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Interaction dynamics: The case of the water sector skills plan in South Africa

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ABSTRACT

Despite extensive and continuous efforts to strengthen the capacity of people, organizations and institutions, there is evidence of an increasing gap between the existing and required capacities within the water sector. Consensus seems to be emerging regarding the need for national strategies to improve water sector capacity development. This paper analyses the dynamics of actors' interactions and their characteristics (motivation, cognition and power) during the formulation and implementation of a specific capacity development strategy, namely the Water Sector Skills Plan (SSP) in South Africa. Based on the Contextual Interactive Theory and empirical findings, our analysis indicates slow progression and challenges with implementing the SSP, mainly due to the lack of consultation with key stakeholders during the formulation stage, a lack of data sharing among the target group (the Sector Education Training Authorities), and a lack of capacities within the key implementing organizations. These policy dynamics need to be taken into account when advocating for national capacity development strategies as a solution for challenges with water sector capacity development. The paper proposes the recommendations that are of relevance for the SSP as well as similar initiatives in other countries.

1. Introduction

While developing countries have differing institutional challenges with implementing water policy, ineffective water management and inefficiency in general operations are a common phenomenon (Mugabi, Kayaga, & Njiru, 2007). The lack of relevant knowledge and capacity has been highlighted as one of the major causes for challenges with the implementation of water policies (Akoojee, 2012; Alaerts & Kaspersma, 2009; Wehn de Montalvo & Alaerts, 2013). Despite extensive and continuous efforts to strengthen the capacity of people, organisations and institutions (Wehn de Montalvo & Alaerts, 2013), there is evidence of an increasing gap between the existing and required capacities within the water sector (Leidel, Niemann, & Hagemann, 2012). Calls for capacity development strategies have been made since 1991 (e.g. Alaerts, Blair, & Hartvelt, 1991) and consensus seems to be emerging among development banks, international organisations and state governments regarding the need for national strategies to improve water sector capacity development (IWA, 2014; MWE, 2012; Wertz, Odekova, & Seaman, 2011; Wehn de Montalvo & Alaerts, 2013). While coordinated strategies are being promoted as solutions for improving the water sector's integrated performance, operationalising policy theory into practise seems to be an ongoing challenge (Rahaman & Varis, 2005).

The policy implementation process is complex, and synchronising the different organisations involved is considered by many to be the primary task at hand (Panday & Jamil, 2011). Among other factors, coordination is considered to be a key characteristic of effective governance and suggests that the processes of negotiation and dialogue in terms of capacity building are embedded in actor interactions (Bressers, 2004). The concept of actor interactions is useful in understanding issues surrounding integration in the water sector, allows for the scrutiny and analysis of the various actors' roles and influence, and raises questions concerning accountability (Tropp, 2007).

The focus of this paper is on the dynamics of actor interactions during the formulation and implementation of a capacity development strategy, namely the Water Sector Skills Plan (WSSP) in South Africa. Our analysis is based on empirical findings from selected actors (organisations) involved in the implementation of this plan. The objective of providing insights into the roles of the actors involved and their influence on national strategies for knowledge and capacity development (through the WSSP), is to show that the implementation of capacity development (CD) strategies is determined by the interactions that occur among the various relevant actors and that it is based on the influence of their

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characteristics (motivation, cognition and power). The conceptualisation of motivation refers to assessing the origins of behaviour (individual or organisational) and the preferred stance or position in the actor interaction arena (de Boer, 2012). The second characteristic cognition is not the mere capacity of processing information, but it evolves over time and is produced through the mutual interactions among actors, which are dependent on their interpretations of reality and influenced by their own frames of reference (Bressers, 2004). Power, on the other hand, refers to resources in an interactive context, as it provides the capacity to act and to control other actors (de Boer, 2012; Owens, 2008).

This paper is structured as follows. Section 2 discusses relevant literature on policy implementation and theories on actor interactions and concludes with the delineation of the conceptual framework. Section 3 provides details of the adopted data collection methods for the empirical research. Section 4 elaborates on the results in context and in relation to actor interactions in the implementation process. Section 5 discusses the results with reference to relevant literature, and Section 6 presents the conclusions.

2. Theoretical context

2.1. The policy implementation process

Policy implementation is the stage between a policy's formulation and its effect on the goal it is intended to achieve (Brynard, 2009). Sabatier and Mazmanian (1980) argue that it is not a mere process, but rather a cycle which begins with the passing of a statute and continues with the decision by the implementing actors to implement the policy, the responses of the target groups, impacts resulting from the responses, and relevant revisions based on target group impacts or reactions. However, reactions to change and transition in policies always bring challenges, and a lack of awareness on the part of the public, industries and governmental leaders can pose a barrier to the process (Swanson, Kuhn, & Xu, 2001).

