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# Economic sustainability, water security and multi-level governance of local water schemes in Nepal

Sostenibilidad económica, seguridad del agua y gobernanza multinivel de los planes locales de abastecimiento de agua en Nepal

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## Abstract

This article explores the role of multi-level governance and power structures in local water security through a case study of the Nawalparasi district in Nepal. It focuses on economic sustainability as a measure to address water security, placing this thematic in the context of a complicated power structure consisting of local, district and national administration as well as external development cooperation actors. The study aims to find out whether efforts to improve the economic sustainability of water schemes have contributed to water security at the local level. In addition, it will consider the interactions between water security, power structures and local equality and justice. The research builds upon survey data from the Nepalese districts of Nawalparasi and Palpa, and a case study based on interviews and observation in Nawalparasi. The survey was performed in water schemes built within a Finnish development cooperation programme spanning from 1990 to 2004, allowing a consideration of the long-term sustainability of water management projects. This adds a crucial external influence into the intra-state power structures shaping water management in Nepal. The article thus provides an alternative perspective to cross-regional water security through a discussion combining transnational involvement with national and local points of view.

Key words: Water security; Nepal; environmental governance; environmental justice; economic sustainability.

## Resumen

Este artículo explora el papel de la gobernanza multinivel y las estructuras de poder en la seguridad del agua local a través de un estudio de caso del distrito de Nawalparasi en Nepal. Se centra en la sostenibilidad económica como una medida para abordar la seguridad del agua, colocando esta temática en el contexto de una estructura de poder complicada que consiste en la administración local, distrital y nacional, así como en actores externos de cooperación para el desarrollo. El estudio pretende explorar si los esfuerzos para mejorar la sostenibilidad económica de los sistemas de agua han contribuido a la seguridad del agua a nivel local. Además, considerará las interacciones entre la seguridad del agua, las estructuras de poder y la igualdad y justicia locales. La investigación se basa en datos de encuestas de los distritos nepalés de Nawalparasi y Palpa, y un estudio de caso basado en entrevistas y observación en Nawalparasi. La encuesta se realizó en esquemas de agua construidos dentro de un programa finlandés de cooperación para el desarrollo que abarca desde 1990 hasta 2004, lo que permite considerar la sostenibilidad a largo plazo

de los proyectos de gestión del agua. Esto añade una influencia externa crucial en las estructuras de poder intra-estatales que configuran la gestión del agua en Nepal. Por lo tanto, el artículo ofrece una perspectiva alternativa a la seguridad transregional del agua mediante una discusión que combina la participación transnacional con los puntos de vista nacionales y locales.

Palabras clave: Gobernanza medio-ambiental, Justicia ambiental, Nepal, Seguridad del abastecimiento del agua, Sostenibilidad económica.

## 1. Introduction

Water governance is an issue of vast consequences for Nepal. Although the country is not lacking in water reserves, these are not allocated evenly, which creates an unequal access to the resource (Biggs et al. 2013). In addition, the civil conflict that lasted from 1996 to 2006 set back development and created tensions that continue to hamper the cooperation between different political and ethnic groups (Jones et al. 2014). Meanwhile, persistent poverty, inadequate education and lack of integration through sustainable livelihoods have led to societal vulnerability (Rautanen 2007), which is accentuated by environmental hazards and climate change (Biggs et al 2013). These factors are crucial from the point of view of water security, whether understood in terms of water access or conflict potential (Cook & Bakker 2012).

Nepalese water governance remains weak and under-resourced. The conflict legacy is visible in tensions between power structures and deficient infrastructure (Rautanen 2007). Efforts to decentralize governance have managed to establish local governance bodies, but ownership and sustainability have not been sufficiently engrained (Rautanen, van Koppen & Wagle 2014). Due to such difficulties, international aid agencies have already worked for decades in Nepal, also in the water sector. A large share of the sector financing comes from international assistance, and development agencies have been influential in drafting strategies, policies and legislation (FCG International 2013). Although this influence tends to focus on encouraging local development and ownership, it can be seen as one element of transnational water governance (Jones et al. 2014).

This article will examine water security from the point of view of multi-level governance, power structures and justice in Nepal. It will combine economic and conflict approaches to water security and consider them at the local, intermediary, national and international levels, setting them in the context of transnational water governance. The focus will be on the interaction between local and international actors. In particular, the article aims to find out whether efforts to improve the economic sustainability of water schemes have contributed to water security. To what extent does international development cooperation affect water security and justice in local districts characterized by conflict and weak governance? In addition, the analysis considers the criteria by which transnational development partnerships can be evaluated.

The research was carried out as a case study of the Nawalparasi district in Nepal, based on materials gathered within The Nawalparasi and Palpa Districts Sustainable Wa-

ter Supply and Sanitation Project (NAPA WASH) implemented during 2014-2016 by the Finnish NGO Waterfinns and financed by the Finnish Ministry for Foreign Affairs. Among other things, NAPA WASH assessed the results of bi-lateral cooperation between Finland and Nepal under the Finnish Rural Water Supply and Sanitation project (RWS-SP), spanning from 1990 to 2005.

For this article, the data was reflected on with regard to water security theory, with the aim of examining whether this has been influenced by transnational efforts to improve financial sustainability and local water governance. In addition, the analysis utilizes criteria set by the Busan Partnership for Effective Development Co-operation (OECD 2011) to assess the extent to which effective cooperation for development has been achieved in the case explored in this article.

