific community to find technological solutions for sectoral challenges. The repercussions for the sector include high staff turn-over as well as the loss of skills and institutional memory. Young water professionals in South Africa are therefore faced with multiple challenges including: developing their skills; finding mentors to help them do so; as well as grappling with the added responsibility of re-learning knowledge that could have been retained through sustainable knowledge transfer policies and programmes.

Given these capacity challenges as perceived by young professionals, this project contributed to capacity building in several ways. Firstly, the project emphasised capacity building of students and young professionals in the water sector. As such, there was a strong knowledge-building and awareness-raising component built into all YSF events. Young professionals were informed of current challenges facing the water sector, and were always challenged to come up with their own solutions. Additionally, senior and distinguished water professionals were invited to speak at events. This provided young professionals with opportunities for inter-generational learning as the 'community of elders,' or more experienced professionals would often engage young professionals on their work.

*The vibrant enthusiasm, intense interest and spontaneous participation by everybody present were just wonderful. Excellent presentations were made and bright ideas were exchanged. With Young Water Professionals of this calibre our future is in sound hands.*

Professor Willie Grabow  
Email Correspondence  
1 December 2010



**Photograph 15. At an interactive simulation exercise, conducted at the University of the Western Cape (UWC), students' participation in the simulation exercise was incorporated into their course participation grade.**

The YSF November symposium also provided a funding opportunity for one PhD student from Tanzania to attend the symposium and present her work.



**Photograph 16. Mercy Mwanikah from Tanzania (University of KwaZulu-Natal) presents on the advantages of integrated and participatory scenario processes in dealing with climate change uncertainties.**

Secondly, because the YWP network was targeted very specifically to increase awareness of the need for transdisciplinarity in the water sector, this WRC Consultancy also helped to strengthen the YWP network by providing the platform to attract social science students as well as students impervious to the career opportunities within the sector. As previously noted, the lack of awareness by young researchers that a community of young researchers exists in this field, and/or the lack of awareness that it is a viable career option for social scientists was observed all too often at the university level in many tertiary institutions. This project therefore encouraged students to look to the water sector for career opportunities. The project also used the YWP network to obtain valuable insights into how to take the opportunities of transdisciplinarity thinking into the water sector from a young water professional perspective, and promote this thinking with the broader membership base. Additionally, this project indirectly enabled project members to collaborate and commit resources and time to organising YWP activities and events, and in this regard, strengthened the YWP effort, which is currently conducted on a volunteer basis by highly committed young professionals.

And finally, this project also had an internal capacity building capability. It grew project members' research skills and experience as transdisciplinary political scientists in the field of multi-level water governance, and also enhanced their project management skills. It provided networking

opportunities for team members to communicate and collaborate with peers and mentors, and facilitate dialogues on transdisciplinarity in the water sector. It also provided support to enhance career development through participation in conferences and exchanges with senior professionals. Additionally, the ability to publish is a major challenge for young scholars trying to enter the field. Collaborative work with academics and researchers, both at the CSIR and internationally, enabled the project team to build content-specific expertise in the field. Joint publications, such as journal articles, are currently being drafted that have resulted directly from this initiative.

## **7. COLLABORATIVE PARTNERSHIPS**

This project has had a very strong collaborative focus. Collaborative partnerships were sought with various academic, research, non-governmental as well as private sector institutions. Additionally, governmental departments were co-opted to participate in events by allowing their new recruits and young professionals to attend. The greatest collaborative partnerships, however, were those between YSF and networks such as SA YWP, WISA and IWA.

### **7.1 Southern African Young Water Professionals (SA YWP)**

Linkages with the Southern African Young Water Professionals (SA YWP) both nationally and internationally, commenced at the onset of this project, and this was strengthened through the facilitation of joint dialogues or small discussion-based events to incentivise transdisciplinarity in the water sector with younger professionals and to build collaborative partnerships for future publications. This collaboration was essential to ensuring the sustainability of YSF and in growing and strengthening both networks simultaneously.

Recognising that young water professionals (students and professionals in the water sector and under the age of 35, or who attained their most recent qualification within the past five years) are the future of the water sector, the YWP network was established as an international initiative by the IWA. In Southern Africa, SA YWP in collaboration with WISA, has been highly successful in providing opportunities for YWPs to meet and communicate; providing career development opportunities for YWPs; supporting employers with the recruitment and retention of YWPs; as well as ensuring that the Programme remains relevant.

The YSF and YWP objectives are therefore perfectly aligned, and comprised of the following:

1. Mutual utilisation of the YWP contact database (combined with the YSF database) for marketing of events, workshop, and collaborative ventures between YSF and YWP;
2. Exploration of opportunities for co-funding through the Department of Science and Technology (DST) to ensure the sustainability of the initiative beyond the WRC funding phase;
3. Publication opportunities through IWA publications are still on-going for selected papers presented at the November symposium;
4. Coordination of road show with YWP provincial chapters, particularly the Gauteng and Western Cape YWP chapters. Future plans are underway to broaden the road show to a truly national initiative including visits to all YWP provincial chapters.
5. Assistance in the initiation of the YWP Gauteng chapter and committee. Both project members have become actively involved in the Young Water Professionals Gauteng chapter, National Committee as well as IWA YWP Global committee;
6. Coordination of joint events/seminars at national and provincial level; and
7. Contribution to YWP newsletter and information exchange.

In achieving the long-term sustainability objective, funding has been sought to articulate an explicit commitment to having a social science section to the YWP network and to strengthen provincial chapters to commit to this vision. This YSF project has been the first step in this direction. With the YSF initiative up and running and fully functional within the SA YWP structure, the goal now is to grow the YSF (in collaboration with the YWP) and to have representations of scholars in all SADC member states.

## **7.2 WISA and IWA**

WISA and the IWA, the two supporting and umbrella bodies within which the YWP network is housed, have been supportive in opening up their network and support structures to YSF. Collaboration with WISA focussed on the mobilisation of the WISA network; advertising opportunities on the WISA website and through the WISA mailing list; and the facilitation of a workshop at the WISA biennial conference to leverage support for the YSF initiative. IWA's involvement has largely been by way of developing an affiliation with the IWA YWP to ensure the sustainability of the forum beyond the funded period; information exchange, access to the global YWP network, for marketing purposes, sharing of experiences regarding global transdisciplinary initiatives; advertising of workshops and smaller events; as well as the exploration of the possibility to publish symposium proceedings in a peer-reviewed IWA publication, and coordination of activities of YSF and the YWP Gauteng chapter. While all of the objectives have been met, work is still on-going to pursue publishing opportunities within IWA publications.

The commitment of IWA and WISA to facilitate the transfer and bridging of knowledge and learning amongst young water professionals is therefore very evident in the amount of support these organisations have provided. Both the IWA and WISA institutional structures and membership networks provided boundless networking and mentoring opportunities. The YWP Programme has worked synergistically with these institutions to ensure the sustainability of the workforce in the water sector and help YWPs to obtain visibility, develop their careers and expand their networks.

## **7.3 Tertiary Institutions**

YSF workshop and events were held at various tertiary institutions throughout South Africa including: the Cape Peninsula University of Technology (CPUT), Stellenbosch University, the University of Cape Town (UCT) and the University of the Western Cape (UWC), University of Johannesburg (UJ), and the University of Pretoria (UP). These events were a tremendous success in terms of student attendance, multi-disciplinary audiences, enthusiasm, receptiveness and keen uptake of transdisciplinarity to address new and emerging change in the water sector.

## **7.4 The CSIR and WRC's supportive roles**

The key roles of the CSIR and the WRC should also be recognised in terms of the value they added in the provision of the support. To recognise this role, the CSIR became the recipient of the first WISA/IWA SA YWP Professional Development award, which was awarded at the WISA biennial conference in Durban in 2010. The WISA / IWA SA YWP Professional Development Award recognises companies in the water sector that are making a significant contribution to the professional development of young employees. The nominations for the award should come from young employees of a company clearly stating how their employer has supported them and/or their colleagues. The prize is recognised as a prestigious award promoting excellence in the sector, and is presented during the WISA Biennial Conference. The winning company gains recognition by the leading association of water professionals as an excellent place of work for young employees. All companies nominated for the Award must be corporate members of IWA or WISA.

The uniqueness of the CSIR's approach in growing young water professionals as highlighted in the award ceremony centred on three main spheres: earning potential, making a difference and diversity. The CSIR incentivises (natural, technical as well as social) science and makes researching water as attractive as any other field by providing competitive salaries that are regularly reviewed, taking into account experience and work performance. For some, earning potential is not the most important indicator of job satisfaction, but rather, the ability to make a



difference. The CSIR encourages staff to increase the impact of their science to be of value beyond the boundaries of the epistemic community. A diverse repertoire of projects has touched thousands of lives, improved health and living conditions, eased suffering and created economic opportunities. The CSIR has encouraged young professionals to believe that they can make a real difference in the lives of communities and individuals; from discovering new approaches to prevent the spread of airborne diseases and improving water conservation efforts, to improving institutional capacity of water institutions (Basson, 2010).



**Photograph 17. The CSIR family and friends celebrating the Young Water Professionals Development Award at the Water Institute of Southern Africa's Biennial Conference in Durban in 2010. From left to right, Dr Vernon Somerset (CSIR), Dr Inga Jacobs (CSIR), Dr Keith Kennedy (CSIR), Dr Kevin Pietersen (WISA President), Shanna Nienaber (CSIR); Dr Marius Claassen (CSIR), and Chavon Williams (CSIR).**

## **8. SUSTAINABILITY OF YSF**

One of the project's key challenges from its inception was its sustainability beyond the funding cycle of this Consultancy. However, while this is still a concern, the YSF project has found a home within the SA YWP, which will provide structural support to keep the initiative alive. This means that a commitment has been articulated to have social science themes represented at all YWP conferences; to develop the project into a YWP transdisciplinary working group; to provide support to develop this competency; and to help incentivise social science perspectives as an equally important input to science and technology in the water sector. The Consultancy's project team are now heavily involved with these initiatives at the provincial, national and international levels, and will continue to grow this capacity within SA YWP.

A proposal for funding is currently being reviewed by DST to build this transdisciplinary capacity within the YWP network. Dependent on the proposal's success, SA YWP will aim to:

- Conduct an annual transdisciplinary symposium on global change for YWPs, to be held in different provinces each year. Expand to the region in second year, and to be organised by the YWP transdisciplinary Working Group. Provide travel and accommodation for keynote speakers.
- Produce symposium proceedings, and selected papers with a view to publish it in a peer-reviewed publication.
- Grow the community of young scholars interested in transdisciplinary research collaboration and information exchange on the transdisciplinary topic of global change.
- To encourage YWPs to focus on Southern African water issues around a specific theme, with the explicit goal of producing an agenda for future research.
- To establish a proactive research agenda by young professionals of global change.
- To build capacity, by empowering a younger generation of researchers, academics and scholars to take ownership of their research environment and to aid in shaping its direction. An advisory team of experts would also guide this process and help to equip a younger generation to better deal with future challenges.



## **9. CONCLUSIONS**

This final report has summarised the YSF project activities during 2010-2011. Enabled and given impetus through the SA YWP programme, the establishment of the Young Scholars Forum in Transboundary Water Governance has been successful in transcending disciplines and national boundaries to bring together the next generation of the water community in an interactive and thought provoking way. Young voices from all around the region are sought to provide insights on the opportunities and challenges facing water sector sectors the world over. This project affirmed the agency, determination and commitment of young water professionals in Southern Africa, to take change in their stride, while seeking out the mentorship of distinguished water professionals for guidance.

As young professionals in the water sector, we are the ones faced with the consequences of the environmental threats, and we are passionate about improving the situation. More than this, we aim to improve the way things are done in a fun and positive way, while still ensuring economic relevance and scientific excellence. This project has therefore illustrated the ease and natural tendency of young professionals to work in multidisciplinary teams addressing transdisciplinary research questions. This makes us well suited to tackle the challenges facing us today in a communicative, team-based and transdisciplinary manner.

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**APPENDIX A.      YSF POSTERS**



Addressing the governance challenges facing the water sector necessitates expertise from a diverse set of interdisciplinary backgrounds. Creating a balance between technical, natural and social science is critical to developing relevant and impact driven solutions for the water sector.