The development of guidelines, operational strategies, and the coordination and mobilisation of resources to achieve the intended goal, is a complex and ongoing process characterising the implementation of strategies such as national strategies for water sector capacity development (Wang & Ap, 2013). Both intra- and inter-organisational coordination is essential in order for policy implementation to be successful, yet in reality this rarely is fully realised, and the process is typically characterised by overlapping responsibilities and failure to meet objectives (Panday & Jamil, 2011). Interactions and interdependency among the various actors are at the core of policy implementation; as a result its success is dependent on coordination and cooperation (Brynard, 2009). Achieving a policy's intended outcome or fulfilling its intention is considered to be a success; however, this is often difficult to attain (Alesch & Petak, 2002; Brynard, 2009).

2.2. Conceptualisations of actor interaction processes in policy implementation

As discussed above, policy implementation inevitably involves the interaction of multiple actors (de Boer, 2012). A lack of coherence and fragmentation among policy-implementing organisations are challenges that have been raised by numerous researchers (Bressers, 2004; Dinar, 1998; Funke et al., 2007; Seppälä, 2002). The process of implementation has been unanimously concluded to be a socio-political process deeply rooted in the interactions of the actors involved (Bressers, 2004; Huitema et al., 2009; Medema, McIntosh, & Jeffrey, 2008; Tropp, 2007; Tortajada, 2010). The Contextual Interactive Theory (CIT) provides a framework which seeks to explore and understand the different actors (both implementers and target group) and their different characteristics (motivation, information and power) (de Boer, 2012). These three characteristics are considered to be the main factors shaping the process of implementation. They, in turn, change over time and are reshaped by the same process (Bressers, 2007).

Ostrom developed a different framework, the Institutional Analysis Development framework (IAD). Like the CIT, Ostrom's IAD consists of an action arena in which the different actors interact in response to an exogenous environment; these interactions produce outcomes which in turn affect the actors and the manner in which they interact (Ostrom, 2005). Although the CIT and IAD are similar in their conceptualisation of these basic elements, the IAD is more resource-oriented, while the CIT is more concerned with actor interactions (Bressers, 2004). The IAD is conceptually rich, but unlike the CIT, its framework is based on institutional rules and is not focused on implementation (Owens, 2008).

2.3. Contextual interactive theory (CIT) framework

The CIT has been applied in previous studies to analyse various policy processes, including the South African energy sector (Hueso & Bell, 2013; Mohlakoana, 2014). Policy implementation is considered to be an arena of interaction between government officials and the target groups who can either implement, sabotage or change the policy, depending on their characteristics (motivation, power/resources and cognition) (Kotzebue, Bressers, & Yousif, 2010). We adopted the CIT for our study because it is focused on implementation and because of its potential to provide units of analysis that enable the fulfilment of the research objectives, namely the actor interaction dynamics, i.e., actor roles and influences based on the WSSP implementation process. The CIT considers that success or failure of improving water management in general and capacity development in particular is dependent on the interactions between organisations and individuals and that these interactions are based on the structure of existing institutions (Breeveld, Hermans, & Veenstra, 2013).

3. Methodology

We selected a single case study in order to provide in-depth insights into the overall implementation process of the water sector skills plan in South Africa. South Africa's selection was based on the fact that the country has a well-established national strategy for water sector capacity development. The so-called Water Sector Skills Plan, which is currently in the implementation phase, provided this research with a highly relevant setting in which to collect data, study and analyse the different actors in the implementation process of a capacity development strategy. The research further sought to establish the emerging types of actor interactions among the leading as well as the supporting authorities responsible for implementing the water sector skills plan, namely the Energy and Water Sector Training Authority (EWSETA), the Department of Higher Education and Training (DHET), the Department of Water Services (DWS), the Department of Corporate Governance and Traditional Affairs (COGTA), the Water Institute of Southern Africa (WISA), the Water Research Commission (WRC), the Local Government Sector Education Training Authority (LGSETA) and tertiary institutions selected for the purposes of this research.

In an effort to obtain relevant data, various data collection methods were used: semi-structured interviews, observations (gestures/implied responses based on actor characteristics), qualitative questionnaires and a review of secondary data. A total of 18 key informants were interviewed (see Table 1).

Table 1
Number of interviews per stakeholder group.

Stakeholder Group	Number of Interviews	Organisation
Implementers	1	EWSETA
Supporting Implementers	15	WISA, DWS, Randwater, WRC, WaterConcepts, Randfontein Municipality, Mogale City Municipality, WRDM, SUWI, COGTA and DHET
Target Group	2	Tshwane University of Technology (TUT)
Total	18	

A questionnaire was designed to obtain responses from the target group, which consisted of lecturing staff from the selected tertiary institutions, based on the characteristics defined by the conceptual framework (motivation, power and information/cognition). The questions asked about the perceptions of the respondents regarding the role they were playing with regard to the supply of water related skills and what they considered to be enhancing or prohibiting factors for their duties and roles. The questionnaire was administered face-to-face and via email to lecturers from TUT and selected Technical and Vocational Education Training centres (TVETs) who lecture in water related programmes. In total, 31 completed questionnaires were received (out of 85 contacted).