The research findings suggest that even relatively solid financial or administrative arrangements of the water schemes do not always indicate high local ownership or lead to sustainable water management. International cooperation can play a role in enforcing sustainability, but it cannot act as a substitute for local support and financing. Furthermore, despite a stated commitment to common goals, the international and local counterparts in the cooperation often have different understandings of their own roles and responsibilities especially with regard to the post-implementation phase. Improved coordination and ownership are needed, not only at the local level but throughout the multilevel administrative system.

## 2. Water security, economic sustainability and justice

Water security is an integrative concept that can be defined in variable ways in different contexts, as has been discussed in detail for example by Cook and Bakker (2012). However, it is useful here to briefly look at two major approaches prevalent in the discourse.

On the one hand, water security discourse revolves around questions of water scarcity and adequacy. At its simplest, it concerns the security of the individual to access safe water sources for drinking, irrigation and other needs (Rijsberman 2006). Water access usually takes into account water shortage and vulnerability along with the adequacy of water resources (e.g. Qadir et al. 2007, Falkenmark et al. 2007).

This ties water security to economic sustainability, which refers to the ability to ensure inter-generational provision of natural and economic resources (Anand & Sen 2000). Through its implications on equality and justice, sustainability is an essential part of water security. The security consequences of the economic management of water should therefore not be neglected (e.g. Griffin 2006, Spulber & Sabbaghi 2012, Garrick & Hope 2013). One example of this is water tariffs, which have been seen as prerequisite for sustainable water supply (e.g. OECD 2009) while it has also been pointed out that tariffs need to be very carefully planned in order to take into account their impacts on equality and stability (e.g. Boland & Whittington 2000).

The water access approach is relevant to human security, emphasizing the comprehensive aspects through which water is central to health, livelihoods, ecology, political stability and development (e.g. UNU-INWEH 2013, Jansky et al. 2008). It is an important element in food security and agricultural development discourses (e.g. FAO Land Division Water Development 2000) and has been recognised as one of the Sustainable Development Goals (SDGs) agreed upon in 2015 (UN 2015). This links water security with a range of issues that have increased its occurrence in both academic and policy-making discourses but, at the same time, also sparked criticisms about over-stretching the concept and thereby weakening its operational applicability (e.g. Cook & Bakker 2012). However, it has also been argued that it is precisely this integrated approach linking land, water and ecosystem issues to development that makes water security such a fruitful concept (Falkenmark 2001).

The other major approach to water security is focused on conflict. It is closely connected to literature on environmental security, concerning environmental causes and consequences of conflict. Although the ground-breaking works of Thomas Homer-Dixon suggest that environment can hardly ever be established as a sole cause of conflict (e.g. Homer-Dixon 1994), other scholars have pointed out how, through various societal and political mechanisms, climate impacts (Salehyan 2008, Hsiang et al. 2011) and resource scarcity (Hauge & Ellingsen 2001) or dependency (Le Billon 2013) can increase conflict potential. This linkage has been studied specifically in the context of water (Gleick 1993, Zeitoun & Warner 2006). Meanwhile, it has been suggested that environmental causes can serve as a basis for peace-building and cooperation (e.g. Jensen & Lonergan 2012).

However, like environmental security theory, water security also refers to subtler societal relationships than violent conflict. This perspective emphasizes trans-boundary water management, multi-lateral water relations and geopolitics (e.g. Mirumachi 2013, Maganda & Koff 2014). In addition, it takes into account institutions, which have an important role in water governance at both the international and national level (e.g. Turton 2003, Maganda 2013). As explained in the introduction to this special issue, this perspective is interesting because it brings along the concepts of power and governance. It examines, for example, how unequal power structures (e.g. Maganda 2013, Boelens & Doornbos 2001) and the lack of institutional frameworks (Meinzen-Dick 2007) affect access to decision-making on water issues and may accentuate local or transnational conflicts. Such questions are not limited to the local level, but are essentially trans-boundary and therefore need to be discussed in the international context (Zeitoun & Warner 2006). This structural view brings in the issue of transnational justice in the form of water rights (Boelens 2009) and economic structures (Mehta & Miroso, 2004).

It is therefore apparent that the two main approaches to water security are linked and complementary to each other. Moreover, they are both inextricably connected to water rights and justice. Water justice has been described as a particular form of environmental justice, which emphasizes the disproportionate impacts of pollution and inequitable access to environmental goods and services experienced by marginalized groups (e.g.

Dobson 1998, Stephens, 2003). Others have pointed out the role of local participation and cultural recognition (Schlosberg 2004).

Norms and practices, in terms of both laws and institutions, play an important role in implementing water justice (McLean 2007). However, they also become matters of contestation through the constant redistribution between and repositioning of water users, market institutions and authorities, among others (Zwarteveen & Boelens, 2014). These interconnections are captured by the concept of structural violence, which sees economic and social opportunities, ownership, political rights, transparency and security as important influences on the use and abuse of natural resources (Barnett 2007).