## Incentivising Social Science Perspectives in the SADC Water Sector

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### SADC AND WATER

- The Southern African Development Community (SADC) contains 21 international river basins to which one or more SADC member states are riparian, which results in hydrologic linkages across all of SADC's national borders.
- Some of the most economically developed Southern African states have limited water resources, which may constrain future economic development.
- There are pronounced developmental differences in SADC. Some countries are more able than others to mobilise the necessary human, financial and technological resources to address water scarcity and related human welfare needs.
- Social challenges such as population growth, urbanisation, climate change, refugee movements, and diseases such as cholera, malaria, tuberculosis and Aids riddle the region.

All these issues will affect and be affected by the way in which water is managed.

Thus  
"Governance issues form the central obstruction to sound and equitable water sharing and management".

(UN World Development Report 2: Water a shared responsibility: 2006)

### WHAT IS BEING DONE?

Traditionally the technical and scientific communities have been called on to respond to the concerns of the water sector.

Emerging challenges and complexities are demanding more integrated levels of ingenuity and expertise from a diverse set of disciplines.

Socio-political relevance of technical solutions need to be determined in order to achieve impact

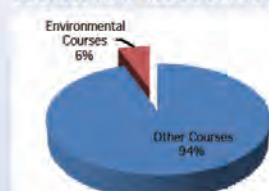
Thus the need for social scientists, equipped with skills, understanding, experience and passion for governance issues in the water sector, is recognised. Presently, however, there are very few social scientists working in this field.

Map 11 Shared River Basins in Southern Africa (red line demarcating SADC boundary)



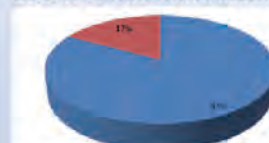
### WHY ARE THERE SO FEW SOCIAL SCIENTISTS IN THE WATER SECTOR?

GRAPH 1. PERCENTAGE OF ENVIRONMENTAL COURSES OFFERED IN SOCIAL SCIENCE DEGREES AT THREE SOUTH AFRICAN UNIVERSITIES



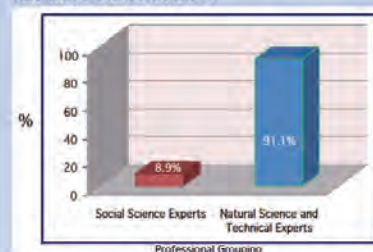
Universities are not equipping social scientists with skills to grapple with environmental issues. Graph 1 indicates the percentage of environmental courses offered in social science degrees (Political Science, International Relations, Sociology, Anthropology and Philosophy) at three major South African universities. The data was derived by reviewing the curriculum modules and content at undergraduate level for these universities.

GRAPH 2. WRC WATER RESOURCE MANAGEMENT: RESEARCH PROJECT PORTFOLIO 2007/08



Funding agendas in the water sector favour natural science projects over social science projects. Of the 229 currently funded projects by the Water Research Commission (as listed in the Research Project Portfolio for 2007/08), 83% were identified as primarily natural science based.

GRAPH 3. A REPRESENTATIVE SAMPLE OF THE RATIO BETWEEN SOCIAL SCIENCE AND NATURAL SCIENCE/TECHNICAL EXPERTS WITHIN AN ENVIRONMENTAL UNIT IN A SOUTH AFRICAN RESEARCH INSTITUTION\*



Arguably, there is an organisational bias favouring natural scientists and technical experts in environmental research institutions.

\*Data pool: CSIR Natural Resources and the Environment, March 2009, Researchers only

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Additional sources available on request.

### Acknowledgements

We would like to thank Professor Peter Ashton for granting us permission to use his map. Additionally, we are grateful to Gerry and Yvonne le Roux of Moon Dance Design & Photography for their help with design and graphics.

### WHAT IS THE PROBLEM WITH THIS DEFICIT OF SOCIAL SCIENTISTS?

Institutions will increasingly struggle to produce issue relevant, impactful and sustainable solutions as they are not adequately equipped to tackle issues of governance, trust building, and institutional development. A greater presence of social science expertise in the water sector can therefore level the playing field.

### WHY LEVEL THE PLAYING FIELD?

The justification for increasing social science capacity in institutions

#### Social science has an embedded social consciousness

Social scientists have unique expertise in cultural, behavioural and societal nuances, as social science reveals subjective, objective, inter-subjective and structural aspects of society. In simple terms, it measures the social developments of society and simultaneously finds emerging drawbacks.

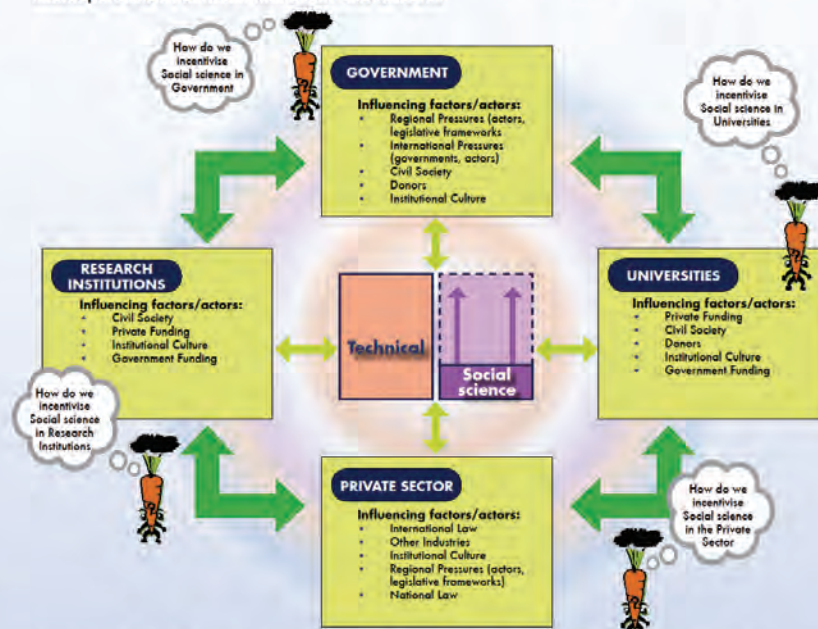
Social science has a familiarity with social and institutional capacity building mechanisms e.g. Knowledge of different policy models and approaches.

A primary goal of social science is to influence public policy by generating practical knowledge that can help policy makers make informed decisions. It therefore fosters institutional change.

Social science research strives to produce findings that alter the economic welfare of individuals, households, and communities, largely through improvements in total factor productivity (TFP). TFP is broadly defined here to include effects on the productivity of households, government, and the private sector.

### UNDERSTANDING THE COMPLEXITIES OF INSTITUTIONAL CONTEXTS

Creating a social science presence in institutions requires an understanding of the complex interdependencies between institutions and research.



### SUGGESTED INCENTIVES FOR ATTRACTING SOCIAL SCIENCE



One possible way to assist in the incentivising of social science in the water sector and to facilitate sustainable knowledge transfer could be ...

#### A 'Forum of Young Scholars in SADC Transboundary Water Governance'

Aims:  
1. Build a community and network of young professionals, who have an interest in dealing with water issues from a social science perspective.

2. Create opportunities for younger and more experienced water professionals to interact and share knowledge.  
3. Increase the social science literature output on water issues.

What's unique about this forum?  
• It has a specific focus in that it looks at water in terms of its transboundary and governance dimensions in SADC.

• It is theme based, allowing young professionals to develop their expertise in a focused manner.

This forum is an ideal way of grooming, supporting, mentoring and encouraging young social scientists who are either in the water sector or considering it as a career option.

For more details please contact:  
Shanna Nienaber: snienaber@csir.co.za  
Inga Jacobs: ijacobs@csir.co.za



## Promoting transdisciplinarity in the Southern African Development Community's water sector

I JACOBS AND S NIENABER

CSIR Natural Resources and the Environment, PO Box 395, Pretoria, 0001, South Africa  
Email: ijacobs@csir.co.za – www.csir.co.za

### INTRODUCTION

#### Water Governance Challenges in SADC

- The Southern African Development Community (SADC) contains 21 international river basins to which one or more SADC Member States are riparian, which results in hydrologic linkages across national borders<sup>1</sup>.
- Some of the most economically developed Southern African states have limited water resources, which may constrain future economic development<sup>2</sup>.
- There are pronounced developmental differences in SADC. Thus some countries are more able to mobilise the necessary human, financial and technological resources to address water scarcity and related human welfare needs than others.
- Social challenges such as population growth, urbanisation, climate change, refugee movements, and diseases such as cholera, malaria, tuberculosis and Aids riddle the region.

All these issues will affect and be affected by the way in which water is managed. Thus "governance issues form the central obstruction to sound and equitable water sharing and management"<sup>3</sup>.

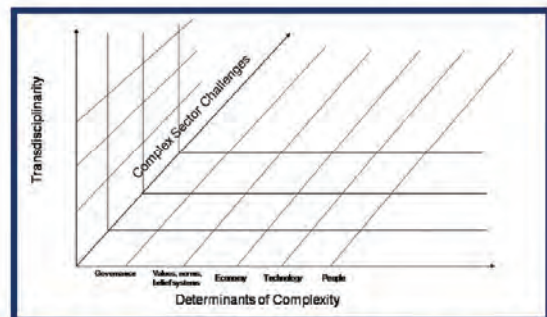


Figure 1: Shared river basins in southern Africa (red line demarcating SADC boundary)<sup>4</sup>

#### Responding to the water challenges in SADC

1. Traditionally the technical and scientific communities have been called on to respond to the concerns of the water sector.
2. Emerging challenges and complexities are demanding more integrated levels of ingenuity and expertise from a diverse set of backgrounds.
3. Socio-political relevance of technical solutions needs to be determined in order to achieve impact.
4. There is growing recognition of the need for transdisciplinary responses to the challenges facing the water sector.

Transdisciplinarity is therefore about rising to the challenge of working together in a time of complexity; understanding the concepts, contributions and language of different disciplines; and addressing sector challenges by integrating the perspectives of different actors into comprehensive solutions for the water sector.

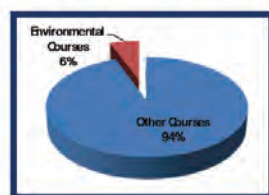


Graph 1: Illustration of the role of transdisciplinarity in addressing complexity and sector challenges

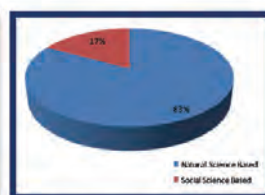
### THE CHALLENGES HINDERING TRANSDISCIPLINARITY

Currently there are very few social scientists, equipped with skills, understanding, experience and passion for governance issues in the water sector. There are many possible reasons for this.

- Universities are not adequately equipping social scientists with the specific skills and language needed to grapple with environmental issues. Graph 2 indicates the percentage of environmental courses offered in social science degrees (Political Science, International Relations, Sociology, Anthropology and Philosophy) in three major South African universities. The data was derived by reviewing the curriculum modules and content at undergraduate level for these universities<sup>5</sup>.

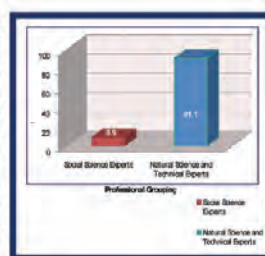


Graph 2: Percentage of environmental courses offered in social science degrees at 3 major South African universities



Graph 3: WRC Water Resource Management: Research Project Portfolio 2007/08

- Funding agendas tend to favour natural science methodology and thus tend to support less social science research. Of the 229 Water Research Commission's funded projects (as listed in the Research Project Portfolio for 2007/08), 83% were identified as natural science based (See Graph 3)<sup>6</sup>.
- There is often an organisational bias favouring natural scientists and technical experts in scientific research organisations. This is tied to the (mis)perception that 'hard' science is more accurate and quantifiable than the 'soft' and often more qualitative science that social scientists specialise in.
- Scientists from different disciplines speak different languages, use and value different methodologies, at times mistrust each others' science, work on different timelines, have different personalities, and lack the ability to link theories and tools to integrate their work.



