

# Unravelling gendered practices in the public water sector in Nepal

Gitta Shrestha<sup>a,\*</sup> and Floriane Clement<sup>a,b</sup>

<sup>a</sup>*International Water Management Institute (IWMI), GPO Box 8975, EPC 416, Kathmandu, Nepal*

*\*Corresponding author. E-mail: g.shrestha@cgiar.org*

<sup>b</sup>*DYNAFOR, Université de Toulouse, INPT, INRA, Toulouse, France*

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## Abstract

Despite decades of gender mainstreaming in the water sector, a wide gap between policy commitments and outcomes remains. This study aims at offering a fresh perspective on such policy gaps, by analysing how gendered discourses, institutions and professional culture contribute to policy gaps. We rely on a conceptual framework originally developed for analysing strategic change, which is used to analyse gender in the public water sector in Nepal. Our analysis relies on a review of national water policies and a series of semi-structured interviews with male and female water professionals from several public agencies. Our findings evidence how dominant discourses, formal rules and professional culture intersect to support and reproduce hegemonic masculine attitudes and practices of water professionals. Such attitudes and practices in turn favour a technocratic implementation of policy measures. We argue that gender equality policy initiatives in the water sector have overly focused on local level formal institutions and have not adequately considered the effects of masculine discourses, norms and culture to be effective in making progress towards gender equity. We conclude with policy recommendations.

*Keywords:* Discourse; Gender; Institutions; Nepal; Professional culture; Water

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## Introduction

Gender, along with other social identities, is a critical determinant and characteristic of water–society relationships. Gender shapes inter alia who benefits and who loses from water resource development (Carney, 1993; van Koppen, 1998) or from water privatisation (Harris, 2008) as well as one's vulnerability to water-related disasters (Enarson & Fordham, 2001). Yet over a long period, gender was considered irrelevant to water management in most policy spheres. Since the 1990s, the inclusion of

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gender equality in international water governance agendas<sup>1</sup> marks a formidable step forward in acknowledging gender as a legitimate policy issue in the water sector. Many governments have initiated institutional reforms to meet their policy commitments on gender, including quotas to ensure equal gender representation in water user associations (WUAs) and the allocation of formal individual water rights to women.

Yet these efforts have not, as a whole, profoundly challenged existing gendered patterns of water planning, management and decision-making, as documented in South Asia (Zwarteveen *et al.*, 2014). For instance, increased women's membership in WUAs has neither challenged traditional gender roles (Elias, 2017) nor led to legitimate and meaningful inclusion of women's interests in decision-making processes, as documented in South Africa and Kyrgyzstan (Kemerink *et al.*, 2012; Nixon & Owusu, 2017). Similarly, individual water rights have often not adequately supported women to meet their specific water needs and even reinforced existing gender inequities as observed in South Asia and elsewhere (Meinzen-Dick & Zwartveen, 1998; Ahlers & Zwartveen, 2009; Harris, 2009).

The processes and factors creating a gap between policy intentions and outcomes are multiple and intertwined. Policies are interacting with other strong drivers of change, some of which have aggravated gendered inequities, such as neoliberal reforms favouring water privatisation and marketisation (Ahlers & Zwartveen, 2009; Harris, 2009; O'Reilly, 2011) and other political economic and environmental changes (Buechler & Hanson, 2015). Gender intersects with other social markers such as caste, ethnicity, class, age or religion in water injustices (Harris, 2008; O'Reilly, 2011; Leder *et al.*, 2017). Several scholars have also pointed to how water management is embedded in day-to-day norms, social relations and practices (Joshi, 2005; Vera Delgado & Zwartveen, 2007; Ahlers & Zwartveen, 2009; Sultana, 2009). As the latter depend on ecological and socio-cultural contexts, institutional panaceas are unlikely to produce expected policy outcomes across settings (Meinzen-Dick, 2007; Zwartveen & Boelens, 2014). A relatively under-explored but growing area of scientific enquiry has been that of masculinities and gendered culture in water organisations, and how the latter influences the attitudes and practices of water professionals (Laurie, 2005; Zwartveen, 2008; Liebrand & Udas, 2017).

We built on this recent scholarship, using the case study of water bureaucracies in Nepal. Nepal offers an interesting case study as national irrigation and drinking water policies are relatively progressive in terms of gender and social inclusion. Our objective was to explore how gendered discourses and institutions shape the attitudes and practices of professionals in water bureaucracies and the ability of public organisations to reach gender policy goals. By institutions, we consider the formal rules and informal rules, norms and strategies embedded in the professional culture. We add to earlier research by adapting an integrated organisational management framework, called the technical, cultural, political framework (Tichy, 1983). This allows a relatively comprehensive analysis of multiple organisational components and of their interactions, therefore supporting the design of actionable policy recommendations. We hope thereby to reach a broader audience of policy-makers, development practitioners and scholars.

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<sup>1</sup> These include Agenda 21 of the Earth Summit in Rio (1992), the Dublin Principles of 1992. The UN Water for Life Decade 2005–2015 likewise emphasised the necessary involvement and participation of women to achieve international commitments on water and water-related issues.

## Background

### *Gender in water policies in Nepal*

In Nepal, policy attention to gender and development started in the 1980s as gender became increasingly prominent in international development debates. A landmark study on ‘The status of women in Nepal’ (Acharya & Bennett, 1981) made women’s contribution to the national economy more visible on the policy stage<sup>2</sup>. In particular, there was an increasing recognition of women’s role and responsibilities in the management of natural resources and, in particular, forest. Efforts to address gender equality in water resource management came later and can be dated back to the early 2000s, under the Ninth Five-year Plan (1997–2000). The Plan recognised women’s development and empowerment as a key tenet of development. It indicated that all national development programmes would adhere to Nepal’s National Plan of Action for Gender Equality and Women’s Empowerment, formulated to implement the Beijing Platform for Action.

Donors have also strongly pushed gender mainstreaming as part of development initiatives, across several sectors. Gender mainstreaming debates have largely relied on a monolithic framing of ‘the Nepali woman’ as ‘patriarchally oppressed, uniformly disadvantaged and Hindu’ (Tamang, 2011: p. 281), ignoring the diversity of gender relationships and gendered experiences, needs and subjectivities across Nepal. In the water sector, gender mainstreaming efforts have resulted in the creation of a gender and social inclusion (GESI) unit in most ministries and line departments, as a requirement of the Gender Responsive Budgeting and Planning Directive (Government of Nepal, 2012). The latter was issued by the Ministry of Finance to fulfil Nepal’s international commitments to gender equality, e.g., the Commission for Elimination of Discrimination Against Women (CEDAW), the Beijing Platform for Action and the Millennium Development Goals (MDGs). Furthermore, several gender equality initiatives are tied to donor-supported projects, e.g., from the Asian Development Bank or the World Bank, and many of them become dysfunctional as soon as the project phases out.