This article combines the two main approaches outlined here into a single framework looking at water scarcity and allocation on the one hand and conflict resulting from unequal power structures and deficient governance on the other hand. Through an analysis of the situation in Nepal, it will bring a novel perspective into the thematic by highlighting the role of economic sustainability of water governance as an underlying feature of water security. Nepal is an illustrative case in this regard due to the complex governance structure in which poor coordination and a persistent lack of resources are combined with relatively high degree of local governance. It also crucially brings in the role of international cooperation, which in Nepal plays a particularly important part as the source of financing and policy recommendations as well as implementation.

### 3. Water governance in Nepal

Water security problems in Nepal are less connected to a lack or inadequacy of the resource overall and more to its uneven coverage and temporal variations (Bartlett et al. 2010). As the previous discussion suggests, such conditions can be highly problematic for justice and thus cede a great deal of importance to water governance. At the moment, however, this does not appear to be working in an optimal way in Nepal.

After the end of the civil war in 2006, Nepal endured a long impasse over formulating a constitution. Although it was finally agreed upon in September 2015, the interim situation hindered all political and legislative processes and is said to have maintained an atmosphere of democratic stagnation that fed corruption and instability (Snellinger 2015, Jones et al. 2014, Joshi 2011). The constant political reshuffling has hindered institutional development and coherent policy-making (Bartlett et al. 2010). This applies also to the water sector (Biggs et al. 2013), where responsibilities are inadequately defined among the relevant ministries, departments and agencies, and coordination of policy is lacking. Inadequate resources have led to poor implementation and insufficient monitoring (FCG International, 2013).

Local and community-driven water governance has been seen as an element in improving the sustainability and security of water management (e.g. Zeitoun & Warner, 2006). Good local water governance usually aims for de-centralisation, empowerment of

local communities, stakeholder partnerships, social inclusion, accountability and institutional capacity-building (Laban 2007).

Nepal has engaged in an ambitious process of de-centralization that is still continuing (Rautanen 2007, WaterAid, 2008). The administration in the country is organized through five development regions and 75 District Development Committees (DDCs). The DDCs are divided into Village Development Committees (VDCs) or municipalities, which are the main bodies for local governance and are independent although coordinated by DDCs (Rautanen, 2007). Meanwhile, local water governance is organized into Water User and Sanitation Committees (WUSCs), which are registered under DDCs but in principle responsible for the administration of water schemes. They are formed within the community and expected to have representation from all its members, including different castes, ethnicities and genders (FCG International, 2013, Joshi, 2011: 40).

The Water User and Sanitation Committee is an established institution in the Nepalese governance structure and has been said to function relatively well (Haapala *et al.*, forthcoming). However, this does not seem to have generally been translated into sustainably functioning water schemes. According to official records, about 47% of all water schemes nationwide are not fully functional (Ministry of Physical Planning and Works 2011). This raises questions about the degree to which other factors, such as economic arrangements and external governance structures, influence the sustainability of water schemes.

Previous studies have found that one important feature that has hindered functionality is the inadequacy of operation and maintenance (O&M) (FCG International 2013, Water Aid, 2008). This is not necessarily due to a lack of knowledge and expertise, as the funding modalities for the construction of water schemes have usually included provisions and training for O&M (FCG International, 2013). Instead, weaknesses in the implementation of O&M appear to be connected to factors like lack of ownership, poor level of self-organization and deficient financial arrangements (Haapala *et al.*, forthcoming). These problems are thus also directly connected to local water security.

In Nepal, as elsewhere, water is crucial to livelihoods and justice (Biggs & Watmough, 2012). Any attempt to reduce poverty requires both the provision of basic infrastructure, such as drinking water, and efforts to facilitate water-dependent livelihoods like agriculture (Biggs et al. 2013). Meanwhile, livelihoods are linked to local ability to pay for water and thereby the economic sustainability of water schemes. It has been reported that at current levels, water tariffs are not adequate to cover O&M cost, but there is little willingness to pay higher prices. In addition, inequalities in water access and economic opportunities remain rife, both within and among regions (Water Aid 2008). These questions are particularly important in a country recovering from a civil war which has been said to have had causes related to the failure of the state to provide basic services (Berry & Igboemeka 2005; Ali *et al.*, 2011).

Water governance in Nepal therefore not only influences the allocation and scarcity side of water security, but can also contribute to the overall capacity to prevent conflicts. This makes it necessary to address weaknesses in governance, such as inadequate account-

ability and poor financial planning. These may end up reinforcing inequality and injustice and therefore contribute to conflicts especially at the local level (Water Aid 2008). The situation is complicated by the vast diversity of ethnicities, castes and minorities in Nepal, which influences water use practices (Rautanen, 2007). In addition, it has been seen as one factor that may, in combination with other issues like inequality and poverty, have contributed to past conflict (Biggs et al 2013, Ali et al. 2011). Such issues cannot be resolved locally but require multi-level governance, with oversight running both from the top to the bottom and vice versa (Water Aid, 2008).

The problems outlined here are not limited to the water sector. Weak institutions and a lack of transparency and accountability have been observed also in forestry and land use (Malla 2001), for instance, and can be said to characterise governance in Nepal overall (Dahal *et al.*, 2002). Lawoti (2005) remarks that non-inclusive political institutions have aggravated ethnic conflict. Therefore, the water sector offers one interesting perspective into more pervasive tendencies in Nepalese governance structures.