Graph 4: Representative sample of a grouping of natural science and technical versus social science professionals<sup>7</sup>

\* Data pool: Natural Resources and Environment, CSIR, March 2009. Researchers only

### Why continue the fight for better integration?

Social scientists have unique expertise in cultural, behavioural and societal realities. This equips them with the skills to interpret subjective, objective, inter-subjective and structural aspects of a society. This aids understanding of the social developments, needs and drawbacks of a context. Social science has a familiarity with social and institutional capacity building mechanisms and thus can offer critical support to the bodies and individuals that are mandated to manage water in the region.<sup>8</sup>

A primary goal of social science is to influence public policy by generating practical knowledge that can help policy makers make informed decisions, and in so doing, help to foster more effective policy and governance options.<sup>9</sup>

Social science research strives to produce findings that can support or improve the livelihoods of individuals, households and communities.<sup>10</sup> This can be done, for example, by considering the effects on the productivity of households, governments and the private sector.

Transdisciplinary work helps to bridge divides and build understanding of the methodology, theories, paradigms and language of different disciplines. This facilitates the peeling (rather than dividing) of knowledge in the pursuit of finding solutions to complex problems.

### RIISING TO THE CHALLENGE OF TRANSDISCIPLINARITY: QUO VADIS?

One possible way to assist in incentivising social science in the water sector and to facilitate sustainable knowledge transfer is through the:

#### Forum of Young Scholars (YSF) in Transboundary Water Governance in SADC

##### Aims:

1. Build a community and network of young professionals, who have an interest in dealing with water issues from a social science perspective.
2. Create opportunities for younger and more experienced water professionals to interact and share knowledge.
3. Increase the social science literature output relating to water issues in SADC.

##### What's unique about this forum?

- It has a specific focus in that it looks at water in terms of its transboundary and governance dimensions in SADC.
- It is theme based allowing young professionals to develop their expertise in a focussed manner.

This forum is an ideal way of grooming, supporting, mentoring and encouraging young social scientists who are either in the water sector or considering it as a career option.

**Creating a balance between natural and social science is critical to developing relevant and impactful solutions to the governance challenges facing the water sector.**



The YSF annual symposium will be taking place from 29-30 November 2010 at the CSIR Knowledge Commons. The topic for the event is "Exploring transdisciplinarity to address change in the SADC Water Sector: Establishing the role of social scientists in this vision."

For more details about YSF or the symposium, please contact:  
Shanna Nienaber: snienaber@csir.co.za  
Inga Jacobs: ijacobs@csir.co.za



A YSF event held at the Water Institute of South Africa's Biennial Conference in 2010 exploring the challenges that young water professionals face when working in a trans-disciplinary manner

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## APPENDIX B. ARTICLE SERIES IN POPULAR PRESS: YWP NEWSLETTER FOUR-ARTICLE SERIES

### Part 1

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#### 3. Are you a “soft and fluffy?” - The Importance of Social Science Perspectives to the Water Sector

So you have a background or interest in the social or political sciences (sociology, anthropology, political science, international relations, etc.). You may be a social scientist working in the water sector, or a student thinking of pursuing a career in the water sector. You may even be a natural scientist with an interest in the socio-cultural impact your work may have on the lives of ordinary people. At some point, you may have wondered about the contribution you can make to a sector dominated by the ‘hard’ biophysical sciences.

There are many challenges facing social scientists working in such sectors. Social theory and established social science methodologies still receive limited application, and when its value is recognised, it is within the constraints of “servicing” natural science projects. Traditionally, the technical and scientific communities have been called on to respond to the concerns of the water sector. However, times are changing. New and emerging challenges and complexities, such as climate change, increasing water scarcity, skills flight and social inequality, are demanding more integrated levels of ingenuity and expertise from a diverse set of disciplines. The socio-political relevance of technical solutions needs to be determined in order to achieve impact. Questions we could benefit from include: why won’t certain communities drink the water from a tap donated by an international donor agency? How do perceptions of racial disempowerment perpetuate poor conservation practice? How can Herero praise songs help us determine the pre-colonial location of wells, and can it enlighten contemporary groundwater research?

The need for social scientists, equipped with skills, understanding, experience and a passion for issues affecting the water sector, is slowly being recognised because of the nuanced understanding required of the biophysical environment. This necessitates a consideration of the socio-cultural, political and economic contexts. As in the natural sciences, social science also relies on applying appropriate theories or models to help increase understanding, in this case, of how humans think, feel and behave under certain conditions. Creating a balance between technical, natural and social science is therefore critical to developing relevant and impact driven solutions that foster ownership at the local level. Presently, however, there are very few social scientists working in this field.

The paucity of Southern African research conducted in social science disciplines on water politics and governance can potentially be reflected in the lack of young Southern African scholars interested in this topic, the lack of awareness by young researchers that a community of young researchers exists in this field, and/or the lack of awareness that it is a viable career option for social scientists. The Young Scholars Forum in Transboundary Water Governance in Southern Africa (YSF) has been established to increase the awareness of the need for transdisciplinarity in the water sector. YSF is a collaborative exchange initiative for students, and one which encourages the recognition and mutual respect of multiple perspectives. A forum of this nature is unique in that it encourages a proactive research agenda through the development of a theme based approach to water governance, and has a specifically regional focus, with young scholars identifying challenges specific to the SADC region, through the integration of social science perspectives. In close collaboration with the Young Water Professionals (YWP), YSF organises workshops and facilitates transdisciplinary collaborative work for students and young water professionals to grow their competence in water. As such, the forum is about bringing water onto the social science agenda for research and vice versa.

For more information on YSF, contact Inga Jacobs ([IJacobs@csir.co.za](mailto:IJacobs@csir.co.za))

*By Inga Jacobs*

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#### 4. Scholarships, Awards, Funding and Fellowships

##### 4A) SANPAD Large Scale Projects

SANPAD (South Africa-Netherlands Research Programme on Alternatives in Development) is a unique collaborative research programme financed by the Royal Netherlands Embassy. They have announced a





## Southern African Young Water Professionals

Newsletter Volume 2 Issue 1

<http://www.wisa.org.za/ywp>

### WELCOME

The soccer world cup is now all done and dusted and for most of us that mean getting back to the grindstone to finish projects, start the second semester of our studies or do just get back to our day-to-day duties. Well done to Bafana for keeping our name high and to everyone who made this an enjoyable event!!!

As most of you know by this time the management committee for the SAYWP changed during the past WISA 2010 conference. Words of gratitude to the past committee lead by Jo Burgess for all the wonderful things they have done to promote the YWP's in South Africa. Welcome to the new committee, we have our work cut out for us but with the help of all the YWP's I am sure we will be able to build on the foundation laid for us.

The time has come to get all you YWP's actively involved in the YWP so that everyone gets as much from the programme as possible. In order for us to achieve this we changed the format of the newsletter so that we can follow who has been doing what, what has been happening around SA and the world, to give you information on institutions and people working in the water sector and a section dedicated to grooming YWP's for the road ahead. In order for us to make this work we do however need your help with getting all the information to us, so don't be shy let us hear from you.

### WHO WAS SEEN WHERE

#### A Young Water Professionals (Gauteng) Event at TUKS: *"Being heard in Water Policy debates"*

*Submitted by Nienaber, S., Funke, N., and Jacobs, I.*



On 10 May 2010 the University of Pretoria Political Sciences Department hosted the Young Water Professionals (YWP), the Young Scholars Forum in Transboundary Water Governance (YSF) and the CSIR, for a collaborative event titled *"Being heard in water policy debates"*.

The event was attended by young professionals and students from the Political Science Department, the CSIR, the Department of Water Affairs, the Department of Agriculture, Forestry & Fisheries, the University of Johannesburg, and Kings College in the UK.

The issue of the science policy interface was explored in a number of ways. Firstly, a theoretical presentation about evidence-based-policy-making was given by Shanna Nienaber and Nikki Funke of the CSIR, and former students of the University of Pretoria's Political Science Department. This provided an overview of the issue. This was followed up by a presentation from the Department of Water affairs who offered reflections "about policy makers, from policymakers" particularly looking at how evidence is utilized in their daily work and the challenges thereof.

With this background information in place the participants then engaged in an interactive role-playing exercise entitled "The White Paper on National Water Policy for South Africa: A complex policy development process for a complex array of actors". This exercise simulated the diverse set of role players that were involved in producing the water legislation that we have in South Africa today. By stepping into the shoes of the various actors involved in this policy development process, participants were able to understand the complexity of policy development, the way that evidence is generated to support a variety of, at times, conflicting stances,





and the value of trans-disciplinary perspectives in dealing with complex policy issues. All in all, this event aimed to encourage the recognition and mutual respect of multiple perspectives. Events such as these highlight the benefit of transdisciplinarity, with young water professionals strategically placed to take up the challenges in the water sector.

It not only offered participants an informative, fun and thought provoking topic to explore and consider, it also served as a platform to introduce the YWP (Gauteng chapter), currently chaired by Renay van Wyk; as well as an affiliated initiative known

as the *Forum for Scholars in Transboundary Water Governance* (YSF), initiated by Inga Jacobs and Shanna Nienaber. This is a 'trans-disciplinary forum aiming to build a community and network of young water professionals interested in water governance in SADC. It also aims to create opportunities for younger and more experienced water professionals to interact and share knowledge, as well as incentivising social science perspectives in the water sector.

## WHAT IS ON YOUR MIND?

Research reports that 'grow dust on shelves' rather than being used in the 'light of day': Some musings about the science-policy interface

*Submitted by Shanna Nienaber*

Right, so you're a Young Water Professional and you're in the business of knowledge and innovation production for the water sector in some way or another. Part of what you're expected to do to grow your career and reputation is to create knowledge and solutions for the water sector that are relevant, real and impactful for the multiple challenges, needs and issues facing society today.

This is, at least in part, about gaining the personal fulfilment of 'making a difference' with your work. It's also however, practically tied to the reality that funding agencies and policy-makers need you to prove that your work makes enough of an impact to merit further funding in future.

This is likely to leave you with a bit of an existential crisis from time to time because achieving impact is, quite frankly, easier said than done as it's seldom a process that you personally have total control over. Ultimately, if you hope to 'change the world' with your research you need someone in the policy-making process to take an interest in learning about you and what you do. Then with a bit of luck, your work will be taken up and interpreted by some policy mechanism that will allow policy-makers who are involved with the complex task of implementing change and solutions to bring your research results into effect on the ground.

This makes sense right? You spend a lot of time researching, exploring and creating solutions to complex problems in the water sector. A policymaker then needs to take these solutions, incorporate them into policy, and thus make more effective policy. Why then has this process proven to be so difficult to achieve in reality? Recent research offers a number of ideas about all this.

Firstly, scientists and engineers often forget their place in the bigger policymaking picture. Whilst we like to believe that what we do is really important, useful, and special; there are thousands of other actors out there who think exactly the same thing. Executive policy-makers in water affairs have ideas about what the best solutions are and why, industry knows exactly how to produce evidence that help them to continue business pretty much as usual, other scientists may produce work that has a different perspective to yours, trade unions and interests groups and individuals and the press all have agendas and perspectives that they lobby government to incorporate into practise. It's in the middle of this right old muddle that your science has to compete to be heard.

Secondly, not only do you have to compete to be heard, you're also not competing on an equal playing field. As soon as you set your research free into the public and policy arena it becomes part of the complex game of politics. To win you need to understand, work with and gain power. If you don't have power and influence you need to find a powerful friend or tons of less powerful friends who may help you to gain strength in numbers. Put simply, to help your evidence to be heard you need to network extensively with a wide variety of official policy makers and civil society actors who are dealing (or should be dealing) with similar issues to you.

Thirdly, networking is going to place new demands on you as a person. It's going to take time (which you often



won't have the budget for so it's extra work). It's also going to mean that you'll have to learn to talk with, respect, understand and trust people who you just don't naturally click with. Upright, rigid, accuracy driven scientists are going to need to work with sensationalist activists and media journalists. Social scientists are going to need to learn to grasp the fancy jargon and graphs and numbers that those natural scientists and engineers work with. The possibilities are endless.

Whilst, I'll grant you that, this all sounds a little over-powering, *there is absolutely not reason to give up!* As young water professionals we are uniquely positioned to rise to this challenge of making our science heard in order to make a difference to South African society. This is, however, going to demand that we:

- become entrepreneurial about how we 'market' our research,
- open-minded about the connections and networks that we build,
- and committed to working and thinking in a transdisciplinary manner.

It is only by working with people from multiple different disciplines, perspectives and parts of the policymaking arena that we can hope to come up with integrated and relevant solutions to the problems we face in our sector.