Policy initiatives towards gender equality in water management have, since their earliest stages, focused on enhancing the participation of women in formal WUAs. Although we could not specifically track donors’ influence on gender mainstreaming debates in the water sector in Nepal, this focus is in line with international development discourses on gender equity and water (Cleaver, 1999; Wallace & Coles, 2005; Singh, 2008). The Irrigation Policy 1992 stipulates 20% of women members in WUAs (Ghimire, 2004) while recognising and institutionalising the participation of farmers in irrigation management. Nepal’s Water Resource Strategy, a landmark cross-sectoral water policy document, stressed the importance of ‘balanced gender participation and social equity’ (HMGN, 2002) in the use and management of water resources. The National Water Plan (HMGN, 2005) similarly recommended the inclusion of women in integrated river basin water management (e.g., involvement of women in river bank protection, conservation of watershed, operation and management of irrigation systems, in electricity distribution programmes, etc.).

Sectoral policies include concrete policy measures to achieve these goals, namely, fixed quotas (33%) for women in the executive committees of formal WUAs, e.g., as specified in the Irrigation Regulation (HMGN, 2000) and the Irrigation Policy (HMGN, 2003; Government of Nepal, 2013). In addition, the

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<sup>2</sup> Source: Interview.

latest irrigation policy ([Government of Nepal \(2013\)](#)) includes a specific section on gender that acknowledges the gender bias in the irrigation sector and proposes to address this bias through other specific interventions for gender equality and women's empowerment, e.g., the provision for financial concession and technical support to women and disadvantaged groups for irrigation facilities.

In the Water Supply, Sanitation and Hygiene (WASH) sector, the consideration of gender is central to the Rural Water Supply and Sanitation National Strategy and Policy ([His Majesty's Government, 2004](#)). These policy documents mandate inclusive and meaningful participation in terms of gender, caste and ethnicity, not only in the operation and maintenance of water supply and sanitation infrastructures, but also in local planning and budgeting and service delivery, with a quota of 30% women in water user committees. A second major component relates to capacity building, e.g., of women as health and village maintenance workers. A third key objective is to reduce the time and labour to fetch water through targeting disadvantaged groups for the provision of subsidised WASH facilities. The more recent Nepal WASH Sector Development Plan (SDP) (2016–2030) includes a specific section on GESI that defends 'the need to move beyond technical solutions towards more GESI-oriented approach that considers existing power relations between men and women, and between social groups, and how these influence access to resources and participation in decision-making process' ([Government of Nepal, 2016](#): p. 55). It builds on earlier policies around the three components identified above: increased participation of disadvantaged groups, enhanced access to WASH facilities (notably through subsidies) and capacity building.

Gender is absent from watershed management, water-induced disaster management and groundwater resource development policies, but some of these sectors are gradually moving towards greater consideration of issues of social inclusion, e.g., the current draft of the National Watershed Management Policy ([Government of Nepal, 2017](#)). A draft version of the Government of Nepal's National Integrated Water Resources Policy that we reviewed in 2017 also identified women's participation in water management across decision-making levels as the main means to achieve gender equality.

In this paper, we focus on one policy measure: the legal quota for women's participation in formal<sup>3</sup> WUAs. It is of particular interest as it is the most central policy measure on gender equity in Nepal, which cuts across the irrigation and WASH sectors. Its implementation, however, has led to disappointing outcomes. It has also been widely adopted beyond Nepal and has attracted feminist scholars' attention, but the latter has mostly been limited to its implementation at the operational community level. We add to this debate by exploring how norms of masculinities have an effect on policy implementation at higher institutional levels. After reviewing current assessments of the policy gap between intentions and outcomes in Nepal and reviewing a range of causal factors and mechanisms, we will then broaden our analysis to consider the organisational factors that have hindered progress towards greater gender equity in the public water sector in Nepal.

### *Policy gaps*

Our knowledge of the extent of the policy gap in regard to legal quotas on women's participation in WUAs is patchy – to our knowledge, there has not been any large-scale study on this issue in Nepal. Consequently, it is difficult to assess its outcomes and impacts across diverse contexts and to identify in a comprehensive manner the causal factors and mechanisms participating to the policy gaps. However, all published case

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<sup>3</sup> By formal, in this case, we mean registered with the government.

studies point to their limited impact, whether in the irrigation or in the WASH sector – so do the observations of the water professionals we have met, including civil servants. In the irrigation sector, a survey conducted in the Second Irrigation Sector project, a large-scale irrigation development and rehabilitation project financially supported by ADB and implemented by the Government of Nepal, reports that 27 of the 108 WUAs created had reached the earlier policy quota of 20% of women (SILT, 2002 in Udas & Zwartveen, 2005). Some scholars indicate that in the WASH sector, women are still insufficiently included at the planning stage (Bhandari *et al.*, 2005). More recent studies in the irrigation sector also remark that the later quota of 33% has largely not been met (Udas, 2014; Pradhan, 2016), even though many young and middle-aged men are absent from villages, due to long-term or seasonal migration.

Even when the quota is met on paper, i.e., on the list of the executive committee members, women's participation is often considered as tokenism. Of course, there are large variations in women's participation in natural resource management across Nepal, as gender norms vary across agro-ecological regions and ethnic groups (Agarwal, 2010). Yet the available evidence indicates that overall, the legal quotas have fallen behind in empowering women in decision-making and enhancing gender equality. First, women are still not recognised as legitimate irrigators in their family (Panta & Resurrección, 2014). In many cases, either their husband, father-in-law or brother-in-law participates in the meetings (Ghimire, 2004; Pradhan, 2016). Second, cases where women do have a real influence on decisions and represent other women's interests are even rarer (Regmi & Fawcett, 1999; Upadhyay, 2003). Women participating are mostly from higher caste, thereby not necessarily defending the interests of women from other castes (Ghimire, 2004; Panta & Resurrección, 2014).

As a result, women's water multiple uses and specific needs are often ignored. For instance, women's uses of the water for domestic (washing clothes) or other needs (cattle bathing, vegetable gardening) are either ignored or viewed as secondary and rarely considered during canal design and operation (Lahiri-Dutt, 2007). Furthermore, the increasing number of women who are in charge of crop farming in the absence of their husband – as well as widows – have to rely on male relatives to secure access to irrigation water and often get less water than male irrigators (Panta & Resurrección, 2014).