Peer reviewed documents, journals, policy documents, government gazettes etc. (secondary sources) were carefully selected in order to obtain further understanding of the key elements of the study and to improve the study's reliability by triangulating the primary data with these insights.

4. Results

4.1. Skills challenges in South Africa and the introduction of the water sector skills plan

Evidence suggests that there has been tremendous progress in water supply and sanitation over the past 20 years, with an improved total water supply of 95% and improved sanitation of 74% (WHO/UNICEF, 2014). Despite the progress that has been made, water and waste water treatment facilities still require attention (DBSA, 2012). The EWSETA WSSP attributes the operational challenges faced by the South African water sector to both, a lack of institutional capacity and a shortage of skills (EWSETA, 2011). The main purpose of the National Skills Development Strategy (NSDS) is to enhance and improve the overall skills development process of all sectors. The strategy was introduced at a time of integrating skills development and further education into a single department, the Department of Higher Education and Training (DHET) by the government cabinet in May 2009 (Akoojee, 2012). In the current NSDS, emphasis has seemingly been placed on institutional learning and development of the TVETs. At the sector level, the WSSP, like the NSDS, has a life span of 5 years and runs concurrently with the NSDS (the present period is from 2011 to 2016). The WSSP is meant to be a research document which provides information pertaining to skills supply challenges to the sector, both in terms of the most scarce and critical skills and of devising intervention strategies to address the identified gaps.

4.2. Actors involved in the water sector skills plan implementation

As Fig. 1 illustrates, the EWSETA is the main implementer of the WSSP. The supporting implementers are those actors which play assisting roles. The DHET (via the National Skills Fund finances SSP programmes), WISA, WRC, Stellenbosch University Water Institute and Water Concepts carry out water-related research; the DWS manages water resources; and LGSETA, municipalities and COGTA are responsible for water services management.

The target group for this paper includes the selected TVET colleges and Tshwane University of Technology (TUT) (tertiary institutions), because we consider them as being responsible for responding to the specific needs of the sector by offering relevant curricular and training in order to close the existing skills gap.

4.3. Significance and relevance of wider contexts

As argued above, the policy process involves an actor interaction arena set within specific contexts, including the

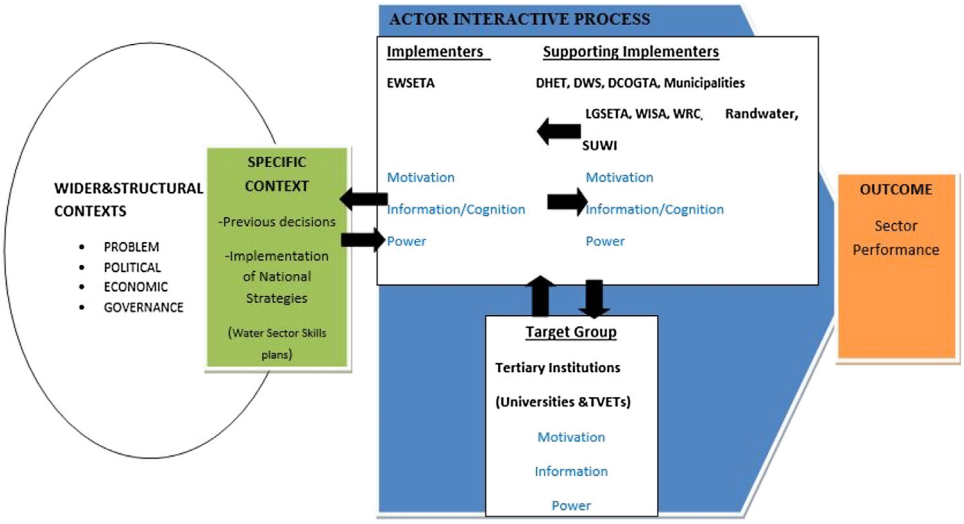

Fig. 1. The CIT adapted to the Water Sector Skills Plan in South Africa (de Boer, 2012).

political, economic and governance contexts (Bressers, 2004). These contexts are hypothesised to have a direct influence on the actor interaction process. Through the actors' characteristics (motivation, cognition/information and power/resources), the contexts are changed over time and, in turn, reshape the actors' characteristics as well as the dynamics of the policy process (Bressers, 2007). The wider contexts and their influence on the implementation of the WSSP are as follows.

4.3.1. Political context of water sector skills plan implementation

South Africa's political context before its independence in 1994 was characterised by inequalities which were based on racial discrimination. This left the marginalised races without access to basic services, including water and education (Muller, 2014). In the post-apartheid era, the government has undertaken intense policy and legislative reforms to try and correct the wrongs of the previous government. Despite the positive outcome of the political reformation, organisations responsible for translating that political will into strategic, functional and operational implementation are still influenced by the goals and visions of the ruling political party to which they are answerable. Consequently, the implementers (EWSETA) are driven and motivated by their constitutional mandate, therefore, their decision making and goals are inclined towards achieving the requirements of the NSDS. However, the same constitution does not award the implementer power to enforce (coerce) the implementation of the skills development programmes. This suggests that the existing government has influence on the implementers' cognition, motivation and power characteristics.