The Young Scholars Forum in Transboundary Water Governance in Southern Africa (YSF) has been established to increase the awareness of the need for transdisciplinarity in the water sector. This initiative encourages the recognition and mutual respect of multiple perspectives to develop water solutions that are both technically innovative and socio-politically relevant to the water sectors of our region. In collaboration with the Young Water Professionals, YSF organizes workshops and facilitates transdisciplinary collaborative work for students and young water professionals to grow their competence in water in order to create solutions that stand a chance of bridging the science-policy divide.

For more information about YSF please contact Shanna Nienaber: [snienaber@csir.co.za](mailto:snienaber@csir.co.za)

## H<sub>2</sub>O@.....

If you are studying at a particular university or working for a certain company there must be something that drew you there and that makes you want to get up to go to work. Let us know where you are studying or working and why YWP's should consider this institution. Send us information on why to consider this university or company, background about the university or company as well as contact details for how to contact the university or company and we will include it in the next issues of the newsletter.

All information can be emailed to [tgarnard@uj.ac.za](mailto:tgarnard@uj.ac.za).

## YWP GROOMING SHOP

What should my CV contain? What should I wear to an interview? How do I network? Where can I learn to speak French for that dream job at the WHO?

We all battle with these questions and more. Our aim is to assist YWP's from SA and Africa in answering these questions, starting from the next issue. We already have some ideas about what we want to learn to improve our lives, like:

- How to become a star presenter
- How to network with leaders in the field
- Where to learn to speak French for a job at the WHO

But let us hear from you. What do you think we should include in this section? Don't be shy, tell us what you are struggling with and we will get advice from the leaders in the field, ensuring that you become the best YWP you can be!

All requests can be emailed to [tgarnard@uj.ac.za](mailto:tgarnard@uj.ac.za).

## SITES TO VISIT

- Visit the new database developed by Springer, Springerimages, at [www.springerimages.com/about.aspx](http://www.springerimages.com/about.aspx).

## **What do millenials have to offer? Reflections on Sustainable Knowledge Transfer in the South African Water Sector**

By Inga Jacobs

*Council for Scientific and Industrial Research (CSIR), South Africa*

*Published in the Young Water Professionals newsletter 2011*

<http://www.wisa.org.za/ywp>

With the Second Regional Conference of the Southern African Young Water Professionals just around the corner, I paused to reflect on the highlights of the first YWP conference held in January this year, and the legendary presentation of keynote speaker, Mr. Gareth McConkey came to mind. His address, entitled "The replacements in the water sector – reaching out to the next generation," highlighted the numerous opportunities and challenges that young water professionals are faced with. He described how different generations, from traditionalists putting off retirement to millennials just starting out their careers, operate differently in the workplace. Add to this the water sector's sustainable knowledge transfer challenge, and it is no wonder that generational differences become all the more stark. In an effort to promote working together to strengthen the sector, McConkey encouraged YWPs to seek out mentoring opportunities but also challenged employers to provide enabling environments in which young professionals could grow and develop.

It is widely recognised that capacity building and sustainable knowledge transfer are critical concerns for the water sector. The loss of intellectual assets is a major threat to effective water management particularly in water-scarce countries such as South Africa where the onus is on the scientific community to find technological solutions for sector challenges. There has been a large skills flight in southern Africa in recent years due to an array of factors ranging from increased crime, to lack of confidence in the government, and social mobility. The mobility of skilled people is however widespread and varies in nature. Water specialists in African countries often emigrate to apply their trade in developed countries, but also move to international and multi-national organisations. Similarly, South Africa attracts significant capacity, particularly from Zimbabwe, where highly skilled people seek economic security.

The repercussions for the water sector include high staff turn-over, the loss of skills and institutional memory due to the departure of experienced staff, little or no career path and succession planning, the appointment of non-technical personnel to management positions requiring technical experience, as well as the absence of well structured educational and training programmes suitably targeted to all stakeholders in the water management chain. These factors impact institutional effectiveness as it involves a large degree of re-learning and re-building of trusting relationships. This problem is not however unique to South Africa with neighbouring states experiencing the same challenges. When experienced staff members leave the sector or reach retirement age, institutional memory loss occurs, with younger staff not being able to fill their shoes fast enough. A 2006 Water Research Commission (WRC) report concluded that institutional memory loss results in

negative impacts on service delivery and opportunities for co-operation, particularly where mechanisms to institutionalise individuals' knowledge have not been put in place.

What can employers do to facilitate inter-generational learning and increase sustainable knowledge transfer? They can start by identifying ways to retain and institutionalise the knowledge of more experienced professionals. This involves building workplaces that foster open communication and learning, participative leadership and quality of life. Secondly, clearly defined functions, roles and responsibilities as well as succession plans and knowledge transfer policies should be put in place. According to McConkey, large organisations take too long to change internal policies, rules and guidelines that they “miss the bus” and struggle to achieve their ultimate functions roles and responsibilities because they have not got the capacity to complete their mandate. Thirdly, employers need to identify how different generations operate in a professional environment and what unique characteristics they offer an organisation. Born roughly between 1982 and 2002, most YWPs can be classified as millennials. We are fast becoming the most educated generation in world history, we are technologically-savvy, we are free thinkers but also thrive in team environments. We desire flexible work schedules, learning opportunities, feedback, recognition and good pay. Compared to our rather cynical Generation X elders, we are a generally positive, cutting-edge bunch. We are the first generation to have been exposed to computers and technology since birth, and regard ourselves as problem-solvers and world-changers. Others, however, regard us as lazy with no job loyalty, needing instant gratification and ‘get rich quick solutions.’ In order to harness a millennial's full potential and to create an enabling environment for us to grow and develop, employers should focus less on our bad press and more on promoting career opportunities, supporting their staff in terms of retention and remuneration, promoting education, training and capacity building, and encouraging new and innovative thinking.

What can YOU do as a millennial? You can start by seeking out your own opportunities for growth and development. Become involved in initiatives that help to develop your capacities, support institutions and make sure they represent your needs, understand your roles and responsibilities in the workplace, and understand generational differences.

One initiative that promotes inter-generational learning is the Young Scholars Forum in Transboundary Water Governance in Southern Africa (YSF). YSF is a collaborative exchange initiative for students, and one which encourages the recognition and mutual respect of multiple perspectives through transdisciplinary engagement on key water issues. This forum is an ideal way of grooming, supporting, mentoring and encouraging young water professionals who are either in the water sector or considering it as a career option.

For more details about YSF, please contact: Dr. Inga Jacobs: [ijacobs@csir.co.za](mailto:ijacobs@csir.co.za)

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**Getting transdisciplinarity right:  
What does this mean in the life of young, water professional?**

By Shanna Nienaber

*Council for Scientific and Industrial Research (CSIR), South Africa*

*Published in the Young Water Professionals newsletter 2011*

<http://www.wisa.org.za/ywp>

Have you ever taken a moment to reflect about what is it to be a young water professional today? Allow me to share some of my musings with you.

On the one hand, the early stages of a career in water are thrilling. We're stimulated with new experiences, opportunities, and things to learn. We're in the process of building networks to collaborate with as our careers progress and developing career profiles through further study, publication, project management and so on.

Also, water issues aren't just personally interesting to us, but truly important. Our daily work is about grappling with the reality that 'water is necessary for life' which necessitates careful thinking about how are we going to utilize and protect the resource. In addition, we live and work in interesting times in South Africa where water-related problems interact with a complex social, cultural, economic and political climate.

On the other hand, it's not all 'chocolates and roses' being a young professional. Establishing a career can be daunting. There is pressure to learn, read, discover and absorb knowledge from more experienced professionals. There is the exhausting task of studies and training courses. This pressure is coupled by a broader societal pressure and urgency to deal with water related problems and needs in South Africa.

Faced with all these challenges; our reaction can be to want to shut our office doors, live in 'happy bubbles' and keep tasks as simple as possible! But, as soon as we try this we'll read an article, receive a YWP email like this, or be sent a seminar invitation throwing around frustrating words like 'transdisciplinarity', 'working together', 'multidisciplinarity', 'social relevance' and such like! All of which, in some way or another, mean that we have to open our office doors, step out of our 'happy bubbles', think beyond disciplinary silos and other similarly exhausting things.

**So, why all the fuss about transdisciplinarity?** Why can't we stay in our comfort zones and hang out exclusively with professionals from our own fields of expertise? The logic is pretty clear. Transdisciplinarity is about rising to the challenge of working together in a time of complexity. It is about understanding the concepts, contributions and language of different disciplines; and addressing sector challenges by integrating the perspectives of different actors into comprehensive solutions for the water sector.

For example, when grappling with a complex water related problem like acid mine drainage you need a wide variety of experts and actors to address the challenge. On the science side of things you need experts to grapple with water quality, water purification,



ground water movements, health related impacts, and society related issues. Then on the implementation side of things, activists, local communities, mining companies, government, political parties and so on, all have to get involved to generate awareness so that something actually gets done about the problem. Transdisciplinarity is about saying that no one of these actors can fix this problem alone. The solution lies in consciously collaborative effort.

So, this is a really nice idea but what does it actually mean in practise? Whilst there is not a clear road map to achieving transdisciplinary collaboration there are a few suggestions that can be made.

To start with we need to get our mindsets right. This demands being:

- **open-minded and innovative.**
- willing to **step out of 'disciplinary silos'** so that we can see linkages and compatibilities between disciplines. This does not require that we sacrifice disciplinary depth but is more about having vertical as well as horizontal insight.
- aware of the fact that all individuals and disciplines operate with a set of implicit assumptions. Being aware of and **accepting of this diversity** is critical.
- **aware of the language we use.** Each individual and discipline has its own jargon that is unlikely to be familiar to someone of a different background. We need to learn to communicate what we know in a way that all can understand.
- sensitive about **'bringing people to the table'** or consciously including a variety of stakeholders, experts and disciplines when grappling with a problem.

Right, so once we've worked on our mindsets what do we practically need to do to achieve transdisciplinary actions?

- **Start networking and talking to people beyond your own discipline.**

This can be done by attending conferences where there is a wide range of experts, political figures and NGOs present, by attending seminars run by university departments other than your own, by coordinating inter-departmental seminars and exchanges, become members of forums with wide scope and diversity (e.g. YWP, WISA, IWA), by inviting speakers from different disciplines to address work teams over lunch breaks, etc.

- **Consciously plan for transdisciplinarity when developing research proposals and working on projects.**

This can be done by including a wide range of experts from social, natural and technical science backgrounds on projects. Also, all of these actors need to be included in the project development and planning from the start so as to achieve meaningful interaction with the work and team. Similarly, other stakeholders (e.g. communities, political decision makers and implementers) in society who may be interested, impacted or expected to implement the research need to be consulted from the outset in order to achieve solutions that are relevant for end-users.

- **Students and employees need to be exposed to the idea of applying the concepts, theory and insights of their disciplines to the water sector.**

For example, political scientists, sociologists, anthropologists, and lawyers need to be shown how their skills can be of relevance and importance to the water sector. Unless this

'imagination space' is opened students are likely to pursue careers in areas more typical of their field.

Transdisciplinarity is a critical approach when grappling with complex water-related problems. It is not a way of operating that comes naturally, easily and without effort for many of us. However, by being open to the value of this way of thinking and working, by 'getting our mindsets right' and looking for practical ways to 'do' transdisciplinarity we stand the chance of creating truly relevant and meaningful solutions to the water complex challenges we grapple with as young water professionals.

Curious about topics related to this article? See the other articles in our 4 part series or contact the author.

**Are you a "soft and fluffy?" The Importance of Social Science Perspectives to the Water Sector**, by Inga Jacobs, in the YWP newsletter volume 1 issue 4 January 2010 <http://www.wisa.org.za/ywp/newsletters.htm>

**Research reports that' grow dust on shelves' rather than being used in the 'light of day': Some musing about the science policy interface**, by Shanna Nienaber Volume 1 Issue 5 March 2010 <http://www.wisa.org.za/ywp/newsletters.htm>

**What do millenials have to offer? Reflections on Sustainable Knowledge Transfer in the South African Water Sector**, by Inga Jacobs, in the YWP newsletter volume 1 issue 6 October 2010 <http://www.wisa.org.za/ywp/newsletters.htm>

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Southern African  
Young Water Professionals

<http://www.wisa.org.za/ywp>

## SA YWP Newsletter Volume 1, Issue 5

### 1. Welcome

The WISA Biennial is almost upon us! If you are lucky enough to be attending, watch out for the YWP hub - our own area within the venue - and the YWP awards at the Gala Dinner. We will also be holding our AGM during the week - venue details will be circulated. In the meantime, nominations have been received for both the national management team for the 2010/11 term of office, and for the Employer of Choice Award, both to be announced during the WISA Conference. Watch this space! The Gauteng Chapter of the YWP was launched at a fantastic event last month, while the Western Cape and KwaZulu Natal Chapters both have plans up their sleeves. All of the chapters are always ready to welcome volunteers - so if you are a recent graduate (within the past five years) and would like to jump aboard, please use the contact details at the end to get ahold of the best person for your needs.