### *Current understanding of policy gaps*

Looking at the broader literature on women's participation in WUAs, earlier scientific studies show similar gaps between policy expectations and actual women's participation, e.g., in India (Meinzen-Dick & Zwartveen, 1998; Singh, 2008). Women have faced multiple barriers to become active members of these associations, such as a lack of legal land titles, gender norms influencing their mobility or simply a lack of time to attend meetings due to domestic chores (Ghimire, 2004). Attending public meetings is under many socio-cultural contexts not considered socially appropriate for women and women's legitimacy and capacity to be involved in irrigation management is often questioned.

Even when women attend meetings, they might not have sufficient knowledge or confidence to speak up and their views or interests might be systematically ignored. Hence, women might not be able to draw any benefit from their participation, because of entrenched social hierarchies, gender norms and unequal power relationships, as shown in studies conducted across a variety of socio-cultural and ecological contexts (Adams *et al.*, 1997; Meinzen-Dick & Zwartveen, 1998; Cleaver, 1998). Several studies conclude that women might have a greater ability to claim access to water informally, through negotiation with family members and relatives, than by participating in formal groups. It might thus simply not be in their interest to take part in such groups and committees, where their legitimacy to voice their concerns is low (Cleaver, 1998; Jackson, 1998).

In Nepal, case studies analysing women's participation in WUAs in the irrigation sector indicate similar findings, e.g., the role of patriarchal norms (Chhetri *et al.*, 2008; Panta & Resurrección, 2014). Some studies have evidenced the instrumentalisation of women's participation, showing how male WUA leaders allowed or supported women's participation in the executive committee in order to get government registration or to attract external funding (Udas & Zwartveen, 2005; Chhetri *et al.*, 2008). A study conducted in Tukucha Nala irrigation system, in Kavre district, indicated that most women felt that they would not have much to gain from their participation in WUAs, because most decisions were decided informally outside of WUA meetings by a few male members (Udas & Zwartveen, 2005). A few women, those whose husband had migrated or who were widows, found it useful to become members of the executive committee as an effective means to network with government and development actors.

### *Understanding masculinities*

This analysis of policy gaps points to the need for policy-makers and bureaucrats to understand local power relationships – and how these relationships are shaped by gender, caste, ethnicity and class. Most scholars indeed call for structural changes that would address the politicisation of WUAs, consider local informal rules and norms for water management, and initiate critical reflections on unequal gender norms (Udas & Zwartveen, 2005; Panta & Resurrección, 2014). In other words, a technocratic application of quotas is alone unlikely to trigger a remarkable change in gendered patterns of water management.

Moving beyond a technocratic application of quotas requires identifying, questioning and challenging current practices, attitudes and organisational culture in water bureaucracies. Across countries, water bureaucracies are firmly embedded in a masculine professional culture (Zwartveen, 2008), and Nepal is no exception (Udas & Zwartveen, 2010; Liebrand & Udas, 2017). Men hold power, authority and expertise in irrigation organisations and what is deemed as a successful performance for a civil servant in the water sector is generally associated with masculine traits of characters and behaviours (Liebrand & Udas, 2017). Almost a decade ago, Udas & Zwartveen (2010) unpacked how particular incentives and the masculine professional culture affected practices of civil servants at the Department of Irrigation (DOI) of Nepal. For example, promotion and performance evaluation are mainly associated with engineering achievements and level of expenditure, and efforts towards gender equality in projects are seldom incentivised. The engineering professional culture values attributes and skills such as technical competence, physical strength, being in command and rationality, which are commonly associated with hegemonic forms of masculinity and manhood. Almost a decade later, we revisit some of their findings, in a context where young female engineers have been recruited and GESI units created in public water agencies, and extend the study beyond the DOI to the public water sector in Nepal.

We propose a joint examination of the gendered nature of discourses, institutions and professional culture in the water sector, with the objective to expose how gendered everyday practices in public agencies affect policy implementation and policy outcomes on the ground.

## **Methods**

We started with a comprehensive review of public policies in the water sector. We draw on a series of semi-structured interviews with water professionals from public agencies operating in the water sector, namely, government line agencies: DOI, Department of Water Induced Disaster Management

(DWIDM), the Department of Soil Conservation and Watershed Management (DSCWM), Department of Water Supply and Sanitation (DWSS), and planning bodies: The Water Energy and Commission Secretariat (WECS) and the Nepal Energy Authority (NEA). We also interviewed representatives from the civil society and non-government organisations (NGOs), either operating in the water sector (e.g., the Federation of Drinking Water and Sanitation Users (FEDWASUN) or advocating for gender equality. Interviews were conducted in Kathmandu in February–March 2017. Respondents represented a mix of engineers and sociologists, at different seniority levels. We also interviewed social inclusion experts working in international NGOs interacting with water bureaucrats to get external views. Altogether, 21 interviews (12 females, 19 males) were conducted in February and March 2017. The detailed notes from the interviews were coded and analysed manually. In addition, our analysis benefited from observations and insights drawn from regular interactions and engagement on gender with water professionals in Kathmandu and in districts located in the Far-Western region of Nepal between 2013 and 2017.

To analyse our data, we relied on the TPC framework for strategic change management (Tichy, 1983). The TPC framework decomposes an organisation into three management tools, namely, mission and mandate, structure and staff, and proposes to examine each of these components from three management areas: technical, political, and cultural (Table 1). It was adapted for gender mainstreaming by Oxfam Novib (2010).

While we were inspired by Oxfam’s gender adaptation of the TPC framework, we kept the original nine components of the TPC framework (instead of 12 as per Oxfam Novib’s framework). We felt the components on programmes added by Oxfam Novib were less relevant to our analysis as we focused on organisations in the public water sector, which are not entirely driven by a programme-mode approach. For this reason, we also preferred to consider the ‘professional culture’ rather than the ‘organisational culture’ used in Oxfam Novib’s framework. By professional culture, we mean a set of professional and ethical norms and values that people with certain functions will tend to share (Shahin & Wright, 2004). Most components, except staff capacity and expertise (component 7) and attitudes (component 6), represent a mix of formal and informal institutions. By institutions, we mean the ‘prescription that humans use in all forms of repetitive and structured interaction...’ (Ostrom, 2005). Policies and actions (component 1) are usually formal rules, whereas professional culture (component 3) is rather constituted of informal norms, although it can also be influenced by formal rules and by the language in use.