4.3.2. Economic/financial context of water sector skills plan implementation

In order for policy implementation strategies to materialise, there needs to be a budget with funds allocated to drive the programmes. According to the Skills Development Act (No. 97 of 1998), the industrial actors consisting of employers with an annual payroll in excess of R500,000 in the water sector are mandated to pay 1% of their wage bill in monthly levies to the EWSETA. Of this money, 20% is allocated to the National Skills Fund (NSF) and the remaining 80% to the EWSETA, which further allocates 50% as mandatory grants, 20% as discretionary grants and 10% for administration costs. Through the same mandatory and discretionary grant processes, industrial actors submit Work-Place Skills Plans (WSP) and training reports to the EWSETA which, in agreement with the respective organisation's trade union, reimburses 20% through the mandatory grants as a stimulant to continue training programmes.

Other than the skills development levies paid by employers and the NSF, the EWSETA receives resources/funds to drive the WSSP in the form of grants, donations and interest received from the investments it makes (Skills Development Act, 1998). In sum, the multiplicity of policies and governance structures seems to have contributed to the disconnected progression of the WSSP's implementation.

4.3.3. Governance context of water sector skills plan implementation

To provide an in-depth understanding of the WSSP, reference was made during the interviews to the five elements of governance stipulated by the CIT framework, namely: multiple levels of governance; multiple actors in the policy network; multiplicity of problem definitions and other policy beliefs; multiple instruments in the policy strategy; and multiple responsibilities and resources for implementation (Bressers & Kuks, 2003). These elements are elaborated below:

4.3.3.1. Multiple levels of governance related to the water sector skills plan. Actors involved in the governance of the WSSP act at different levels, namely national, provincial and local; and in different capacities, namely strategic, administrative, operational, functional, etc. Decisions at the national level are dominated by the DHET in collaboration with EWSETA; however, the DWS has an important role as the custodian of water resources. Local level governance involves the municipalities, which are directly responsible for water services. With regard to national skills development in the water sector, the EWSETA is supposed to be the leading authority. Yet according to information from our interviews with the DWS and West Rand District Municipality (WRDM), the municipalities have their own skills plans and most seem to be unaware of, or are not familiar with, the contents of EWSETA's WSSP.

4.3.3.2. Multiple actors in the policy framework. According to the EWSETA, the WSSP formulation and implementation processes have been characterised by a multitude of consultation platforms with the different actors in the water sector: employers (public and private), employees, training providers, water boards, and quarterly forums with different government departments like the DWS. The NSDS III mandates that the EWSETA engages stakeholders in their planning; however, according to most of the supporting implementers we interviewed and some interviewees from the target group, the actual planning process was not executed efficiently. The stakeholders' response to invitations to the consultation meetings has been very low at a 4.5% attendance rate, according to research from Stellenbosch University (SUWI, 2014).

4.3.3.3. Multiple problem definitions and other policy beliefs among actors. There appears to be general consensus among the various respondents about the fact that the current WSSP does not provide a clear reflection of the needs of the sector due to EWSETA's stakeholder engagement process during formulation. EWSETA did not consult with the Local Government Sector Education Training Authority (LGSETA) to include the area of water services. Water and waste water treatment facilities are areas in which South Africa appears to be facing the most technical skills challenges, next to inadequate infrastructure (Development Bank of South Africa, 2012). Daniels (2007) reiterates that technicians and engineers are included in categories of scarce skills in South Africa. However, some of the supporting implementers (IWA, WISA, COGTA, DWS) are of the opinion that the WSSP is not the problem but the lack of standardised qualifications amongst the tertiary institutions, suggesting that the former education system (with a single curriculum) was more reliable. Furthermore, the need for research organisations to carry out in-depth skills audits was highlighted, as there currently appears to be unclear information regarding which competences are actually lacking in the water sector at large. Some implementers suggested that the target group (TUT and TVETs) should have played a more active role during the planning sessions of the WSSP. However, some supporting implementers argued that tertiary institutions should only be involved during the implementation of the plan and not during its formulation.

4.3.3.4. Multiple instruments in the policy strategy. The EWSETA's main functions are to manage skills development for two major sectors (water and energy) through strategic skills planning and to implement the WSSP through the following instruments:

- Establishing learning programmes
- Approving Workplace Skills Plans and the Annual Training Report

- Allocating grants to employers, education and training, providers and workers
- Monitoring education and training within the sector
- Registering leaning programme agreements, and
- Promoting apprenticeships and other training programmes (Skills Development Act, 1998-Section 11).