Finally, international cooperation plays a key role in Nepalese water management and governance. Development agencies have become a crucial element in the governance structures, especially at the local level, where they promote local ownership and empowerment (Rautanen, van Koppen & Wagle, 2014). Their involvement, however, has also been seen to present problems. It has been argued that they reinforce a neo-liberal roll-back of the state by supplementing its functions, thereby eroding their already weak legitimacy (Mosse, 2013; ) Especially in the Nepalese context, it has been claimed that they pour in external financing that is poorly monitored by the national officials due to inadequate resources (Jones et al. 2014). In some cases, international interventions run the risk of unintentionally fostering conflicts while attempting to promote other goals (Vivekananda, Schilling & Smith, 2014).

Table 1.<sup>1</sup> Criteria set in Busan Partnership for Effective Development Cooperation

Criterion	Level of achievement
Ownership of development priorities by developing country	Countries should define the development model that they want to implement.
Focus on results	Having a sustainable impact should be the driving force behind investments and efforts in development policy making
Inclusive development partnerships	Development depends on the participation of all actors, and recognises the diversity and complementarity of their functions
Transparency and accountability to each other	Development co-operation must be transparent and accountable to all citizens

Source: OECD 2011

1. Information obtained from an interview conducted by Venla Pesonen at the Water Supply and Sanitation District Office in Nawalparasi, 12 May 2014.

Therefore, it is important to consider the consequences of the efforts of transnational actors rather than only seeing them as an external influence. Such assessment is challenging, but one perspective is provided by the criteria defined by the Busan Partnership Agreement on Effective Development Cooperation (OECD, 2011), presented in Table 1. They provide an internationally agreed set of principles aimed to ensure effective implementation and cooperation between all parties of development cooperation. As such, they are used here as a guideline to the factors enabling good cooperation.

#### 4. Methodology, study location and context

The case study district of Nawalparasi is located in the Lumbini zone of the Western Development Region of Nepal, directly at the Indian border, covering both flat Terai and the Hills area. The district is relatively undeveloped although it also fosters a great deal of Nepal's agricultural production (Biggs & Watmough 2012).

Nawalparasi was included in all phases of the Finnish Rural Water Supply and Sanitation project (RWSSP), which spanned from 1990 to 2005 in three phases. At central level the main partners were the Ministry of Housing and Physical Planning (until 1999) and Ministry of Local Development (from 1999), while implementation was carried out with Department of Water Supply and Sewerage (DWSS) and Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR). It aimed to improve water supply coverage, sanitation and health, and to promote local water governance and institutional capacity. About 900 schemes were constructed within the project (Ministry for Foreign Affairs of Finland 2005).

The NAPA WASH project, implemented by the NGO Waterfinns, aims to study the long-term sustainability of WASH services in the project zone where Finland has had water sector interventions in 1990-2005. Its goals are to enhance the local capacity in WASH services and to identify and develop model WUSCs and safe water VDCs as benchmarks of good practices for long-term sustainability (Waterfinns 2014). The project has included a field assessment of the long-term sustainability of water schemes in selected VDCs in the Nawalparasi and Palpa districts. The assessment consisted of a survey carried out at the VDC, WUSC and household level as well as field research in sample water schemes by four Finnish students during spring 2015. Interviews were also made at the DDC and national levels.

The NAPA WASH survey was used as background information to this study. The sample covered 680 households from 40 water schemes in 24 VDCs in Nawalparasi and 680 households from 40 water schemes in 25 VDCs in Palpa. All schemes included were built within RWSSP with a funding base of 50% Finnish and 50% Nepalese investment, and were at least 10 years old (Waterfinns, forthcoming).

The survey included an analysis of willingness to pay (WTP) for water to further assess the economic sustainability of the schemes. Due to challenges posed by variable pricing

and water supply systems across Water User and Sanitation Committees, the research aimed to yield an indicative idea of the WTP and the factors affecting it rather than determine an optimal price to achieve sustainability. The question was formulated as willingness to pay more than the present amount for the amount of water currently used but for an improved service. The amount paid in the schemes studied was a monthly lump sum.

This article focuses on Nawalparasi, where field research was carried out in two schemes: Water Supply and Sanitation Scheme (WSSS) of Ramnagar in the VDC of Ramnagar, and WSSS of Jousimajhuwa in the VDC of Dedgaun. The Ramnagar VDC is situated in the Terai. It is on the East-West Highway, providing all-weather access. The Ramnagar Water Supply and Sanitation S covers Wards 1, 5 and 6 of Ramnagar, serving about 1000 households altogether. It was built in Phase III of the Finnish RWSSP Project, which lasted from year 1999 to 2004. The Jousimajhuwa WSSS in Dedgaun is located in the hills and remains without road access during the rainy season. In the VDC it covers wards 6, 7 and 8, serving about 155 households, and was built in the first phase of RWSSP (1990-96). Both schemes are either at or near the end of their expected life cycle of about 20 years, which means that consideration of their further functionality is necessary.

Both Jousimajhuwa and Ramnagar have a water tariff and an O&M fund, which implies some kind of governance structures beyond elementary necessities. Finnish-funded water schemes were expected to establish certain financial practices and to build capacity for governance (Ministry for Foreign Affairs of Finland 2005). The idea of the study thus is not to compare schemes with poor or non-existent financial structures to well governed ones, but to explore observed outcomes for schemes that have been obliged to maintain certain common practices from the time of their construction.