Lastly, we added to Tichy’s framework an explicit analysis of public discourses. By discourses, we mean ‘a specific ensemble of ideas, concepts, and categorisations that is produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities’ (Hajer, 1995). Discourse analysis aims at revealing patterns and structures in discussions and debates – the latter including public talks, policy documents, or every day discussions. We are interested in how discourses shape the way gender and water issues are framed and how they give legitimacy to certain institutions and practices while undervaluing or silencing other.

Table 1. Components of the nine boxes framework used in this study.

	Mission and mandates	Organisation structure	Human resource management
Technical	1. Policies and actions	4. Tasks and responsibilities	7. Staff capacity and expertise
Political	2. Policy influence	5. Decision-making	8. Room for manoeuvre
Cultural	3. Professional culture	6. Co-operation and learning	9. Attitudes

Source: Adapted from Oxfam Novib, (2010).

Our presentation of findings starts with the overview of the national policies on gender and review of gender in national water policies. We examine dominant discourses before elaborating on the different components of the framework. In this paper, we do not review all the components of the framework but rather discuss what we feel are the most important components. We start with examining the dominant narratives that frame gender and water issues before moving to the visible organisational components that policy-makers are generally most attentive to, namely, policies and actions (component 1 in Table 1), decision-making (component 5) and staff capacity and expertise (component 7). Then, we explore less visible domains, namely, the professional culture and attitudes in the water sector.

## Results

### *Policy narratives*

We identified through our interviews and review of policies three dominant policy narratives and assumptions on gender and water. The first narrative is that ‘since water is a natural resource, water management is a technical task, which benefits everyone, men and women, equally’. Those relying on this narrative were mostly engineers and professionals with a technical background. For instance, both respondents from the DWIDM and the DSCWM indicated that since their department’s mandate is to protect lives from landslides, it directly supports vulnerable and marginalised communities, which naturally includes both men and women. When asked about how they address gender in their work, one of them answered: ‘*We do not deal with water consumption. Our aim is to preserve water and to secure life and property damage from water disasters. So landslide protection work and river training directly deal with lives of people*’ (interview, male engineer, government line agency). Similarly, several of the male engineers we met perceived water management as ‘gender-neutral’ because for them, water was a natural, not a social, object: ‘*Water resources are not gender-specific. Water resources are natural resources. It is not relevant to gender. We cannot say that there should be gender-friendly water extraction*’ (interview, male engineer, government line agency).

A second dominant narrative, visible both in policy documents and interviews, relates to women’s ‘natural’ roles: water and development professionals have historically associated women with reproductive uses of water. Dominant framings take men’s and women’s roles in public and private spheres as ‘natural’ without acknowledging the social construction of these roles and preferences, which is deeply embedded in social norms and culture. These framings create a discursive closure that has limited the range of interventions and initiatives to support gender equity in the water sector. For example, the latest draft of the Integrated Water Resource Policy recommends improved access of women to drinking water. This clause shows policy-makers’ concern to relieve women’s burden to fetch drinking water but, at the same time, implicitly reaffirms that it is women’s responsibility to do so, therefore holding the risk to legitimise interventions that reinforce traditional gender roles. Similarly, water policy discourses rely on the assumption that developing or rehabilitating local water supply infrastructures is a sufficient condition to improve women’s livelihoods: ‘*the government stated: one house, one tap, if access to water supply is improved, then gender equity is addressed*’ (interview, male sociologist, government line agency). Yet, intra-household negotiations (Regmi & Fawcett, 1999), as well as gender, caste and local power hierarchies intersect to shape access to water with large inequalities among women from different age, class and caste (Leder et al., 2017).

Lastly, a central assumption that dominates policy discourses on gender and water is that women's participation in WUAs is a sufficient and necessary condition for greater gender equity. This assumption is in line with the first policy narrative, which posits that water is a gender-neutral, physical resource, whose development does not raise gender-based distributive justice issues. This is visible in all the national sectoral and multi-sectoral water policies that include a statement or section on gender. In many water policy documents, gender equity is exclusively understood and considered as the inclusion of women in WUAs. Because of this discursive closure, policy discourses promote women's participation in WUAs without justifying under which conditions and why participation will contribute to greater gender equity in the water sector. Women's participation is framed as unproblematic and mechanical, as if increasing the number of women members in WUAs solely requires a policy statement and will automatically result in gender equity. Such narrative glosses over all the structural barriers and power hierarchies that might make women's (and low caste men's) participation ineffective. Other relevant initiatives that could contribute to greater gender equity, such as improving access to technologies for women and marginalised groups or organising critical discussions on traditional gender roles, are not considered. These points are further discussed in the following sub-section on organisational components.

### *Visible organisational components*

*Systems, policy influence and decision-making.* The organisational structure in place both reflects and reinforces these three narratives. In public water agencies such as the DOI, Groundwater Resource Development Board (GWRDB), DWSCM, DWIDM, DWSS, the institutionalisation of gender in irrigation development is neatly delimited, falling under the role of sociologists and association organisers, who are in charge of the creation and capacity building of formal WUAs. Because water management is seen to be a technical task, gender issues are not to be dealt with or addressed by engineers. As most – if not all – senior functionaries in public water agencies are civil engineers, there is no serious organisational commitment for gender: *'If you go to the DOI they will tell you: it is not their job. If you start talking to the Director General about the role of gender, he will say: 'go talk to that person''* (interview, male consultant).

This renders the work of the recently created GESI units ineffective as they operate in a void, disconnected from other divisions. The GESI units are to implement a set of GESI guidelines in their organisation to enhance gender equality in water management. This often requires collaborating with engineers from their department. For instance, the Gender Equality and Social Inclusion mainstreaming guideline for Irrigation and Water Induced Disaster Prevention sectors (Government of Nepal, 2014/15) proposes that GESI aspects are integrated in project feasibility studies. Yet most engineers we met do not see the relevance of gender to their work, as illustrated by this quote from a female engineer working in a government line agency: *'there is no need to coordinate with the GESI department. I never coordinate with them. Our work is not related'*. As reported by Udas & Zwartveen (2010), the performance evaluation of public engineers is based on a standardised form, reporting activities, costs and achievements in terms of financial and physical progress (budget spent/infrastructure built) – there are therefore no incentives for them to consider gender. The fact that attention to gender is not included in their performance evaluation form also signifies that this is not important for the organisation.

Lastly, the GESI units have been allocated neither sufficient resources nor sufficient authority to implement the GESI guidelines (interviews). In one of the units, only one junior sociologist was appointed and the two other posts below her had been vacant for a year. The gender focal points we met felt overburdened and powerless to ensure that GESI is adequately considered in their department's

activities. The general assumption that technical activities (e.g., flood protection, physical access to groundwater) will benefit all equally, including poor and disadvantaged groups, has led to the belief that a gender-earmarked budget for conducting specific GESI activities is not required.