4.3.3.5. Multiple responsibilities and resources for implementation. The EWSETA's functions and strategies regarding the WSSP are informed by numerous regulations and policies, at both the national and sector levels (EWSETA, 2011). Furthermore, their legislative and regulatory framework applies to both the water and energy sectors. These national and sectoral regulations governing the two sectors are considered to influence the activities of the EWSETA in managing the implementation of the WSSP with regard to prioritising resources and efforts. The bulk of the 2014 progress report presents progress relating to skills initiatives for the energy sector, which in itself is evidence of how the EWSETA's dual responsibilities are being addressed.

4.4. Summarised conceptualisation of actor characteristics of water sector skills plan implementation

4.4.1. Motivation

In this paper, we refer to motivation in relation to the implementation of the SSP in South Africa. The findings from each group of actors is summarised in Table 2, where factors include those that have motivated the EWSETA, the supporting implementers and the target group in the SSP implementation process. To a large extent, all three groups of actors agree with the inadequacy of skills in the water sector, and all are driven and motivated to fill the gap. However, the challenge is that there is a lack of coordination, because the EWSETA, as implementer, seems to respond to what is stipulated as gaps in the NSDS, while the supporting implementers are more inclined toward the assessment according to the NWRS. Those in the target group, on the other hand, appear to be motivated by financial incentives to execute their duties, rather than by the details of what the strategy requires.

4.4.2. Cognition

Bressers (2004) suggests that cognition is not always factual, however, it has a bearing on actors' behaviour in response to the policy process. Table 3 summarises the different cognitions/perceptions of the actors about the other actors. Of importance is the role of the main implementer (EWSETA) and the target group in the WSSP implementation, as well as the opinions of all three groups on how to improve the process. The notion that data sharing among the SETAs and that increased involvement of the target group (tertiary institutions) can improve EWSETA's performance appears to be synonymous among all three types of actors.

4.4.3. Power

Bressers (2004) takes a distributive approach and suggests that power can be determined by assessing the extent to which the implementing authority can influence the target group and how freely the target group can comply or refuse. The relationship between power and resources is not always direct in some cases there is no attribution by other actors if it is not supported by resources (Owens, 2008). Resources are not always limited to legalities and institutional rules, human resources (skills), money, time or consensus, and therefore the balance of power relations among actors can also be determined by the dependence of one actor on the resources of another (de Boer, 2012). Table 4 summarises how each group perceives how having or lacking power has affected the implementation of the WSSP. While resources are available for the EWSETA to oversee and coordinate WSSP programmes, it is dependent on other actors using their capacities to fulfil the requirements of the WSSP. As such, it has been a challenge to carry along all the necessary stakeholders in the planning and formulation of the WSSP.

4.4.3.1. Roles and influence of actors on the implementation process of the water sector skills plan. Characterisation of the stakeholder roles requires an evaluation and understanding of the relationship between the individual actors (Scheffran, 2006). Table 5 depicts

Table 2
Synthesis of actors' motivations.

Motivation	Conceptualisation	EWSETA	Supporting Implementers	Target Group
Internal/Self-Motivation				
Internal goals and values	Implementers' drive to perform	Driven by its mandates, organisational goals based on the NSDS goals	Driven by their mandates to play their role within the water sector	Values are aligned with those of implementers; but not very coordinated
Policy requirement versus internal values	Alignment of policy goals and implementers goals	Alignment exists between the NSDS and the SSP.	Disjuncture between the skills needs in the NSDS and those required by the NWRS	Goals are largely dependent on incentives, and a lack of them can hinder achieving policy goals.
Self-effectiveness assessment	Extent of belief in capacity to achieve goals	Inadequate staff in terms of numbers; of the view that other actors should take over other mandates	Lack of confidence in the EWSETA	No formal systems to receive feedback on quality of students from industry for self-evaluation; mismatch of qualifications of TVET lecturers
External Pressure				
Institutional Arrangements	Enabling/Disabling institutional structures	Poor data sharing among SETAs and autonomy of the universities	Poor data sharing among SETAs and autonomy of the universities over curricula	Process of curriculation is long and tedious because of protocols to be followed to introduce new qualifications.
Constitutional mandates	Legislative pressure for compliance	Obligated to fulfil the requirements of the constitution	Obligation to fulfil the requirements of the constitution (water management)	Supply skills that are needed by the sectors
Water sector skills gaps	Pressure to meet skills demand	Coordinating skills development to supply demand through steering the SSP	Supporting the EWSETA to meet the skills needs of the water sector	Through advisory boards and industry stakeholders, target group keeps up to date with skills demand.

Table 3
Synthesis of actors' information/cognition.