Field research consisted of interviews of WUSC members, employees of the water scheme office, and VDC officials and individual households. About 10 households were visited in each VDC. The interviews were semi-structured but considerably adjusted to the context, and performed with the assistance of a Nepalese interpreter. The interviewees were made aware of the purpose of the research in order to ensure their informed consent to participate and their replies were anonymized.

## 5. Water security and governance in Nawalparasi

This section examines the results of the analysis of the survey and field trip data with regard to the water security and governance theory. The section is divided into four themes that have come up in relation to water security and local governance in Sections 2 and 3; namely financing, equality, ownership and conflict. Each one is examined from the local, intermediary, national and transnational points of view.

### 5.1. Financing

In Nepal, it has come to be seen as increasingly important that local water schemes are financially sustainable without external assistance. This implies the imposition of water tariffs and an O&M fund to cover costs for larger repair projects in order to ensure their sustainable functionality (Ministry of Physical Planning and Works 2011). However, the survey carried out in the NAPA WASH field assessment showed that although 87% of the schemes in Nawalparasi implement water tariff and 75% have O&M fund, as many as 63% either need major repair or rehabilitation and only 20% are fully functional. The survey also showed that the two case study schemes reflect this picture: Jousimajhuwa needs major repair while Ramnagar needs rehabilitation (Table 2). One factor in this is the age of the scheme, which especially in the case of Jousimajhuwa is near the end of its life cycle. Yet this shows that the financial arrangements have not been able to ensure sustainable functionality of water management in the communities.

Table 2 also shows that the previous finding cannot completely be put down to external factors such as poor accessibility, as Jousimajhuwa is more isolated in the hills, lacks an all-weather road connection and is older but still is in better condition than Ramnagar. Meanwhile, tariff payment delivery may be a factor, as it is far lower in Ramnagar.

Table 2.<sup>1</sup> Basic indicators for the Water Supply and Sanitation Schemes of Ramnagar and Jousimajhuwa

Scheme name	Topography	Size <sup>1</sup>	All-Weather road <sup>2</sup>	Tariff basis	Functionality	Tariff payment %
Jousimajhuwa	Hill	Large	No	Only VMW <sup>3</sup> salary	Needs major repair	100
Ramnagar	Terai	Large	Yes	VMW <sup>3</sup> salary & repairs	Needs rehabilitation	60

1. Source: NAPA WASH Survey

2. Large <sup>3</sup>150 households, Small < 150 households

3. Road access during rainy season

4. Village Maintenance Worker

Table 3 shows financial indicators from Ramnagar and Jousimajhuwa and presents a relatively solid picture. Although expenditure exceeds revenue in Ramnagar, the Water User and Sanitation Committee has managed to accumulate the O&M fund. Meanwhile, Jousimajhuwa has not gained anything for the fund, but has managed to keep expenditure below revenue. Yet, although the O&M fund is quite large in both schemes, neither has carried out repair works to help make the scheme fully functional. According to WUSC representatives in both schemes, this is because the investments needed would considerably exceed the amount of the O&M fund. In this sense, the initial idea of using the O&M funds for smaller repairs in order to avoid expensive rehabilitation works has not succeeded.

Table 3.<sup>1</sup> Financial indicators for the Water Supply and Sanitation Schemes of Ramnagar and Jousimajhuwa

Scheme name	Mode of tariff collection	Current monthlytariff for public tap <sup>1</sup> (NPR <sup>2</sup> )	Current investment for private tap <sup>1</sup> (NPR)	Volume of O&M fund (NPR)	O&M fund collected last year (NPR)	O&M fund used last year (NPR)	Total revenue last year (NPR)	Total expenditure last year (NPR)
Jousimajhuwa	Metering	30,00	5000,00	11000000,00	0,00	0,00	426000,00	200000,00
Ramnagar	Per household	n/a	7000,00	1000000,00	384000,00	62000,00	1398000,00	1918000,00

1. Source: NAPA WASH Survey

2. Nepalese Rupee; 1 NPR = 0.0093 EUR 1 Apr 2015 ([www.exchangerates.org.uk](http://www.exchangerates.org.uk))

The insufficiency of the O&M fund cannot be put down simply to the inability of the respective WUSCs to manage it properly. In Jousimajhuwa, the fund has been invested as small loans to community members. Despite a high interest rate of around 30%, these loans have been very popular and have helped to accumulate the fund. In Ramnagar, additional funds have been collected through payments for private water connections. These cost 7000,00 NPR for community members and 12000,00 NPR for newcomers. As the construction cost is far lower, this accumulates revenue for the scheme. The practice is not sustainable in the long run, however, because as the WUSC members themselves observed, the increase of private taps raises total water consumption beyond the carrying capacity of the water source. This is a serious problem as the scheme already suffers from the inadequacy of the source and severe water cuts.

For the representatives of both WUSCs, it was clear that the water tariffs alone would never be enough to cover both maintenance of the scheme and necessary investments. Although, on average, there was willingness to pay more (See Table 4) – in Ramnagar even a considerable 231,11 NPR compared to the current average price of 43,53 NPR – the investments needed are still far larger than these sums would accumulate. In addition, community members understandably are not willing to pay for water when there is none available. This is a problem especially in Ramnagar, where water cuts are prevalent. The households interviewed there argued that they would be willing to pay more for constant supply, but due to the current realities did not believe increasing the payment would help. This also explains the low water payment delivery (See Table 2). In other words, water tariffs and willingness to pay may be more important as signs of commitment to the community and as guarantees of the governability of the scheme than as revenue for larger investments.