*Staff and expertise.* Having more women in an organisation does not necessarily result in more gender-sensitive organisational culture and practices but staff and expertise nevertheless can still have an influence, especially in cases of very unequal gender balance in staff, as a whole and across hierarchical levels. Water bureaucracies in most countries have largely been dominated by male engineers, even though this is slowly changing. Compared to the figures reported by Udas & Zwartveen (2010), there has been a slight increase in the proportion of women staff at the DOI, from 13 to 18% of the total staff (Figure 1). This could be the result of the national reservation policy (Civil Service Act, second amendment, 2007), which secures 33% entry for women. In the public service as a whole in Nepal, there has been an increase of the proportion of female civil servants from 8% in 2007 to 15.3% in 2014 (Bajracharya & Grace, 2014). It is remarkable that the increase of female staff at the DOI has mostly taken place among engineers: in the T1 category, the percentage of women has increased from 2 to 34% (Figure 1).

In the DWSS, the proportion of female staff is similar to that of the DOI (interview). At the Groundwater Resource Development Board (GWRDB), male staff represent 93% of the total staff and almost all of the female staff fall in the support staff category (Table 2).

Another interesting trend is the proportion of technical/non-technical staff in these agencies. There is still a limited number (Figure 1) or absence (Table 2) of non-technical staff (NT category), despite the recent creation of GESI units. Non-technical staff are sociologists, who conduct the ‘software’ activities, mostly the organisation of training for members of WUAs, training that is conducted on the ground by association organisers. At the DOI, non-technical staff represents 6% of the total staff, with three sociologists posted in the central office in Kathmandu and four in the regional offices. Their number has remained stable between 2007 and 2017 (Figure 1).

### *Femininities and masculinities*

*Professional culture.* The masculinity of the water sector goes beyond the number of male professionals. The attitudes and practices of water professionals are shaped by norms that are embedded in a masculine professional culture. A masculine professional culture values traits, skills and behaviours associated with masculinity over those associated with femininity. The construction of large-scale infrastructure, associated with manhood and masculine traits such as technical knowledge, physical strength and endurance, is the most rewarding and highly praised professional activity within the DOI. On the other hand, sociology, which is perceived to be ‘soft’<sup>4</sup> and feminine is undervalued. This has very visible effects on the motivation and performance on the individuals working on the social and political implications of irrigation management: ‘*There is no motivation for us [...] Engineering is valued more than social science subjects [...] this is a policy issue that has been ignored for decades*’ (interview, female sociologist, government line agency). The superiority of technical, masculine knowledge over ‘soft’, feminine knowledge is institutionalised: sociologists are third-class gazetted officers without

<sup>4</sup> In the water sector in Nepal, professionals commonly call ‘software activities’ the activities that are not technical. Technical activities are called ‘hardware activities’.

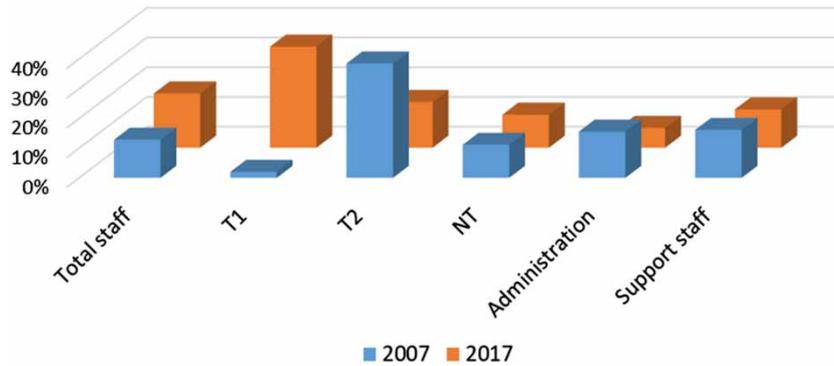


Fig. 1. Percentage of female staff across staff categories at the DOI in 2007 and 2017. T1: engineers, T2: technical staff not qualified as engineers, NT: non-technical professionals. Sources: Udas & Zwartveen, 2010 for the 2007 data; administration section, DOI, for the 2017 data.

Table 2. Number of staff by category and sex in the GWRDB in 2017.

Staff type	Total staff	Female staff	Male staff
Total staff	127	10	117
T1	13	0	13
T2	0	0	0
T3	5	1	4
Support staff	109	9	100

Source: GWRDB administrative section, February 2017.

further chance of promotion. Therefore, male sociologists and even agricultural engineers do not conform to the hegemonic masculine model of a performant water professional.

*‘The Department mostly has positions for engineers and fewer positions for persons with a social science background. Therefore, even if a man had been in my position, he would be in a similar subordinate position. People don’t take these issues [gender] seriously. We cannot say that it is because a woman is holding the position, she is heard less by the group. [...] it is basically about what skills and knowledge are valued by the organisation. (Interview female sociologist, government line agency)’*

Being in the field is associated with masculine traits of physical and mental strength, and the ability to give preference to work over family life. Positions in field offices are preferably reserved for men, whereas women’s capabilities to occupy such positions are routinely questioned. Male staff see women’s presence in the field as a hassle.

*‘People complain when a woman is posted in duty stations that require staffs. [...] It is not about pointing at the capacity of the woman employee, but maybe it is their household roles and responsibilities that act as an obstacle. [...]. We are regular to job, but it is important to understand the*

*context and why some women side-track themselves from professional life. (Interview female sociologist, government line agency)*

Whereas masculine traits are valued, signs of femininity are ignored, undervalued or despised. Many women staff reported they had to silence physical feminine traits, especially in the field, seen as a masculine working space:

*‘There is not much improvement in logistical issues. It was difficult for women during those days to be in the field. In my case, I would be the only woman in a men’s group. Just think: how would you tell your male boss that you want to go for a pee? I think these things are still as it is in this sector. (Interview, female sociologist, government line agency)’*

Although this quote might raise a smile with readers, silencing embodied femininity can actually have far-reaching consequences on maternal and child health, as this quote indicates: *‘You never know what kind of health issues they [female staff] are facing – pregnancy, menstruation etc. It is difficult for them to travel on motorbikes. This has led to many cases of miscarriage and immature babies’* (interview, female sociologist, government line agency). Another example below evidences how the specific professional needs of female staff, who form a minority, are often not adequately considered by their senior male counterparts, who are in a decision-making position.