Information/ Cognition	Conceptualisation	EWSETA	Supporting Implementers	Target Group
Perception of quality of SSP and understanding of its purpose	SSP quality and relevance to current skills issues	SSP can be used as a roadmap to the meeting the sector's skills needs	SSP document is outdated and unreliable	Unfamiliar with the SSP but in agree with the need for a plan to match skills and demand
Perception about other actors and their role	Target group contribution to SSP implementation	Tertiary institutes should partner in skills development because they share a similar mandate	Target group should be involved more in the SSP planning process for incorporation of sector relevant curricular	Feel implementers exercise dialogue without follow-up action. SSP excludes the water service element
Perception regarding actor interactions on the SSP implementation	Actor (Stakeholder) engagement process and resulting interactions	Stakeholder engagement processes are carried out though some stakeholders are not cooperative	Stakeholder engagement was inefficient	Lengthy unprogressive stakeholder engagement dialogues
Perception of SSP implementation challenges	Barriers to implementation	Time and resources spent on research and dialogue, need to skill TVETS lecturers before they can perform efficiently	Lack of coordination amongst SETAs; failure of EWSETA to incorporate the suggestions of supporting implementers	Poor data management and sharing amongst SETAs, staff and student demonstration disruptions and overall disjointed water sector
Perception on SSP implementation solutions	What would improve SSP implementation?	EWSETA should be implementing agents only but currently mandated to do more than they are able to	DHET to provide guidelines to enable data sharing amongst SETAs, effective method of identifying gaps, enforcement measures to instigate compliance	Promotion of industry and target group partnerships. Development of central database on available skills and demand

Table 4
Synthesis of actors' power.

Power	Conceptualisation	EWSETA	Supporting Implementers	Target Group
Attribution of power by other actors	Recognition of implementer's role and authority	The sector is beginning to recognize the EWSETA as the leading authority in skills development	Lack of confidence in the SSP and the EWSETA hence the WSLG is in the process of formulating a plan that represents the sector.	Successful SSP implementation will be a result of the cooperation and partnering with tertiary institutions.
Availability and accessibility of resources	Funds, skills and capacity to drive SSP	Highly dependent on the resources and skills of other actors though funds are available through levies paid	Necessary skills strengthened to support the SSP implementation	Inadequate facilities for practical learning in mainly public TVETS, and inadequate training capacity due to mismatched skills

how complex the relationships between the roles, characteristics, influence and interests among the actors can affect the implementation of the SSP. The DHET makes the funds available to both the EWSETA and the LGSETA to fulfil their mandate of skills development. However, each SETA's autonomy over its designated sectors has led to unwillingness to coordinate on the part of the LGSETA, seemingly for fear of becoming dormant and dissolving. Tertiary institutions also appear to be struggling to improve their curricula because of the delays in the SAQA accreditation process. While COGTA is mandated to foster cooperation among all parties involved, this has not been achieved and WSSP implementation has been slow.

4.4.3.2. Types of interactions based on active actor characteristics. It can be argued that the development of interactions, including dialogue, coalitions, negotiation and conflicts, should always be taken into consideration in order to enable the sustainability of policy processes (Scheffran, 2006). The types of interactions are dependent on multiple variables, actor characteristics and elements from the wider context (Bressers, 2004; Owens, 2008). Based on the data collected, Table 6 shows the types of interactions established between the EWSETA and the various actors. The EWSETA and the DHET seem to have similar goals,; the DWS appears to be in opposition to the WSSP because in its opinion the WSSP does not address the water sector; LGSETA has not been willing to cooperate in sharing data pertaining to water services, hence there is no interaction with EWSETA; there seems to have been active cooperation from TVETS, as the EWSETA has paid more attention to partnering with them through provision of funds; and TUT is showing more passive cooperation, as it contributes to the development of skills – not because it is consciously responding to the WSSP, but because it has common mandates by virtue of operating under the same Ministry.

Table 5
Actors' roles and influences on SSP implementation.

	EWSETA	DHET	DWS	COGTA	WISA	WRC	SAQA	LGSETA	TUT&TVETS
ROLE	Water sector skills development authority	Coordinate education and training in all sectors	Custodian of water resources	Support for local government and other government departments	Coordination and professionalisa-tion of water sector professionals	Water research	Quality assurance qualifications	Local government skills development	Providing high and intermediate qualifications
INFLUENCE	Allocate funds where there is need	Manage and control the state education budget	Override local government decisions	Enhance cooperation between government departments	Establish relations between EWSETA and relevant stakeholders	Research outcomes inform policy makers	Can delay accreditation process	Autonomy over local government related skills data (water services)	With adequate capacity, can help close skills gap

Table 6
Existing interactions between other actors and the EWSETA in relation to the SSP.

Actors	Types of Interaction	Active Characteristics
DHET	Active cooperation	Motivation, positive cognitions and power (resources)
DWS	Opposition	No motivation, negative cognitions
LGSETA	No interaction	No motivation, no information
TVETS	Active cooperation	Motivation, cognition
TUT	Passive cooperation	Low motivation, negative cognitions

4.4.3.3. Current contributions from selected tertiary institutions with regard to reducing the capacity gap in the water sector. Based on the data collected and other secondary reviews, institutions of higher education (universities and TVETs) seem to be offering a wide range of water-related programmes. Data on TVETs was not sufficient, as some TVETs did not have up-to-date records and the DHET's records did not provide water-specific categories that would allow us to project trends over the period that the WSSP has been running (2011–2015). For example, Tshwane University of Technology has maintained a constant number of enrolments over the period coinciding with the current SSP. It has applied for additional curricula but has had to wait for approval by the SAQA. Overall, data on technical universities was documented per faculty and not by specific programme. We draw on statistics from the Science, Engineering and Technology faculty statistics, based on the fact that all water-related programmes would be within the same category. Data was available for the period 2010–2012, and the statistics show an average increase of 4% increase in both enrolments and graduations over those three years. However, the data also revealed that on average, only 17% of students who enrolled in the Science, Engineering and Technology faculty successfully completed their programmes.