### 2. Launch of the YWP Gauteng Chapter



The YWP Gauteng Chapter was officially launched on the 19 March! The event, hosted by the University of Johannesburg, was attended by the UJ undergraduate and postgraduate students from Environmental Health, Zoology, and Civil Engineering departments, the Water and Health Research Unit (WHRU), along with young water professionals from ERWAT and Department of Water Affairs. In total 70 delegates attended and 20 undergraduate environmental health students applied for YWP (WISA) membership. The half-day event explored the theme, *From water to health: Where do you fit in?* and included an overview of YWP-Gauteng aims, benefits and plans for 2010 by Gauteng chapter chair, Renay Van Wyk. The YWP GP aims to provide networking and knowledge sharing opportunities for young water professionals from industry, government, academia and consultancies across all disciplines (environment, health, engineering and social sciences etc.)



An exciting new initiative, the WRC-funded *Forum for Scholars in Transboundary Water Governance* (YSF), which is an inter-disciplinary forum affiliated with YWP Gauteng, was also introduced by founders, Inga Jacobs and Shanna Nienaber from the CSIR.

The YSF aims to build a community and network of young water professionals interested in water governance in SADC. It also aims to create opportunities for younger and more experienced water professionals to interact and share knowledge, as well as incentivising social science perspectives in the water sector.



In line with the theme, students engaged in an interactive role-playing exercise on cholera as a transboundary disease entitled, *Coordination of Cholera Preparedness and Response in SADC: who takes the lead?* Due to the complex web of actors in cholera response in SADC, this exercise encouraged students to “jump disciplines” and explore the topic from a multiplicity of perspectives in group engagements. These collaborative exchanges encouraged the recognition and mutual respect of multiple perspectives, and highlighted the value of interdisciplinary collaboration.

Dr. TG Barnard, voted the Best Speaker at the YWP 2010 Conference, presented on: *Looking back at Delmas 2007: Evidence of a multi-pathogen diarrheal outbreak*. This event was simultaneously informative, as well as fun and interactive. The participants threw themselves whole-heartedly into the challenges posed by the simulation activity and were stimulated by new ideas through the various presentations and interactive sessions. This was a testament of the vibrant group of young professionals emerging and moving into the water sector in Gauteng.



By Inga Jacobs, Renay Van Wyk, and Shanna Nienaber

**APPENDIX D.        SYMPOSIUM DOCUMENTATION**



**The Forum for Young Scholars (YSF) in Transboundary Water Governance in SADC, in collaboration with the Young Water Professionals Gauteng Chapter presents its First Annual Symposium in association with WISA and IWA.**

**29-30 November 2010  
Council for Scientific and Industrial Research (CSIR), Pretoria**

## **Call for Abstracts**

### **Exploring transdisciplinarity to address change in the SADC Water Sector: Establishing the role of social scientists in this vision**

In order to address new and emerging challenges and complexities, such as climate change, increasing water scarcity, skills flight and social inequality, more integrated levels of ingenuity and expertise from a diverse set of disciplines are needed. Creating a balance between technical, natural and social science is critical to developing relevant and impact driven solutions for the water sector in the Southern African Development Community (SADC).

YSF, an issue-driven initiative by the Young Water Professionals (YWP) Gauteng Chapter invites you to its first annual symposium on the benefits of interdisciplinary collaborative exchanges in addressing change in the SADC Water Sector. This workshop offers a number of exciting opportunities to interested young professionals:

- It will bring together a broad spectrum of young scientists, from different backgrounds, to workshop the theme above.
- It offers a theme-specific presentation opportunity to young professionals
- It will offer an opportunity for inter-generational learning as a 'community of elders' or more experienced professionals will be present to engage young professionals on their work.
- Publishing opportunities for selected papers will be explored.

We encourage the submission of abstracts that look innovatively at transdisciplinarity as a means to addressing the region's emerging change and challenges, specifically targeting the following sub-themes: **Climate Change; Acid Mine Drainage; Water and Health; and Governance.**

Abstracts should be a maximum of 350 words, font size 12, Times New Roman and single spaced. Papers in each sub-theme should include innovations and experiences in water resources planning and management and river basin management at different institutional and spatial scales and in view of global changes.

**Please email all abstracts and registration forms to:**

Dr. Inga Jacobs: [ijacobs@csir.co.za](mailto:ijacobs@csir.co.za)

**Extended Due Date for all abstracts and registration forms:**

**30 September 2010**



**The Forum for Young Scholars (YSF) in Transboundary Water Governance in SADC**  
In association with the SAYWP, WISA and IWA

**Exploring transdisciplinarity to address change in the SADC Water Sector: Establishing the role of social scientists in this vision**

**29-30 November 2010**

**Council for Scientific and Industrial Research (CSIR), Pretoria**

**CSIR Pretoria Campus, Knowledge Commons, Ulwazi Room**

## **DAY 1**

**08:30-09:00 Registration and tea**

**09:00-09:30 Welcome and Introductions**

The Importance of emerging researchers in Science and Technology by Dr. Mamoeletsi Mosia (CSIR)

Introduction to the Young Water Professionals by Dr. TG Barnard (SA YWP Chair)

Grappling with Transdisciplinarity and Change by Ms. Shanna Nienaber (CSIR and YSF)

**09:30-11:00 Guest Speaker Debate: “Addressing change through complexity – and complexity with change”**

Speakers:

Governance by **Dr. Anthony Turton** (Touchstone Resources)

Acid Mine Drainage by **Mr. Phil Hobbs** (CSIR)

Water and Human Health by **Prof. Willie Grabow**

Climate Change by **Dr. Marius Claassen** (CSIR)

*Facilitator: Dr. Inga Jacobs (CSIR)*

**11:00-11:30 Tea break**

**11:30-13:30 Session 1: Water Governance and its Challenges**

- *Towards Integrating Water resources and Water Services Management Tools: a Conceptual Framework* by Mr. Albert Jeleni (Muondli Consulting and Projects CC)
- *Exploring New Frontiers in Transboundary Water Governance in Africa: Recognising Multiplicity* by Dr. Inga Jacobs (CSIR)

*Chair: Dr. Inga Jacobs (CSIR)*

**13:30-14:30 LUNCH**





**14:30-16:00 Session 2: Acid Mine Drainage**

- *Environmental Activism in South Africa* by Ms. Shanna Nienaber and Ms. Nikki Funke (CSIR)
- *Challenges of implementing mine water projects* by Dr. Jo Burgess (WRC)
- *Chair: Ms. Shanna Nienaber (CSIR)*

**16:00-16:30 Reflections and Session Summaries by Chairs**

**16:30-18:00 Cocktail Dinner sponsored by the Netherlands Embassy (in collaboration with the Dutch-SA Water Partnership)**

## DAY 2

**08:30-09:00 Morning tea**

**9:00-10:30 Session 3: Emerging Challenges to Water Health**

- *The effects of water quality in Loskop Dam on the health of Mozambique Tilapia* by Ms. Jackie Brown (CSIR)
  - *Water Quality Concerns in Water Filtration Devices* by Ms. Cherie Ann Robertson (UJ)
- Chair: Dr. TG Barnard (UJ)*

**10:30-11:30 Interactive Session: How do we do multidisciplinary work?**  
By Ms. Karen Nortje

**11:30-12:00 Tea break**

**12:00-13:30 Session 4: Climate Change**

- *El Nino, Water and Baloney* by Dr. Richard Meissner (CSIR)
  - *An integrated scenario based approach in dealing with climate change uncertainties in Wami/Ruvu catchment, Tanzania* by Mercy Mwanikah (University of KwaZulu-Natal, Dept of Bioresources Engineering & Environmental Hydrology) G. Jewitt and H. Mahoo
- Chair: Dr. Richard Meissner (CSIR)*

**13:30-14:30 LUNCH**

**14:30-15:00 Reflections and Session Summaries by Chairs**  
**15:00-16:00 Group activity**

**16:00 Closure**



## GUEST SPEAKER PROFILE

Dr. Anthony Turton (TouchStone Resources)

Author – Strategist – Speaker

Anthony Turton is a political scientist by formal training, with a professional background in the field of national security. He thus came to the water sector from a specific perspective – national security strategic risk assessment – and so his work reflects this angle. He is a B-rated researcher in terms of the NRF, and he is a recognized author in the field of transboundary waters. His current focus is on mining in a water constrained economy where he is doing a number of strategic risk assessments for the financial services sector and the mining sector as they both respond to the AMD threat. He is a founding partner of the South African Water and Energy Forum (SAWEF) that will be launched in February 2011 and he holds a professorship in the Centre for Environmental Management at the University of Free State.

Mr. Phil Hobbs (CSIR)

Senior Researcher: Groundwater Sciences

Phil is registered as an Earth Scientist with the South African Council for Natural Scientific Professions (SACNASP). He is currently employed as a Senior Research Hydrogeologist by the CSIR in the Water Resources Competence Area of the Natural Resources and Environment (NRE) Operational Unit. Experience in this discipline covers a wide range of groundwater studies across a broad spectrum of geological and hydrogeological environments in a career that spans 30 years across the public and private sectors. The studies include the exploration and development of groundwater resources for water supply purposes at local (domestic) and municipal (bulk) scale, the evaluation and assessment of land use activities such as waste disposal, industrial, mining and residential development on the groundwater environment, and the mapping of groundwater resources at regional scale. More recent experience is associated with resource directed measures (RDM), and pertains to determinations of the groundwater Reserve at rapid and intermediate level, and the associated classification of groundwater resources and setting of resource quality objectives (RQOs). Experience relating specifically to the mining industry derives from groundwater investigations conducted at various mining operations, currently in the West Rand Basin and the Cradle of Humankind World heritage Site with its associated acid mine drainage and karst groundwater issues. His knowledge of dolomitic groundwater resources makes him one of only a few experienced karst hydrogeologists in the country.

Prof. Willie Grabow

Professor Willie Grabow is the retired head of the Department of Medical Virology at the University of Pretoria. He has devoted a life-time career to health-related water microbiology. Professor Grabow is also an honorary member of the International Water Association (IWA), and the honorary president of the IWA Specialist Group on Health-Related Water Microbiology.

Dr. Marius Claassen (CSIR)

Research Group Leader


Marius Claassen is Research Group Leader of the Water Resources Governance Systems. He completed his Masters degree on Biological Monitoring and his PhD in Risk Assessment. Marius has more than 18 years experience in Water Resources Management at the CSIR. His research interests range from aquatic ecosystems to decision support systems and transboundary issues. His track record includes national and international research initiatives and leadership positions in the CSIR.

## APPENDIX E. POWERPOINT PRESENTATIONS

*The adventure of working together ...*

***Achieving transdisciplinarity through the Forum for Young Scholars (YSF) in Transboundary Water Governance***

September 2010  
Dr. Inga Jacobs  
Council for Scientific and Industrial Research (CSIR)



### Why the need for transdisciplinarity?

- Addressing **emerging challenges** and complexities (climate change, AMD, skills flight in the water sector) are demanding more **integrated levels of ingenuity and expertise from a diverse set of disciplines**.
- The **socio-political relevance of technical solutions** needs to be determined in order to achieve impact.
- Creating a **balance between technical, natural and social science** is critical to developing relevant and impact driven solutions for the water sector
- Presently, however, there are **very few social scientists working in this field...**

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## What is YSF?

- A WRC-funded project to raise awareness and build capacity in transdisciplinarity in the water sector
- An **issue-driven, collaborative exchange initiative** for young water professionals and students, and one which encourages the recognition and **mutual respect of multiple perspectives**.
- **By young people, for young people**: hosts workshops/events and facilitates transdisciplinary collaborative work for students and young water professionals to grow their competence in water.
- **Incentivising Social Science**: the forum is about bringing water onto the social science agenda for research and vice versa.