*‘If the Department has the resources to buy vehicles, no one will think of buying a scooter that could be used by female staff. Everyone will vote for buying a motorbike, which is mostly used by male staff. It is also because women do not hold positions at the decision-making level. Decision-makers make consultations at the last minute – they quickly ask among themselves who needs what and decide on the resources to allocate. (Interview female engineer, government line agency)’*

This quote evidences the intersection of institutions and professional culture. On the one hand, decision-making is relatively closed and rules do not leave space for staff to voice their requests. On the other hand, the professional culture privileges male over female needs, reproducing female exclusion from male spaces (field offices).

Lastly, several female informants felt female staff need to double efforts to prove themselves as competent as men. They reported how male and female staff are judged differently on similar achievements. While men’s successes are attributed to their skills and competencies, women’s successes are attributed to luck or institutional favours: *‘When a young female gets promotion, people say that she was promoted due to quota but when a young male is promoted, people say that he got promotion due to his intelligence’* (interview, female engineer, government agency). Again, this shows that changing formal institutions without changing the professional culture might be counterproductive – women might get better chances of promotion but in a masculine professional culture, the legitimacy and authority associated with their new position are, at the same time, undermined.

The professional culture subtly favours male career advancement through the differentiated capabilities that men and women have to access knowledge, information and to network: *‘Working in a male-dominated profession, men have advantages, for instance, they can build networks. I have to rush after 5 pm to take care of my household responsibilities, but men stay back for more gossips. This way they access extra knowledge and information, which we cannot’* (interview female engineer, government line

agency). For instance, another female staff reported that women were systematically not being informed about international visits and training, relatively prestigious components of functionaries.

### *Attitudes, practices and knowledge*

The narratives, institutional arrangements and professional culture in the water sector have influenced the implementation of policy efforts towards gender equality in several ways. First, women's participation in WUAs is used as a panacea as reflected in discourses and institutions. Gender issues are neatly delimited to the 'WUA space', with well-delineated experts, the sociologists, institutional set-up, the GESI unit and activities (creation of WUA meeting quotas, training for women). There is no space or incentives to reflect and learn about GESI-related challenges in water management. Sociologists and community mobilisers do not have the resources, room for manoeuvre, legitimacy nor the authority to propose activities that go beyond quotas in WUAs. This has contributed to the technocratic implementation of democratic and participatory decision-making in water management – that is, an implementation limited to following fixed procedures that does not address the root causes of injustices. The narrow focus on WUA and the lack of involvement of engineers in improving gender equality means that many opportunities for more gender-sensitive interventions are lost: *'The issue they [engineers] ignore is the location of boys and girl's toilet during construction. [...] It might be uncomfortable for young female and male teenagers [to share the same toilets]. These issues are never considered'* (interview, female engineer, government line agency). As engineers do not consider gender relevant to their work, *'canals are designed in such a way that it makes water available during ploughing, which is a male job, but the design does not consider the distribution of water during transplantation and weeding, which are women's tasks'* (interview, male water institutional expert, civil society organisation).

Overall, the recent donor-driven formal institutional changes, such as the creation of GESI units and the development of GESI guidelines, have not been sufficient to influence the attitudes and practices of water professionals in a way that challenged the status quo. On the contrary, these efforts seem like a band-aid approach in the context of dominant narratives on gender and water and a strong masculine professional culture. The everyday attitudes of male water professionals towards women indeed continue reproducing unequal gender relationships at work. Two female informants shared anonymously how male staff ridicule new mothers by calling them *'jersey gai'* (in English: Jersey cows), a cow breed known for its fatty milk. Some respondents also reported that men assign inferior nicknames to their female colleagues, such as *maiya* (maiya is used for younger girl child in a family), *baini* (younger sister), *moti* (fatty). On the contrary, they always expect, regardless of the hierarchy, to be referred to with respect as 'Sir'. Attitudes towards women can be also expressed in subtle types of behaviour: *'Often, I feel if a male would have been in my position, people would have received him in a different way'* (interview, female engineer, government agency). On the other hand, women have developed an inferiority attitude. Many of our informants expressed they perceive themselves less successful in their career than their male counterparts.

Such attitudes are linked to broader social values. Yet they are also nurtured by the masculine professional culture of the water sector. In turn, they affect practices towards gender equality in water resource development and management in several ways. First, these attitudes demonstrate a profound disregard and disrespect towards women, thereby undermining the legitimacy and value towards gender equality initiatives. Second, they can affect the design of project activities, by relying on

paternalistic assumptions. For example, when water programmes include capacity building activities, women are proposed training related to microcredit that conform to traits perceived as feminine, while men receive technical training, e.g., on the operation of water sluices in canals. This reinforces existing gendered roles and divisions of labour in water management.

Lastly, male engineers' attitudes of superiority, based on the supposedly superior nature of technical – masculine – knowledge, also affect policy design: *'practical experience does not count. The 'I know everything' attitude is widespread [...]. The problem with us is that policy is developed on the basis of assumptions'* (interview, male engineer, government line agency). Gender is perceived as a frivolous ethical gloss imposed by donors rather than as a technical subject. As a result, male engineers feel that achieving GESI targets does not require any specific skills or knowledge – and that anybody can 'do gender'. For instance, one informant reported that male engineers reviewed the gender documents submitted to a donor-funded project. Another case reported by a sociologist of a public line agency was that of engineers conducting the capacity building activities of WUAs, as they thought it did not require any specific expertise that they did not already have.

## Conclusion

In Nepal, the central policy measure to enhance gender equality, the legal quota to include women in registered WUAs, has not challenged gendered norms and practices in the water sector. However, new drivers for more gender-equal water management and governance have recently emerged. Notably, male out-migration has made the gendered nature of water access and management more visible to non-gender experts – with a high proportion of young males absent in rural areas. There has also been a greater institutionalisation of gender in public organisations, with the recent creation of GESI units and guidelines in government line agencies and an increase of gazetted female staffs in the public irrigation sector.

Yet, our study shows that these factors alone are unlikely to trigger remarkable progress towards gender equality because the masculine professional culture of the water sector contributes to reproducing gendered inequalities across work spaces – in central or local-level offices, in development project units, in meetings, in the field, etc. Current gendered discourses and the masculine professional culture reproduces institutional rigidity to address gender inequality, namely, the reliance on a single institutional model (women's quota in the executive committee of WUAs) replicated across contexts. Policy discourses also rely on a monolithic and simplistic understanding of women and men's experiences, needs and values related to water, that does not acknowledge their spatial and temporal heterogeneity. Furthermore, gendered culture and practices in public organisations favour its technocratic implementation, with limited spaces for institutional learning.