Table 4.<sup>1</sup> Willingness to pay more for water and current price per month in Nawalparasi and Palpa<sup>1</sup> (in NPR).<sup>2</sup>

Scheme name	Average WTP more <sup>2</sup>	Average current price <sup>3</sup>
Jousimajhuwa	87, 50	30,00
Ramnagar	231,11	43,53

1. Source: NAPA WASH Survey

2. n = 17 for each scheme

3. Nepalese Rupee; 1 NPR = 0.0093 EUR 1 Apr 2015 (www.exchangerates.org.uk)

4. In addition to current monthly sum

5. Current monthly lump sum

Willingness to pay is a positive sign, but the lack of funds for investment remains a problem. In Ramnagar, the situation is acute as water cuts are forcing some households to use unfiltered, unsafe well water for drinking, potentially causing long term health impacts.

The inevitable question therefore is who should be responsible for assisting the water schemes with investments. The representatives of both WUSCs were sceptical that any support could be obtained from either District Development Committee or central level. In Ramnagar, interviewees argued that financial support had been sought 'everywhere', without success. According to WUSC representatives this was because the scheme was originally funded with Finnish support, prompting all levels of administration in Nepal to claim that the scheme continues to be at the responsibility of Finnish assistance. External support has, in effect, become a burden for the scheme, by excluding funding from elsewhere.

Financing is crucial also because it is tied with power. Due to their dependency on funding, the WUSCs are at the mercy of VDC, DDC and central officials, who cannot be guaranteed to always make the most rational or equal decisions. WUSC representatives described the decisions as "random" or "based on connections" Since it appears to be extremely difficult for the WUSCs to accumulate a financial buffer that would allow them to be independently sustainable, the situation will not change unless there is genuine effort to address the governance problems at higher levels. Cooperatives have been suggested as one solution, making it possible for several communities to pool their investments together and thereby gain more leverage. As of yet, however, neither Ramnagar nor Jousimajhuwa is a member of any cooperative. Overall, cooperatives are not very common in the Nepalese water sector (Simkhada, 2013).

Transnational development actors play an important role in this setting. They are powerful due to their financial resources and political leverage, but their involvement also raises unintended consequences and expectations. This makes it difficult to fully achieve their objectives within the complex national governance structure. For example, WUSC representatives strongly felt that international actors should take some financial responsibility even after the implementation of the scheme. Yet at least in the Finnish Rural Water Supply and Sanitation project, it was clearly stipulated that the community com-

mit to fully taking over the economic maintenance of the scheme (Ministry for Foreign Affairs of Finland 1998). Considering the Busan Criteria for Partnership in Development Co-operation, introduced in Section 3, this suggests an effort on the side of the development agency to ensure a focus on results through the autonomous sustainability of the intervention, but also implies a lack of commitment to carry this out on the local level.

Meanwhile, a representative from the Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR) argued that transnational actors only come in “for a few years and then disappear”, leaving the government to bear the financial responsibility for the further maintenance of the water schemes. WUSC representatives especially in Ramnagar echoed this, saying they were left “orphaned” by RWSSP after its implementation ended. Such actions, according to the DoLIDAR officer, cause an additional financial burden for the government while also further contributing to the complex governance structure and division of responsibilities.

On the other hand, district level officials in Nawalparasi admitted that training activities, for instance, would be “very slow” without external support, which thus obviously is urgently needed.<sup>1</sup> Transnational actors end up in an awkward position where their involvement is necessary, yet also contributes to the situation where all parties are unwilling to carry final responsibility. This suggests the cooperation has not adequately succeeded at ensuring the Busan Criterion on Inclusive Development Partnerships by recognising and defining the roles and participation of all local, national and transnational actors.

## 5.2. Equality

Equality became a major theme of the Rural Water Supply and Sanitation project in phase III (Ministry for Foreign Affairs of Finland 2005). With regard to the water sector, questions of water justice and equality are particularly relevant in a multi-ethnic country such as Nepal, as discussed in Section 2.

In the case study schemes, equality was a recurring theme in the context of private and public water connections. Private taps have become increasingly popular, up to the point that public taps have been discontinued in Ramnagar. According to the WUSC as well as some local households, public taps were wasteful and inconvenient, and the decision to close them was taken together at a community meeting. However, for a few households that are unable to afford the investment on a private tap, this meant exclusion from any safe source of drinking water. These households considered the decision unjust, especially as they had initially contributed to the construction of the scheme through labour. WUSC officials argued they were aware of the problem and different solutions had been tried, such as opening a private tap for the use of several households jointly. This, however, had caused conflicts about water payments between the households. No clear answer emerged as to why the WUSC had not allowed impoverished households to pay for the private connection in instalments and as labour, as they themselves proposed.