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## What are our aims?

- To build a community and network of young water professionals interested in water governance in SADC
- To create opportunities for younger and more experienced water professionals to **interact and share knowledge**.
- To increase the social science literature output relating to water issues by young water professionals, and **to provide opportunities** for individuals to collaboratively publish and **grow professionally**.
- To **increase the awareness of the need for transdisciplinarity** in the water sector.
- To **incentivise social science** perspectives in the water sector



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## What's unique about YSF?

- **Focus-driven:** regional focus i.e. the transboundary and governance dimensions of water in SADC;
- **Encourages a proactive, theme-based agenda:** allows young professionals to indentify challenges to the water sector in the region
- **Transdisciplinarity:** encourages members to engage with water issues in SADC in a holistic manner through the integration of social science perspectives
- **Linkages:** associated with YWP South Africa which provides linkages and access to a wider national and global water community and network (Collaborators: WISA, IWA, YWP, UJ, CSIR, UNISA, WATERNET to mention a few)



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## Young Water Professionals (Southern Africa)





## Successful Activities: Launch of the YWP Gauteng Chapter at UJ

- Theme: *From water to health: Where do you fit in?*
- Audience: UJ undergraduate and postgraduate students from Environmental Health, Zoology, and Civil Engineering departments, the Water and Health Research Unit (WHRU), along with young water professionals from ERWAT and Department of Water Affairs
- Interactive role-play: Coordination of Cholera Preparedness and Response in SADC: who takes the lead? Encouraged students to “jump disciplines” and explore the topic from a multiplicity of perspectives in group engagements.



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## Successful Activities: YSF quarterly event at UP

- Theme: *Being “heard” in Water Policy Debates*
- Audience: Political Science undergraduate and postgraduate students, YWPs from Sedibeng Water and DEA
- Interactive role-play: on South Africa’s National Water Policy in context: A complex policy development process for a complex array of actors. Encouraged students to see the multiplicity of actors, power, interests and truths/evidence at play in water policy formulation, and the benefits and challenges of inclusivity and transdisciplinarity in this process.



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## Successful Activities: Workshop at 2010 WISA Biennial Conference

- Theme: *New Kids on the Block looking to Address South Africa's Old and New Water Challenges*
- Audience: YWP SA and conference participants
- Inter-active session: involved the facilitation of a discussion on the benefits/challenges of transdisciplinary collaborative exchanges in addressing South Africa's old and new water challenges, and the challenges facing YWPs in the water sector. YWPs are strategically placed to take up this dual challenge.

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## Successful Activities: YSF Western Cape Roadshow

- In collaboration with YWP Western Cape, the YSF roadshow took place from 17 September - 25 September
- Purpose: sustainability of YSF and broader coverage of YSF network
- What we did: Conducted interactive workshops with simulations at all major tertiary institutions (CPUT, Stellenbosch University, UWC and UCT)

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## Planned Event

### ***YSF workshop: 29 – 30 November at the CSIR Knowledge Commons in Pretoria***

- Theme: “Exploring *Transdisciplinarity to address change in the SADC Water Sector: Establishing the role of social scientists in this vision*”.
- Aim: to attract the interest and imagination of a broad spectrum of social scientists coming from very different backgrounds; inter-general learning component; publishing opportunity; affirms the need for transdisciplinarity and social science input in the SADC water sector.



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***Young water professionals are strategically placed to take up the challenge of transdisciplinarity in the water sector...***

**Thank you**



The Young Scholars Forum (YSF) in Transboundary Water Governance,  
Cape Peninsula University of Technology (CPUT) and the  
Southern African Young Water Professionals (YWP)

## *From water to health: Where do you fit in?*

### COORDINATION OF CHOLERA PREPAREDNESS AND RESPONSE IN SADC: WHO TAKES THE LEAD?

-An interdisciplinary simulation game-

23 September 2010

Dr Inga Jacobs

Ms Shanna Nienaber

Council for Scientific and Industrial Research (CSIR)



### Cholera: The Disease

- *The causative organism, *Vibrio cholerae* is ubiquitous to the aquatic environment.*
- Disease can spread rapidly via faecal contamination of food and water supply.
- Lack of WASH resources and knowledge favours the spread of the disease.
- Cholera outbreaks are synonymous with failure of basic services.



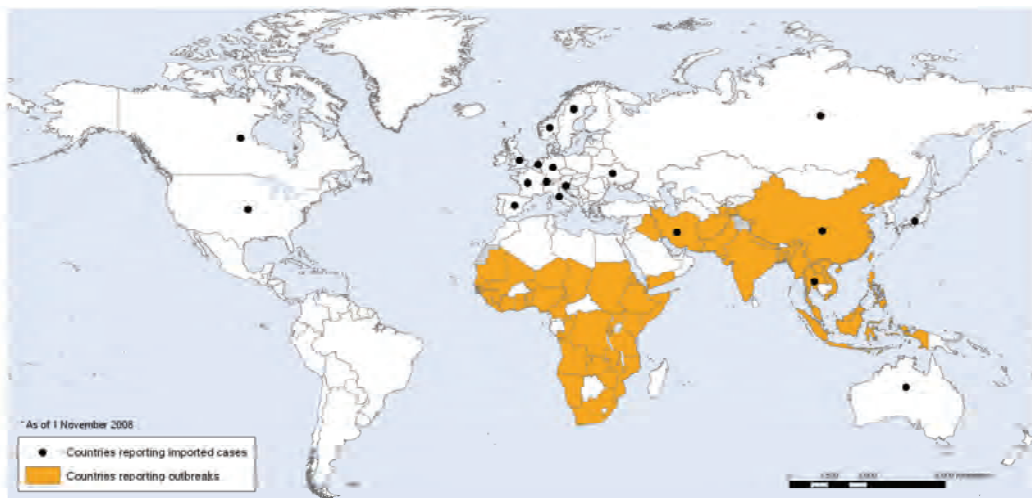
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# Where is cholera found?

Cholera, countries reporting outbreaks and imported cases, 2006–2008\*



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization  
Map Production: Public Health Information  
and Geographic Information Systems (GIS)  
World Health Organization

World Health Organization  
© WHO 2008. All rights reserved



## Cholera in SADC

***Most of the region is affected by cholera. Why?***

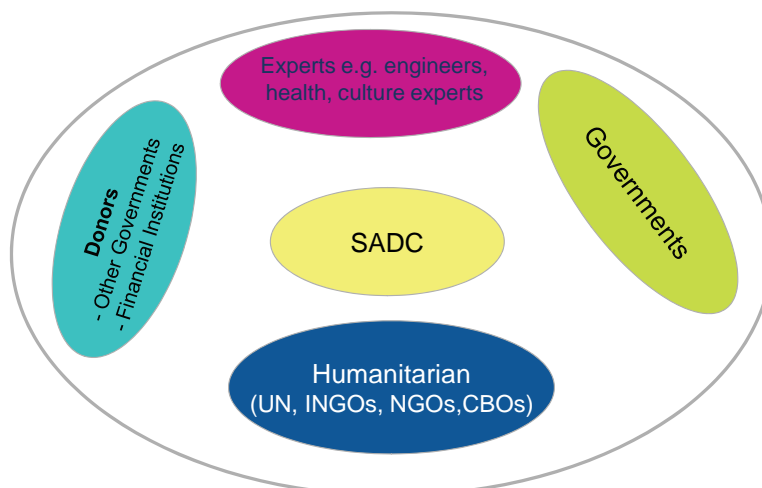
- Part of our biophysical environment
- Poor infra-structural development in large parts of the region
- Transboundary dimensions
  - Water borne
  - Migration

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There is complex web of actors in cholera response SADC



**Who should take responsibility for coordinating Cholera response?**



## How can Cholera be dealt with?

- Short Term
  - Early detection, diagnosis and treatment
  - Provision of safe water & basic sanitation
  - Hygiene promotion
- Medium Term
  - Preparedness for annual outbreaks
  - Operational plans
  - Disease surveillance
- Long Term
  - WASH Infrastructure
  - Education
  - Monitoring and surveillance



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## THE SIMULATION GAME: What you have to do .....

The problem: What are the main obstacles to effective cholera response from your perspective?

Your role: What can you do to alleviate the problem?

Who is responsible for co-ordinating the response to this problem?



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## Government official

*In the event of an outbreak, the state health sector must:*

- Notify the relevant national institutions** (national, provincial, local)
- Request relevant** ministries, departments, other UN **affiliates**, INGOs, and NGOs for technical expertise to contain the outbreak
- Notify** the resident **WHO** office
- If government doesn't act the WHO can step in and initiate efforts to contain a cholera outbreak.



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## Regional representative

*Cholera in the region has **transboundary dimensions**, thus SADC can **potentially** play a role in coordinating and harmonizing cholera response in the region by:*

- **lobbying relevant national ministries** to support coordinated activities under the leadership of SADC
- forming of a **SADC regional cholera preparedness and control coordinating unit** made up of key people from each member country
- encourage **member countries to review and update their national health policies** to ensure that there is more coherence across the region and that the roles and responsibilities of various stakeholders are well-defined



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## International donor organization

*The **WHO** takes on the **lead role** in assisting member states to prepare and respond to cholera emergencies.*

*(It has close links to UNICEF, local NGO's, MSF, etc)*

### **ROLE?**

- **Assist member states** to prepare and respond to cholera emergencies.
- **Can step in where states are unable** to respond
- World Vision, UNICEF, Red Cross, MSF etc. – provide emergency supplies, technical support and human resources



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## Culture expert

*Concerned about cultural issues, understandings and implications related to cholera.*

- States **don't label the disease cholera** but AWD due to stigma around the disease
- Cultural beliefs and **mistrusts of Western medicine** make people avoid treatment
- Cultural practises such as **polygamy increase the spread** of the illness
- Certain **religious practises** in the region resist medical treatment

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## Engineer

*Cholera is a manifestation of:*

- **Improved roads and transport networks**
- **Poor water and sanitation infrastructure and service delivery**
- **Inadequate hygiene** practises (personal and food)
- **Failure** of basic **health-care**
- **Lack of monitoring and surveillance**
- **Poor logistical support** and coordination

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## Wrap-up

- **Cholera: Who's responsibility?** SADC? National Government? Local Government?
- **Multiplicity** of actors researching/working in any one field or issue.
- **Collaborative exchanges** encourage the recognition and **mutual respect** of multiple perspectives.
- **YSF** - a collaborative and transdisciplinary exchange initiative for scholars interested in water governance in SADC.



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## How can YOU do transdisciplinarity?

*Thank you to CWSS for hosting  
this event*





*Being "heard" in Water Policy Debates*

Forum for Young Scholars (YSF) in Transboundary Water Governance  
University of the Western Cape, and the  
Young Water Professionals (YWP)

## Being real about Evidence-based Policy-making

September 2010

**PRESENTERS:**

Shanna Nienaber

**AUTHORS:**

Shanna Nienaber, *Nikki Funke*,  
Wilma Strydom, *Karen Nortje*

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### Presentation Structure

- What is EBPM?
- What are the major problems with this discourse?
- How can we realistically work with EBPM
  - Understanding the policy arena as complex
  - Understanding the actors in the policy arena
  - Understanding levels of scale in the policy arena
- Recommendations

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## What is EBPM?

- A 'sub-discourse' within a broader policymaking discourse.
- A rational way of solving policy problems by drawing on best available evidence to support policy development and response.
- EBPM is valuable as it encourages policy choices that potentially work better as they are based on careful considerations of the issues facing society and their most promising solutions.
- This is a widely embraced solution to solving complex policy problems (in both academic and policy communities) for more than a decade.

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### *What does this mean?*

Policy is a series of logical actions, where ideas and proposals are compared against reality

### *Why?*

Scientific evidence is generated using thorough method, procedure and rationality, and is verifiable!

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## What are the major problems with this discourse?

- There is an ongoing lack of scientific evidence being utilised in policy-making processes

i.e. EBPM is struggling to manifest in practice

### ***Why is this?***

*There are weaknesses in the underlying assumptions of EBPM!*



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## Problems with assumption 1: *“Scientific (objective and neutral) evidence makes policy better”*

- Ethical and moral issues cannot be reduced to matters of sufficient evidence;
- Evidence is often highly contested (thus does not necessarily generate policy agreement and consensus);
- Evidence is subjected to political power play.