Sociologists have very little space to study what works in which context and limited influence to bring changes in their organisations, due to their lower position in both the bureaucratic and knowledge hierarchy. Male engineers remain the legitimate providers of knowledge and expertise for water resource development – and most of them do not see gender relevant to their work but rather as a well-delineated side activity, related to the creation of WUAs. This has a bearing on how water resource development and management issues are framed, how programmes are designed and ultimately affects the capacity of public organisations to adequately understand and address gender and social equity issues on the ground. Even sophisticated and well-intentioned GESI guidelines have very little chance to make a difference.

Scholars have defended the need to move away from institutional panaceas towards more grounded and context-sensitive consideration of gender for water resource development and management. We contend that as long as water agencies do not acknowledge the social nature of water and the hegemonic masculinity of the professional culture, policy commitments towards greater gender equality will have little effect on the ground. It is important that water organisations pay attention to their own spaces, practices and attitudes, in order to address and achieve equity and justice issues in water resource management at the ground level. To this end, we recommend to simultaneously address: (1) policy discourses, (2) organisational components and institutions and (3) the professional culture. From a discursive perspective, this means extending current framings of water as a resource to water as ‘a symbol of identity, power and citizenship’ (Mosse, 2008: p. 948) to move away from the engineering approach that dominates the water sector. It also requires including a greater diversity of voices on water needs, experiences and subjectivities to move beyond simplistic representations of ‘the Nepali woman’. From an institutional point of view, this implies ensuring gender, ethnic and class diversity at all levels of policy-making and implementation, allocating adequate financial and human resources for more socially just water management, and creating specific incentives towards this goal, by changing performance evaluation and promotion rules. Lastly, with respect to professional culture, it is important to institutionalise values that promote positive masculinities of empathy and respect within organisations. Opening spaces for male and female staff to discuss opinions and experiences on doing gender can be a first step towards enhancing their skills, sensitivity and capacity to understand and address gender and social hierarchies in their daily practices.

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## References

- Acharya, M. & Bennett, L. (1981). The status of women in Nepal. Volume II. Field studies. In: *The Rural Women of Nepal. An Aggregate Analysis and Summary of Eight Village Studies*. The Status of Women in Nepal, Vol. 9, part II. CEDA, Tribhuvan University, Kathmandu, Nepal.
- Adams, W. M., Watson, E. E. & Mutiso, S. K. (1997). [Water, rules and gender: water rights in an indigenous irrigation system, Marakwett, Kenya](#). *Development and Change* 28, 707–730.
- Agarwal, B. (2010). [Does women’s proportional strength affect their participation? governing local forests in South Asia](#). *World Development* 38(1), 98–112.
- Ahlers, R. & Zwartveen, M. Z. (2009). [The water question in feminism: water control and gender inequities in a neo-liberal era](#). *Gender, Place & Culture* 16(4), 409–426.
- Bajracharya, P. & Grace, C. (2014). *The Nepal Civil Service and Re-Structuring of the State*. Ministry of General Administration, Government of Nepal and UNDP, Kathmandu, Nepal.
- Bhandari, B. S., Grant, M. & Pokharel, D. (2005). [Sustainable community water: managing supply systems in the mid-hills of Nepal](#). *Water Policy* 7(2), 201–214.

- Buechler, S. & Hanson, A. -M. (2015). *A Political Ecology of Women, Water and Global Environmental Change*. Routledge, Abingdon, UK. and New York, USA.
- Carney, J. (1993). *Converting the wetlands, engendering the environment: the intersection of gender with agrarian change in the Gambia*. *Economic Geography* 69(4), 329–348.
- Chhetri, R. B., Timsina, N. P., Luintel, H., Regmi, R., Bhattarai, B. & Magar, R. A. (2008). *Decentralization and Promotion of Women's Rights in Nepal: Exploring Constraints, Opportunities and Intervention Avenues*. Forest Action Nepal and HIMA-WANTI, Kathmandu, Nepal.
- Cleaver, F. (1998). *Incentives and informal institutions: gender and the management of water*. *Agriculture and Human Values* 15, 347–360.
- Cleaver, F. (1999). *Paradoxes of participation: questioning participatory approaches to development*. *Journal of International Development: The Journal of the Development Studies Association* 11(4), 597–612.
- Elias, F. (2017). *The practice of integrated water resources management in South Africa: challenges of women in water user associations*. *Geojournal* 82(6), 1165–1177. doi:10.1007/s10708-016-9736-9.
- Enarson, E. & Fordham, M. (2001). *From women's needs to women's rights in disasters*. *Global Environmental Change Part B: Environmental Hazards* 3(3), 133–136.
- Ghimire, S. (2004). *Women and irrigation in Nepal: context, issues and prospects*. *Water Nepal* 11(2), 45–61.
- Government of Nepal (2012). *Gender Responsive Budgeting and Planning Directive*. Ministry of Finance, Kathmandu, Nepal.
- Government of Nepal (2013). *The Irrigation Policy 2013*. Ministry of Irrigation, Kathmandu, Nepal.
- Government of Nepal (2014/15). *Gender Equality and Social Inclusion Mainstreaming Guideline for Irrigation and Water Induced Disaster Prevention Sectors*. Ministry of Irrigation. Kathmandu, Nepal.
- Government of Nepal (2016). *Nepal Water Supply, Sanitation and Hygiene Sector Development Plan (2016–2030)*. Ministry of Water Supply and Sanitation, Sector Efficiency Improvement Unit (SEIU), Kathmandu, Nepal.
- Government of Nepal (2017). *Draft on National Watershed Management Policy 2017*. Kathmandu, Nepal.
- Hajer, M. J. (1995). *The Politics of Environmental Discourse: Ecological Modernization and the Policy Process*. Oxford University Press, Oxford, UK.
- Harris, L. (2008). *Water rich, resource poor: intersections of gender, poverty, and vulnerability in newly irrigated areas of southeastern Turkey*. *World Development* 36(12), 2643–2662.
- Harris, L. (2009). *Gender and emergent water governance: comparative overview of neoliberalized natures and gender dimensions of privatization, devolution and marketization*. *Gender, Place & Culture* 16(4), 387–408.
- His Majesty's Government (2004) *Rural Water Supply and Sanitation National Policy 2004 & Rural Water Supply and Sanitation National Strategy 2004*. Kathmandu, Nepal.
- His Majesty's Government of Nepal (2000). *Irrigation Regulation*. Ministry of Water Resources, Kathmandu, Nepal.
- His Majesty's Government of Nepal (2002). *The Water Resource Strategy 2002*. Ministry of Water Resources, Kathmandu, Nepal.
- His Majesty's Government of Nepal (2003). *The Irrigation Policy 2003*. Ministry of Water Resources, Kathmandu, Nepal.
- His Majesty's Government of Nepal (2005). *National Water Plan 2005*. Ministry of Water Resources, Kathmandu, Nepal.
- Jackson, C. (1998). *Gender, irrigation, and environment: arguing for agency*. *Agriculture and Human Values* 15(4), 313–324.
- Joshi, D. (2005). *Misunderstanding gender in water-addressing or reproducing exclusion*. In *Gender, Water and Development*. Coles, A. & Wallace, T. (eds). Berg Publishers, Oxford, UK, pp. 135–153.
- Kemerink, J. S., Méndez, L. E., Ahlers, R., Wester, P. & van der Zaag, P. (2012). *The question of inclusion and representation in rural South Africa: challenging the concept of water user associations as a vehicle for transformation*. *Water Policy* 15(2), 243–257. doi:10.2166/wp.2012.127.
- Lahiri-Dutt, K. (2007). *Diluted Citizenship: Women, Water and Rights in the Midst of Inequities in India*. (No. 07/02). Participatory Development Working Papers.
- Laurie, N. (2005). *Establishing development orthodoxy: negotiating masculinities in the water sector*. *Development and Change* 36(3), 527–549. doi:10.1111/j.0012-155X.2005.00422.x.
- Leder, S., Clement, F. & Karki, E. (2017). *Reframing women's empowerment in water security programmes in western Nepal*. *Gender & Development* 25(2), 235–251.
- Liebrand, J. & Udas, P. B. (2017). *Becoming an engineer or a lady engineer: exploring professional performance and masculinity in Nepal's Department of Irrigation*. *Engineering Studies* 9(2), 120–139. doi:10.1080/19378629.2017.1345915.