In Jousimajhuwa, there is one cluster which especially suffers from water cuts, possibly due to congested pipes. This inevitably sets the households of the cluster in an unfavour-

able position, made worse by the fact that they represent the Darai minority and are also spatially somewhat isolated. Although the minority position appears not to have played a part in the emergence of the situation, it may have influenced the lack of effort to resolve it. In a pattern that closely resembles the situation with households lacking water access in Ramnagar, the Darai households argued that the WUSC was informed about the situation and claimed to be working on it. However, when the cluster members had invested on a new water pipe for the scheme, it had not been used to fix the cluster connection but to replace a broken pipe near the water source. Although this repair apparently also was urgent for the functionality of the entire scheme, the procedure has not helped to spur confidence within the Darai cluster that their concerns are being heard.

There was a strong consensus in both schemes that everyone should have access to water, regardless of their ability to pay the full tariff, but that everyone should also contribute to the scheme to the extent possible. These two issues were tightly linked almost regardless of who was asked, reflecting a shared sense of water justice within the communities. Community members in both Ramnagar and Jousimajhuwa also generally agreed that the WUSC governance was inclusive and that their voice was being heard. According to the NAPA WASH survey, this was the case overall in the district of Nawalparasi: 80% of all respondents were of the opinion that decision-making in the WUSC was very good, good or satisfactory (Waterfinns forthcoming). The result is encouraging from the point of view of the abilities of the communities to solve their problems in a participatory manner also in the future.

Yet especially the Ramnagar example shows how strictly water security still depends on economic standing. Post-project monitoring would be key to gauging situations like this, but as both WUSCs reported, this is not routinely carried out by any institution. DoLIDAR has a Monitoring and Evaluation Office, but it has very few resources and, at best, can only follow up on projects funded by DoLIDAR.

The indicators for Phase III of the RWSSP suggest equality was especially understood in terms of participatory governance and setting quotas for minority members in WUSCs (e.g. Ministry for Foreign Affairs of Finland, 2003). At least in the Ramnagar scheme, built during Phase III, these quotas were fulfilled. However, this is not necessarily enough to ensure that all members of the community have an equal opportunity for participation in the WUSC; or that they have an equal say in the decisions. For example in Ramnagar, a high WUSC official remarked that female members were inactive and not fulfilling their duties.

Furthermore, at the District Development Committee and central level the concept of equality was far less prevalent than at the grassroots, suggesting that the issue is not necessarily considered a priority. This implies a discrepancy between the objectives of the Finnish and Nepalese counterpart, suggesting that RWSSP has not thoroughly managed to fill the Busan Criterion on the Ownership of Development Priorities by Developing Country. Quota-based measures of participatory governance alone will hardly inflict any change on the entire system of water governance in a country if national authorities are not committed to the goal.

### 5.3. Ownership

One of the most important steps towards sustainability is to promote local ownership. It was also a major element of the Finnish Rural Water Supply and Sanitation project which required local community members to contribute to both implementation and funding from the start of the project (Ministry for Foreign Affairs of Finland, 2005).

Yet the case study communities do not seem to fully have adopted the role of owners. The NAPA WASH survey showed that only 53% of respondents in Nawalparasi were of the opinion the the scheme was owned by the community while 24% considered it to be owned by the donor. Although this still leaves a majority for community-ownership, the figures are very different from those in the neighbouring district of Palpa, where 85% answered community and only 5% donor (Waterfinns forthcoming). No obvious reason emerged for the difference between the two districts based on the material used here, suggesting further study is needed.

The survey finding correlates with field observations. As discussed in Section 5.1, WUSC members argued that the donor had just “disappeared” after the project while in their view it should have continued to take responsibility. This was not limited to financial assistance but also concerned training opportunities, monitoring and other follow-up activities, which all were sorely needed according to the WUSC. Therefore, efforts to build ownership within the local community and thus to ensure inclusive participation in the sense defined by the Busan Criteria have not fully succeeded.

However, both case study schemes have managed to take responsibility and build useful practices, such as the community loans in Jousimajhuwa. What seems to be lacking is a conviction that the community could independently overcome unforeseen obstacles – or, indeed, that it should be expected to do that. For example, after once trying to register at the District Water and Sanitation Committee (DWSC), and failing due to some missing documents, the Jousimajhuwa WUSC had not tried again. This is significant as financial support from the DDC requires a DWSC registration. The WUSC representatives felt that they would need the support of an NGO or another instance for a successful application. Thus there still is a tendency to turn towards external assistance for help.

An emerging local level ownership problem might be the lack of engagement of younger community members. In both case study schemes, current WUSC members complained that it was difficult to get young people involved. It was argued that the youth tend to take water management as a given, not something that they should actively be involved in. This may partly be a common concern of the older generation for the youth that prefers new courses of action. However, it also suggests that it is important to maintain the commitment of the community to water scheme management over generations.

Meanwhile, based on the comments of the DDC officials in Nawalparasi and representatives of DoLIDAR and DWSS, district and central officials seem to be willing to only take ownership for projects that have originally financed or implemented by them. This may be a necessary prioritization strategy due to scarce resources, but it hardly is the

intention of transnational actors to leave finished projects at the mercy of criss-crossing power relations.

Different levels of governance also tend to disagree about their respective responsibilities concerning poor decisions taken. As one DoLIDAR official complained, both VDCs and DDCs are autonomous bodies, so it is difficult to make them comply with rules and recommendations. According to the interviewee, the prioritization of the construction of new schemes over functionality improvements of old ones is to be blamed on DDCs who, in DoLIDAR's financing modality, are responsible for choosing new projects. On the other hand, both district<sup>1</sup> and local officials accused government bodies of preferring to invest in new projects. Similar controversies existed with various issues, such as training, monitoring and rehabilitation.