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- Problems with assumption 2:  
 ● Policy can and should be developed in  
 a rational manner”

- The reality is that

In ‘real life’ policy is affected  
by:

- A fluctuating array of diverse actors
- Interests
- Ideology
- Windows of opportunity
- Power
- Etc.



## Working Realistically with EBPM:

### Step 1

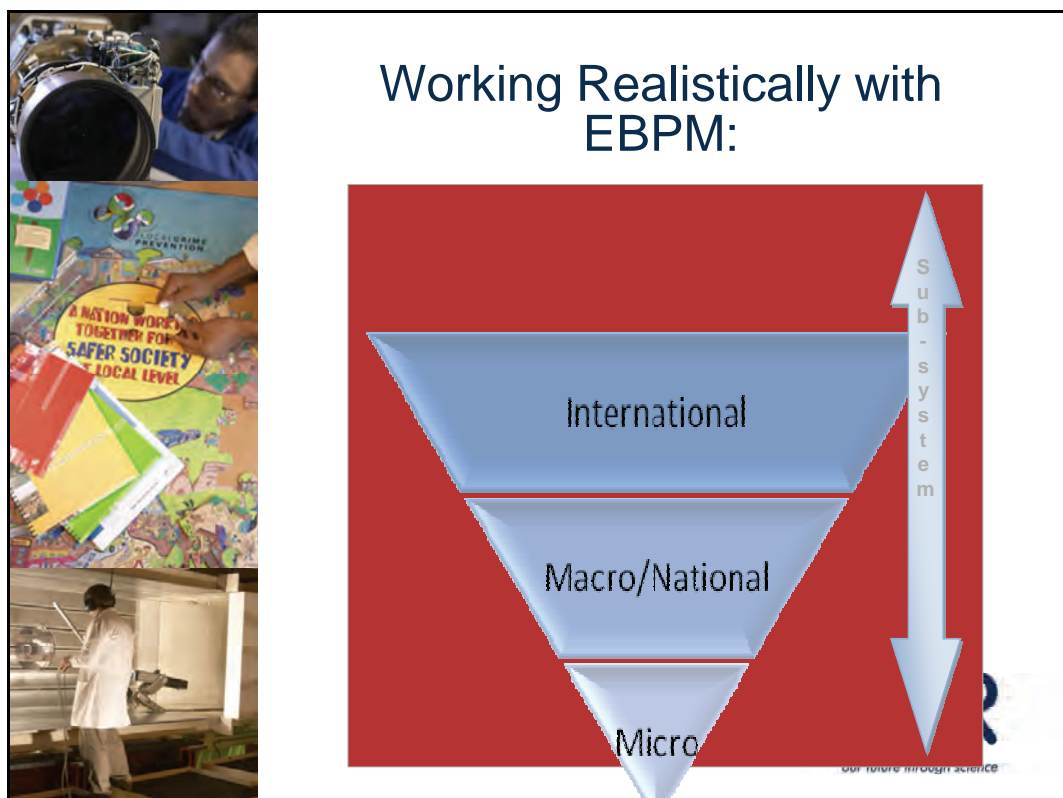
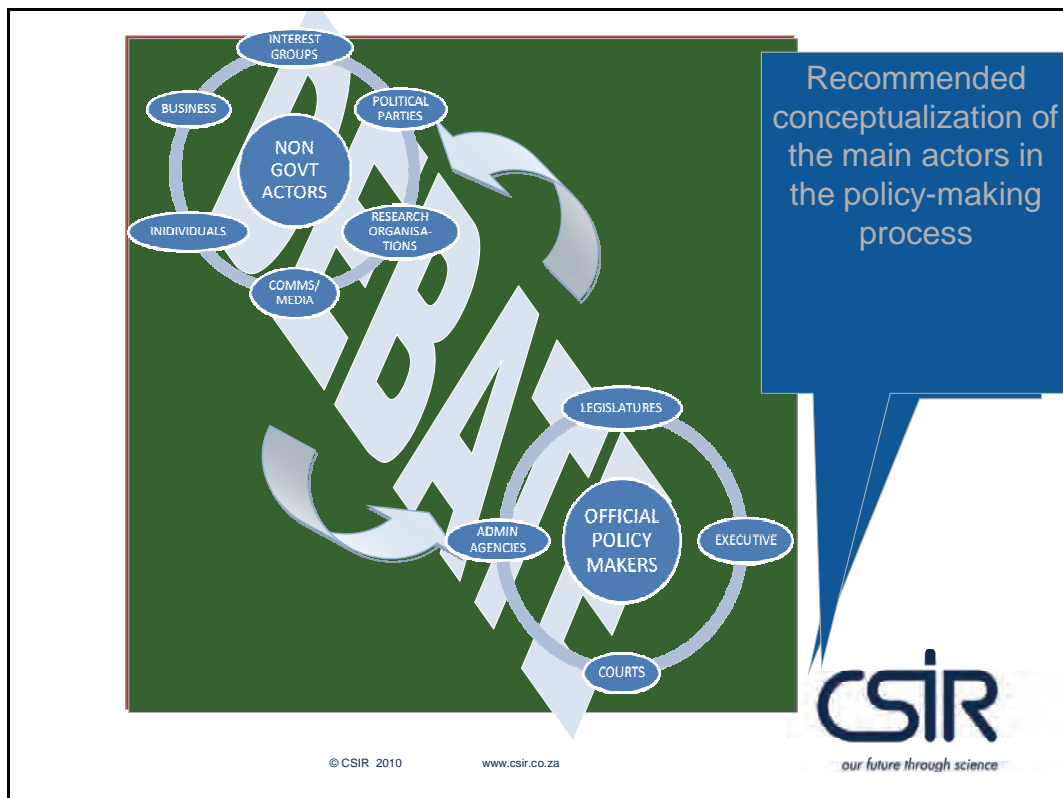
*Embracing the complexity of the policy-  
making arena*

- Understand the context of the policy issue
- Recognise links between actors
- Dynamic process
- Knowledge is not the product of an objective process but is a deeply social phenomenon



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## Recommendations

1. Researchers need to explicitly commit and plan to have their work be of relevance and impact in the policy-making arena;
2. Build relationships and networks with like-minded actors in the policy-making arena;
3. The potential for evidence to have impact on policy needs to be viewed with cautious optimism and modesty;
4. Recognise that research is not more significant than any other actor in civil society;

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## Recommendations .....

5. Recognise the limits of rationality and consider alternative views;
6. Work with and look out for 'windows of opportunity'

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**Thank you**





Forum for Young Scholars (YSF) in Transboundary Water Governance  
University of Stellenbosch, and the  
Southern African Young Water Professionals (YWP)

## **South Africa's National Water Policy in context: *A complex policy development process for a complex array of actors***

17 September 2010

Ms. Shanna Nienaber (CSIR)

Dr. Inga Jacobs (CSIR)



### **The 1956 Water Act: A Tool of Deprivation under Apartheid**

- Department of Water Affairs focused on the agricultural sector
- Black people had very few rights, which affected their access to potable water and sanitation
- Black homelands had to negotiate to obtain water rights and use permits in competition with other outside users
- 1980s – degradation of many of South Africa's primary water resources
- Pressure for change





## Status quo in 1994

- New democratic government had to introduce major water reforms
- 35 % of South Africans no access to basic water supply
- 53% no access to proper sanitation
- Also need to address situation of water scarcity
- Process of drafting and implementing reforms not so easy – many challenges still!



## The Revolution in Water Law

- Basic water supply and sanitation for majority of South Africans and equity in water allocation and benefits of water use became a priority
- Constitution of South Africa formed the basis of environmental law – right to a safe environment
- “Some, for all, forever” – focus on redress, linking water management to economic development and poverty eradication and ensuring the preservation of the ecological resource base





## Some Key Principles

- Decentralisation
  - People to participate in decision-making
  - Formation of Catchment Management Agencies that need to foster co-operation and agreement amongst various stakeholders and interested parties
- Equitable access
  - Country's water belongs to all and is held in public trust by the state
  - Licensing system for large-scale abstraction of water



## Some Key Principles cont.

- Efficiency
  - Social and economic benefits and costs of competing users taken into account
  - Pricing mechanisms and financial assistance or subsidy programmes
- Sustainability
  - Ecological component of reserve refers to portion of streamflow quantity that needs to stay in rivers to ensure sustainable healthy functioning of aquatic ecosystems
  - Human needs reserve required to meet several direct human needs for water (e.g. drinking and food preparation)





## THE SIMULATION GAME:

*What you have to do .....*

It is 1996. You are part of a parliamentary working group which aims to re-work South African water legislation.

Climb into the 'mindset' of your character and consider the following questions .....

1. **What do you want to achieve/ gain or protect in the new legislation?**
2. **How much power/ influence do you have to achieve this?**
3. **How do you go about 'being heard' in this policy debate/what evidence would you bring to the table to support your cause?**



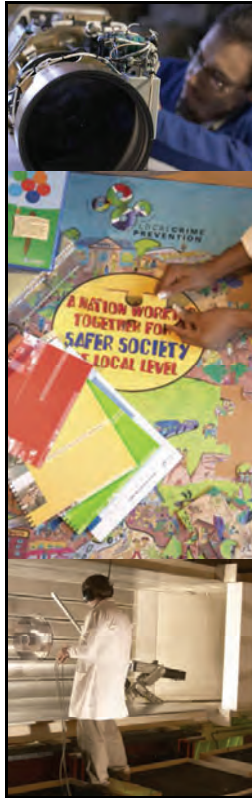
## Lessons learned from Simulation and Reality

- *A complex policy development process for a complex array of actors working on any one policy issue*
- *Driven by politics*
- *The evidence you provide (or truths you create) is based on positionality and interests and power*
- *Actor relationships – multidimensional nature of power and agency, trust issues, coordination and inclusion/exclusion, speaking different languages*

"Scientists are very eager to quantify, to get figures, black and white statistics...but water itself refuses to be accurately regulated, because you cannot predict water. It is very unpredictable. But scientists want to analyse, they want figures, they want to be able to say here there is a use of three litres per day, etc. You can't manage water like that...they think that we need regulation to the final and last drop." (Legal practitioner in Inkomati, interview 4 August 2006)







## Lessons learned cont.

- Evidence in policy making versus evidence in policy implementation
- The role/use of meta-narratives i.e. the 'poverty-environment-degradation' hypothesis

Consider the following excerpt from the first WAR policy document draft:

'If reallocations occur too quickly, the country will suffer economic and environmental damage as emerging users struggle to establish productive uses of the reallocated water.'



## Conclusion

- Benefit of transdisciplinarity - Collaborative exchanges encourage the recognition and mutual respect of multiple perspectives. What is the role of social science in this policy landscape?
- YSF - a collaborative and transdisciplinary exchange initiative for scholars interested in water governance in SADC.

YSF workshop: 29 – 30 November at the CSIR Knowledge Commons in Pretoria.

Theme: "Exploring trans-disciplinarity to address change in the SADC Water Sector: Establishing the role of social scientists in this vision".



***Young water professionals are strategically placed to take up the challenge of transdisciplinarity in the water sector...***

**Thank you**



## *Introduction of YSF and the workshop theme:*

### *Achieving transdisciplinarity through the Forum for Young Scholars (YSF) in Transboundary Water Governance*

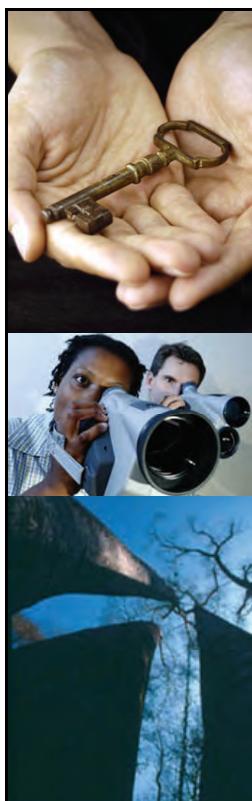
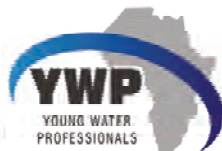
29 November 2010

Ms. Shanna Nienaber

Council for Scientific and Industrial Research (CSIR)



International  
Water Association



## What is YSF?

- A WRC-funded project to raise awareness and build capacity in transdisciplinarity in the water sector
- An **issue-driven, collaborative exchange initiative** for young water professionals and students, and one which encourages the recognition and **mutual respect of multiple perspectives**.
- **By young people, for young people**: hosts workshops/events and facilitates transdisciplinary collaborative work for students and young water professionals to grow their competence in water.
- **Incentivising Social Science**: the forum is about bringing water onto the social science agenda for research and vice versa.