5. Discussion

5.1. Outcome of interactions during formulation on current implementation

According to the CIT, interactions are perceived to exist between target groups and implementers even before policy implementation; the introduction of policy is therefore considered not to replace the previous interaction process but rather to build on the existing one (Bressers, 2004). This suggests that a lack of consensus during the formulation of the SSP will not be resolved by its implementation. In this case, it appears to have led to a lack of ownership by some actors over the entire process. Despite the amends that the EWSETA has tried to make in response to the feedback about inefficient stakeholder engagement processes in the past, there seems to be a generally negative perception of the WSSP. Our empirical evidence suggests that the supporting implementers and the target group are still holding on to past events and that their cognitions of the EWSETA and the WSSP have thus remained largely negative.

Negative cognition, in turn, has a limiting effect on the level of commitment to the implementation of policy. By the same token, the key to successful policy implementation is commitment, which Brynard (2009) defines as the ability to maintain the momentum of an initiative from its establishment to its delivery. Interview responses from the supporting implementers, which include "we cannot use the WSSP, it's not reliable", "we cannot wait for EWSETA" and "it is their WSSP and not that of the water sector", are clear indications that there is a lack of ownership and commitment to implementing the plan. Despite the dialogue that has been taking place over the course of the WSSP's lifespan from 2011 to date, the supporting actors and a part of the target group do not seem to be motivated to incorporate the WSSP into their internal skills development practices.

Successful policy implementation is also highly dependent on the quality of the decision-making process. This is supported by data from different sources through stakeholder engagements and data sharing among the different relevant government departments (Dinar, 1998). The WSSP is supposed to be informed by the workplace skills plans (WSPs) of the different government departments and industry, due to the legal and policy frameworks that allocated water services to the LGSETA, whereas in actuality it appears to be focused more on the element of water resources after unsuccessful attempts by the EWSETA to access data from the LGSETA and from municipalities' WSPs. Funke et al. (2007) suggest that government departments often lack cooperation because they are driven by policies which are, in most cases, not aligned. Furthermore, due to the lack of consensus over the SSP, the Water Sector Leadership Group (WSLG), made up of highly influential organisations in the water sector and under the leadership of the DWS, is perceived to have provided the highest stakeholder platform for dialogue and deliberations for all water-related issues. Within the WSLG, the skills planning group has been dedicated to formulating a plan which encompasses the water sector. This illustrates that policy implementation is therefore not always about implementing prescribed policy; rather it is thought to include efforts that can prevent implementation or lead to changes in certain elements of a policy (Bressers, 2004).

5.2. Influence of actor characteristics on implementation

Power is considered to be a multi-layered characteristic (Arts &Van Tatenhove, 2004). Bressers (2004) further expands this and refers to power in other contexts, namely capacity and resources. In the case of the WSSP, the policy implementing agent (EWSETA) is considered to possess power in the sense that it has the resources to influence intervention and action from the target group. However, Arts and Van Tatenhove (2004) argue that influence goes only as far as an actor's position in existing structural arrangements. While the EWSETA is mandated to implement the SSP and expected to be the leading authority in the South African water sector in skills development, the constitutional mandate appears not to grant it the power to coerce action from the target group and supporting implementers.

Interactions between actors can be either reciprocal or influential (Plaza-Úbeda, de Burgos-Jiménez, & Carmona-Moreno, 2010). DHET is believed to be in a position to influence the decisions made by EWSETA because it decides whether EWSETA will be dissolved or re-established after each five-year cycle. This power relation, based on the cognitions gathered from the supporting implementers, appears to explain why the EWSETA is perceived to be in compliance with the goals of the DHET and NSDSIII (education sector) and not in actuality responding to the "real" needs of the water sector

The DHET is further believed to influence the programmes offered by the tertiary institutions (target group) by virtue of the inherent power exercised through approval of curricula. In 2007,

the restructuring of qualifications by the DHET required that all tertiary institutions "recurriculate" to fit into their new structure. Evidence from our research suggests that tertiary institutions can only offer qualifications that appear on the DHET's PQM (Programme Qualifications Mix).

Formulation of policy is the easy part, however, the main task is trying to implement a policy, which is rendered difficult due to the changing informal rules of institutions, which include codes of conduct and the behavioural patterns of individuals and organisations (information/cognitions) (Seppälä, 2002). Arguably, it is not facts that are important but rather the interpretation of reality (cognition) that counts, as that is what is acted upon. Moreover, policy implementation can be obstructed by government departments if there is a lack of coordination and consultation (Seppälä, 2002).