- Meinzen-Dick, R. (2007). [Beyond panaceas in water institutions](#). *Proceedings of the National Academy of Science in the United States of America* 104, 15200–15205.
- Meinzen-Dick, R. & Zwartveen, M. Z. (1998). [Gendered participation in water management: issues and illustrations from water users' associations in South Asia](#). *Agriculture and Human Values* 15(4), 337–345.
- Mosse, D. (2008). [Epilogue: the cultural politics of water – A comparative perspective](#). *Journal of Southern African Studies* 34(4), 939–948.
- Nixon, R. & Owusu, F. (2017). [Choice, inclusion, and access to information: understanding female farmers' participation in Kyrgyzstan's water-user associations](#). *Sustainability* 9(12), 15. doi:10.3390/su9122346.
- O'Reilly, K. (2011). ['They are not of this house': the gendered costs of drinking water's commodification](#). *Economic and Political Weekly* xlvi(18), 49–55.
- Ostrom, E. (2005). *Understanding Institutional Diversity*. Princeton University Press, Princeton, NJ, USA.
- Oxfam Novib (2010). *Mainstreaming A Gender Justice Approach. A Manual to Support NGOs in Self-Assessing Their Gender Mainstreaming Competence*. Oxfam Novib, Den Haag.
- Panta, S. K. & Resurrección, B. P. (2014). [Gender and caste relations amidst a changing political situation in Nepal: insights from a farmer-managed irrigation system](#). *Gender, Technology and Development* 18(2), 219–247.
- Pradhan, P. (2016). [Gender issues and women participation in water users associations \(WUAs\) in irrigated agriculture in Nepal](#). *Journal of Graduate Volunteer Centre* 12(2), 261–297.
- Regmi, S. C. & Fawcett, B. (1999). [Integrating gender needs into drinking-water projects in Nepal](#). *Gender & Development* 7(3), 62–72. doi:10.1080/741923243.
- Shahin, A. I. & Wright, P. L. (2004). [Leadership in the context of culture: an Egyptian perspective](#). *Leadership & Organization Development Journal* 25(6), 499–511.
- Singh, N. (2008). [Equitable gender participation in local water governance: an insight into institutional paradoxes](#). *Water Resource Management* 22(7), 925–942.
- Sultana, F. (2009). [Fluid lives: subjectivities, gender and water in rural Bangladesh](#). *Gender, Place & Culture* 16(4), 427–444.
- Tamang, S. (2011). [The politics of 'developing Nepali women'](#). In: *Perspectives on Modern South Asia: A Reader in Culture, History, and Representation*. Visweswaran, K. (ed.). Blackwell Publishing Ltd, Oxford, UK, pp. 280–288.
- Tichy, N. M. (1983). *Managing Strategic Change*. Wiley, New York, USA.
- Udas, P. B. (2014). *Gendered Participation in Water Management in Nepal. Discourses, Policies and Practices in the Irrigation and Drinking Water Sectors*. PhD dissertation, Wageningen University, Wageningen, The Netherlands.
- Udas, P. B. & Zwartveen, M. (2005). [Prescribing gender equity? The case of the tukucha nala irrigation system, central Nepal](#). In: *Liquid Relations: Contested Water Rights and Legal Complexity*. Roth, D., Boelens, R. & Zwartveen, M. (eds). Rutgers University Press, New Brunswick, NJ, USA, pp. 21–43.
- Udas, P. B. & Zwartveen, M. Z. (2010). [Can water professionals meet gender goals? A case study of the Department of Irrigation in Nepal](#). *Gender & Development* 18(1), 87–97. doi: <https://doi.org/10.1080/13552071003600075>.
- Upadhyay, B. (2003). [Water, poverty and gender: review of evidences from Nepal, India and South Africa](#). *Water Policy* 5(5–6), 503–511.
- van Koppen, B. (1998). [Water rights, gender, and poverty alleviation. Inclusion and exclusion of women and men smallholders in public irrigation infrastructure development](#). *Agriculture and Human Values* 15, 361–374.
- Vera Delgado, J. & Zwartveen, M. (2007). [The public and private domain of the everyday politics of water: the constructions of gender and water power in the Andes of Peru](#). *International Feminist Journal Of Politics* 9(4), 503–511.
- Wallace, T. & Coles, A. (2005). [Water, gender and development: an introduction](#). In: *Gender, Water and Development*. Coles, A. & Wallace, T. (eds). Berg, Oxford, UK, 1–20.
- Zwartveen, M. (2008). [Men, masculinities and water powers in irrigation](#). *Water Alternatives* 1(1), 111–130.
- Zwartveen, M. Z. & Boelens, R. (2014). [Defining, researching and struggling for water justice: some conceptual building blocks for research and action](#). *Water International* 39(2), 143–158.
- Zwartveen, M. Z., Ahmed, S. & Gautam, S. R. (Eds.). (2014). *Diverting the Flow: Gender Equity and Water in South Asia*. Zubaan, New Delhi, India.

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