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## What are our aims?

- To build a community and network of young water professionals interested in water governance in SADC
- To create opportunities for younger and more experienced water professionals to **interact and share knowledge**.
- To increase the social science literature output relating to water issues by young water professionals, and **to provide opportunities** for individuals to collaboratively publish and **grow professionally**.
- To **increase the awareness of the need for transdisciplinarity** in the water sector.
- To **incentivise social science** perspectives in the water sector



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## What's unique about YSF?

- **Focus-driven:** regional focus i.e. the transboundary and governance dimensions of water in SADC;
- **Encourages a proactive, theme-based agenda:** allows young professionals to identify challenges to the water sector in the region
- **Transdisciplinarity:** encourages members to engage with water issues in SADC in a holistic manner through the integration of social science perspectives
- **Linkages:** part of YWP South Africa which provides linkages and access to a wider national and global water community and network (Collaborators: WISA, IWA, YWP, UJ, CSIR, UNISA, WATERNET to mention a few)



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## Why all the fuss about transdisciplinarity?

- Addressing old and new **challenges and complexities** (climate change, AMD, health, skills flight) in the water sector are demanding more **integrated levels of ingenuity and expertise from a diverse set of disciplines and actors.**
- Why?
  - The **socio-political relevance of technical solutions** needs to be determined in order to achieve impact. This demands a **balance between technical, natural and social science** inputs.
    - Presently, however, there are **very few social scientists working in this field...**
  - A **balance of actors** working on different facets of the problem (understanding, implementing, paying for, holding accountable ....)
  - We live in **times of change** and need to respond to this.

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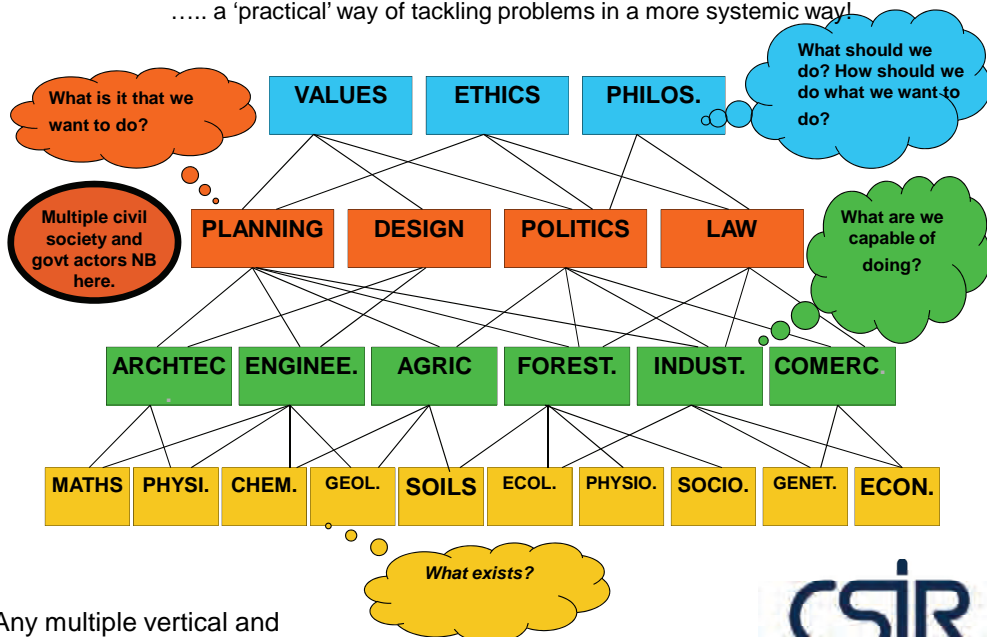
## So what is transdisciplinarity?

- *Transdisciplinarity is more than a new discipline or super discipline, actually, it is a different manner of seeing the world, more systemic and more holistic .*
- *Transdisciplinarity extends enquiry through different levels of reality and organizations. By working through the lens of multiple perceptions to understand different facets of reality; transdisciplinarity facilitates the deeper understanding of complexity and complex problems.* (Max-Neef 2005: 15)
- *This is only possible through the collaboration of multiple actors.*



## “Weak” Transdisciplinarity

..... a ‘practical’ way of tackling problems in a more systemic way!



Any multiple vertical and horizontal relations, including all four actions defines a transdisciplinary action.





## Strong transdisciplinarity?

- More than just a method to more systematically solving complex and changing problems .... It is a **unique positionality and approach to science and dealing with problems ...**
- **Calls us to grapple with:**
  - The **short-comings** of binary, linear and **rationalist logic** that dominates the scientific field
  - Calls us to grapple with reality in such a way that we acknowledge that **reality is "that which resists our experiences, representations, descriptions, images or mathematical formalizations"**
    - Thus different levels of reality are accessible through different levels of perceptions
    - That there is a permeability between different levels of reality
  - A **thinking capable of establishing feedback loops** in terms of concepts such as whole/part, order/disorder, observer/observed, system/ecosystem, in such a way that they remain simultaneously complementary and antagonistic.



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***Young water professionals are strategically placed to take up the challenge of transdisciplinarity in the water sector...***

**Thank you**





## APPENDIX F. YSF MARKETING FLYER EXAMPLES

You are cordially invited to attend a workshop hosted by  
**the Forum for Young Scholars (YSF) in Transboundary  
 Water Governance**  
 Department of Political Science, Stellenbosch  
 University, and the  
**Young Water Professionals (YWP) South Africa**

Exploring the theme

*Being "heard" in Water Policy Debates*

Where and when?

***Friday, 17 September 2010 at 14:00 at the  
 Department of Political Science, Stellenbosch University  
 Humanities Building, 6<sup>th</sup> floor, Room 648***

**Programme:**

- |   |   |
|---|---|
| 14h00 – Introduction  | Ms Derica Lambrechts                                  |
| 14h10 – <i>The adventure of working together through YSF</i><br>(Introduction of an inter-disciplinary forum affiliated with YWP Gauteng)                             | Dr Inga Jacobs, CSIR                                  |
| 14h30 – <i>Getting evidence heard in policy making processes</i>  | Ms Shanna Nienaber, CSIR                              |
| 15h00 – <i>Water Policy in South Africa: A complex policy development process<br/>for a complex array of actors</i><br>(An interactive, role-playing simulation game) | Dr. Inga Jacobs, CSIR and<br>Ms Shanna Nienaber, CSIR |
| 16h00 – Closure   | Ms Derica Lambrechts                                  |

Please RSVP with Derica Lambrechts ([derica@sun.ac.za](mailto:derica@sun.ac.za)) or Magda van Niekerk ([mvm2@sun.ac.za](mailto:mvm2@sun.ac.za)) by 10 September





You are cordially invited to attend an interactive workshop by  
the Forum for Young Scholars (YSF) in Transboundary  
Water Governance, University of Cape Town, and the  
Young Water Professionals (YWP)

Exploring the theme

*From water to health: Where do you fit in?*

Where and when?

**Monday, 20 September 2010 at the  
UCT Campus, (Venue TBC)**

Programme:

- |   |  |
|---|--|
| 12h00 – <i>Welcome and Introduction</i>   | Bernelle Verster, UCT                                |
| 12h15 – <i>The adventure of working together</i><br>(Introduction of an inter-disciplinary forum affiliated with YWP Gauteng)                     | Dr Inga Jacobs, CSIR                                 |
| 12h45 – <i>Cholera in a transboundary context: The value of interdisciplinary collaboration</i><br>(An interactive, role-playing simulation game) | Dr Inga Jacobs, CSIR and<br>Ms Shanna Nienaber, CSIR |
| 15h15 – <i>Closure</i>  | UCT  |

RSVP to: Shanna Nienaber ([SNienaber@csir.co.za](mailto:SNienaber@csir.co.za)) by 16 September



## Become part of the Forum of Young Scholars In Transboundary Water Governance in SADC (YSF)

### What are our aims?

- To build a community and network of young professionals, who have an interest in dealing with water issues from a social science perspective
- To create opportunities for younger and more experienced water professionals to interact and share knowledge
- To increase the social science literature output relating to water issues

### What's unique about this forum?

- **Focus-driven:** the transboundary and governance dimensions of water in SADC
- **Theme-based:** allows young professionals to develop their expertise in a focussed and proactive manner
- **Inter-disciplinary:** encourages members to engage with water issues in SADC in a holistic manner
- **Linkages:** associated with Young Water Professionals (YWP)-South Africa which provides linkages and access to a wider national and global water community and network

Funded by the Water Research Commission, the forum is the ideal way of grooming,

supporting, mentoring and encouraging young scientists who are either in the water sector or considering it as a career option.

### What's happening in 2010?

- **YSF workshop: 29 – 30 November at the CSIR Knowledge Commons in Pretoria:**  
The theme of this event is 'Exploring inter-disciplinarity to address change in the SADC water sector: establishing the role of social scientists in this vision'. This will be a great opportunity for young scholars to present papers around this theme, gain advice and critique from experienced professionals, or just come to listen, learn and network.
- **YWP Gauteng chapter quarterly events: Second meeting: 10 May, 09h30, University of Pretoria Main Campus)**  
This is the ideal place to learn about some of the water issues facing our region and meet other young professionals working in this field.

**For more details, or to become part of our database, please contact:**

**Shanna Nienaber:** snienaber@csir.co.za, 012 841 4475  
**Inga Jacobs:** ijacobs@csir.co.za, 012 841 4531







Southern African  
Young Water Professionals  
<http://www.wisa.org.za/ylwp>



## Water Institute of SA

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**Web 1:** [www.wisa.org.za](http://www.wisa.org.za) **Web 2:** [www.ewisa.co.za](http://www.ewisa.co.za)

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Zetachem

**Official publication:**  
**Water & Sanitation Africa**

### Notice of Western Cape Branch Meeting

## Water Institute of Southern Africa - Western Cape Branch

Voted most dynamic branch 2009/2010

**Date:** THURSDAY, 23 SEPTEMBER 2010

**Time:** 15h30 to 18h00

**Venue:** "Old Maintenance Building", CPUT, Bellville Campus (see attached map)  
Call 021 959 6639 if you get lost; someone will attend to you.

**Topic:** Seawater Desalination

Seawater desalination has suddenly burst onto the scene in South Africa as a solution to many water-stressed regions along our coast. What is this technology all about, how should it be applied and what should one look out for? Two leading solutions providers will be answering these and other questions at our next Western Cape Branch meeting. This afternoon must not be missed!

### **Agenda:**

15:30 Ronald Brown (WISA Western Cape Chairman) - Welcome

15:35 Maria le Roux (WSP Group) – Seawater intakes

16:15 Heinz Strohwald (VWS Envig) – The desalination plant: principles, unit operations and case studies

17:00 Inga Jacobs and Shanna Nienaber (CSIR) - Young Scholars in Transboundary Governance Roadshow

17h30 – 18h00 Refreshments and networking

Hosts, speakers and sponsor:



Cape Peninsula  
University of Technology



<http://active.cput.ac.za/wssu> [www.wspgroup.com/](http://www.wspgroup.com/) [www.vwsenvig.co.za/en/](http://www.vwsenvig.co.za/en/)

Please RSVP online by clicking the link below, or copying the link into your browser, on or before Friday, 17 September 2010.

**<https://spreadsheets.google.com/viewform?formkey=dGVvOTIyUnB3OGNRbkI5b3hEVy1vZnc6MQ>**

Issues? Contact the WISA WC secretary: Bernelle Verster at [bernelle@merahmas.co.za](mailto:bernelle@merahmas.co.za)

R M Brown

WISA Western Cape Chairperson

**Directors:** Dr K Pietersen\* A Mancotywa\*\* Dr H Snyman \*\*\* K Wilken\*\*\*\*  
R Brown J Burgess K Esterhuyse S Freese I Msibi B Nel J Swart-van der Walt

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