5.3. Case specific recommendations

Based on information from the key respondents as well as our discussion above, we propose the following recommendations for the further implementation of the WSSP in South Africa.

- Through the Continuous Improvement Plan (CIP) and annual review of stakeholder engagement forums, the EWSETA should take into consideration ideas from the key actors in the water sector and make necessary adjustments to the WSSP.
- There is a need for cooperation and communication between government departments (DHET and DWS) to ensure that the EWSETA can fulfil both the education and the water sector needs.
- The DHET should mandate the EWSETA to develop their own databases and keep track of all enrolments and graduations in water-related programmes, each year from universities and TVETs. Such detailed information will enable more efficient planning and allow for a better match between supply and demand.
- Give that the policy implementation of the SSP is a social process involving multiple actors, it is important to allocate tasks, e.g. strategic, administrative, functional, operational, research, etc. In so doing, actors' specific expertise and organisational capacities can be used together for the purpose of one goal.

5.4. Lessons learned

At a more general level, three main lessons learned can be derived from this case which may serve to guide evaluators and planners involved in similar efforts.

Firstly, and most importantly, all key actors should be involved from the initial planning stages since, as in any other policy or programme process, actors have power to either cooperate and facilitate the process or form coalitions that can deter the process. Different actors have varying levels of influence and importance not only during the planning but also during the implementation stage, based on their power (capacity, skills, and resources) and their role in the governance structure. An early and thorough stakeholder analysis is perceived to be vital, as this would ensure that important and influential stakeholders are accounted for. In so doing, it is possible to distinguish which actors have the power either to cooperate and further the process or to form coalitions that can deter the process. Involvement should be sought of the actors of 'high importance' *and* 'high influence' in order to increase the chances of achieving the overall goals. Palumbo and Hallett (1993) argued already two decades ago that achieving consensus may be unrealistic and a constructivist approach with multiple (rather than uniform) goals can prove to be more practical. In the paradigm of adaptive policy making (Swanson et al., 2010; Walker, Adnan Rahman, & Cave, 2001), departing from such a multiple, socially constructed reality (Palumbo & Hallett, 1993) can help identify various options for national Capacity Development (CD) strategy formulation and implementation.

Secondly, during the implementation of such CD strategies, data sharing appears as essential, not only between the different actors involved in the implementation but also between different policy initiatives to avoid duplication. The availability of detailed information will enable more efficient planning of CD strategies and allow for a better match between the demand for, and the supply of, skills. In order to foster the practise of data sharing, the early involvement of all relevant key actors recommended above is highly advisable, coupled with considerations on how such data sharing can be best implemented technically via a range of platforms as policy making moves into the digital age (Janssen & Wimmer, 2015).

Thirdly, assessing the capacities of the implementing agents, i.e. in terms of number of staff to carryout designated tasks as well as their skills to efficiently fulfil their job descriptions, emerges as an imperative for increasing the likelihood of success of national CD strategies. It is therefore important for realistic strategic goals to be set using existing institutional capacities as the benchmark to achieving the expected goals. National CD strategy initiatives should not assume that the task is solely that of the implementing agents and need to account for strengthening the implementers' capacity first before these can meaningfully undertake their role.

6. Conclusions

This paper has explored the implementation of the South African WSSP, the interactions and characteristics of the actors' involved in the implementation, i.e., disposition or attitude (motivation), the capacity to act or resources with which to influence decisions (power) and interpretation or frames of reality with regard to the tasks and performance of self or other actors (information/cognition), and the types of interactions that have developed as a result of these interactions. We perceive these factors to have contributed to the present slow progression and challenges in implementing the WSSP.

While actor interactions are of importance and at the heart of policy implementation processes, establishing the actor characteristics in this case study was based on the researchers' perception of the actors' own views. In some cases, these views may have been misinterpreted, as relevant characteristics are largely implicit and not obvious. As suggested by Bressers (2004), Bressers (2007) and de Boer (2012), actor characteristics are based on past and present interactions and external contexts which are dynamic and prone to change over time. This also brings into question the reliability of existing characteristics and makes it a challenge to determine the future outcome, as these determinants are in constant change.

Power in the form of resources was one of the predominant factors that arose in our study, and a relationship between power and capacity emerged (Owens, 2008). Further research into the relationship between capacities and the efficient use of resources can enhance the understanding of the policy implementation process and, furthermore, can provide an understanding of the state of the sector's overall performance. The framework could also be further developed into an analytical model in which elements of the external context and active characteristics are assigned values and fed into assumed various scenarios to predict the outcome of future implementation plans, and which can also predict the time period in which such plans are likely to be implemented. This could inform policy makers and implementers about necessary remedial interventions during the early stages of the

process of formulating and implementing national strategies for water capacity development.

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