These weaknesses in ownership reflect a lack of achievement of all four Busan Criteria, which is not encouraging for international cooperation bodies. At least in these cases, the international actor has failed to oblige local actors to commit to common objectives and results from the very start. The analysis also shows that ownership cannot be sustainable if it only exists at the local level. However, initiatives at the national scale are difficult for a transnational actor to implement and would have to be fully endorsed by the Nepalese government. Thus there clearly are limits to the independence with which transnational agencies can engage in water governance within another country. As the Busan Criteria show, sustainable cooperation requires the achievement several aspects of partnership.

#### 5.4. Conflict

Nepal is a post-conflict country where political instability has continued to hinder societal development (e.g. Biggs *et al.*, 2013). In the Fragile State Index for 2014, Nepal was listed 31st, placing it among Alert countries (The Fund for Peace, 2014). For these reasons alone, conflict is relevant for the country's water security.

Ramnagar and Jousimajhuwa, however, do not raise concern of acute violent conflict. Skirmishes have mainly been limited to political wrangling for example about WUSC representative positions. According to the chairperson in Ramnagar, political reasons have sometimes led to an experienced chairperson being replaced by a new, inexperienced one. While these decisions have usually soon been overturned, they may have far-reaching consequences. In Ramnagar, a large number of new private connections were constructed during the time of one short-term chairperson, leading to worsening water shortages as consumption considerably increased. An official interviewed at the Rural Water Supply and Sanitation Fund Development Board (FUND Board) observed that such conflicts are common in WUSCs. Political infighting may thus have severe repercussions on the sustainability of water governance.

A potentially more damaging issue may be the injustice associated to water access that was discussed in Section 5.2. The lack of access to private connections and the severe water shortages experienced by parts of the community may, in more contentious circum-

stances, lead to rifts within the community. Overall, it is detrimental to the community that some households feel excluded from a given service.

In Nawalparasi, two particularly noteworthy factors came up that are likely influence governance and power relations: migration and the inadequacy water sources. The two are connected as unforeseen migration leads to increased water consumption and causes shortages in some areas. There already is evidence of this in Ramnagar, where the water scheme was originally built on a source that was known to be inadequate for the whole community. According to WUSC representatives, the community decided it would be better to have water supply for 10 months a year rather than not at all. However, due to migration, the number of households in the scheme has come to exceed the capacity of the water source, worsening shortages. Based on present knowledge, the scheme should have been planned differently.

In addition, some water sources are running out due to changing precipitation patterns or overuse for energy and irrigation purposes. The officials in Ramnagar also cited similar situations in other locations. If the trend continues, it may cause conflicts between water schemes trying to secure their own water access. According to the FUND Board representative, the problem has been observed by national officials as well, but ways to address it have not emerged.

Transnational governance has the potential to, at best, prevent these conflicts or, at worst, contribute to their escalation through unequal interventions. Fortunately, in the case study communities, the worse option appears not to have occurred. The major complaint at all levels of governance was the fact that the external assistance agency had left the project at the end of its implementation. However, this is more a case of misplaced expectations on both sides than an actual conflict.

Thus from the point of view of transnational actors, the biggest water governance conflict in Nepal seems to exist between different levels of administration. Not only is there a lack of communication, but also a tendency to blame one another for any shortcomings. As water governance takes place across multiple levels, this inability to cooperate hinders work in the sector and may, at worst, threaten water security. Challenging as it may be, this is the conflict that transnational actors should address first if they wish to prevent the development of further water security risks in the country and region. As the Busan Criteria suggest, transnational cooperation can also assume a degree of commitment from national authorities, which in the Nepalese case should include a better coordination between the different administrative levels.

## 6. Conclusions

Even the two limited case studies of Ramnagar and Jousimajhuwa present a complex picture of the governance structures and power relations in Nepal. It is difficult to discern who, in the end, has power over whom on water issues, and what kinds of influences come into play in the decision-making of a given actor. Transnational actors are powerful

in terms of financial resources and expertise, yet this seems to vanish into the bureaucracy of the domestic governance, where different levels of administration promote their own agenda.

Within this complexity, however, the case studies suggest that transnational cooperation on the economic sustainability of water has some role in fostering water security. Effective financial arrangements set the foundation for the functionality of the scheme, but may also contribute to sound local governance. However, this does not automatically lead to comprehensive local ownership. In addition, the maintenance of the scheme seems to require more financial investment than the water tariff even combined with an O&M fund. Therefore, WUSCs need to come up with new sources for revenue, such as more elaborate loan mechanisms or pooling investments into cooperatives.

On the basis of this study, the lack of ownership has considerably hindered the achievement of water security and justice at all levels of governance. The Busan Criteria are good indicators for this. As Table 5 shows, the Finnish cooperation can only be said to have achieved these to a low or medium degree.

First, evidence such as the differing interpretations of mutual responsibilities for water schemes after project implementation suggest a low ownership of development priorities. Second, despite the particular focus on sustainability in this project, the lack of mutual ownership is likely to have lowered the potential to achieve results. Third, with the different administrative levels in competition or conflict over power and resources, the inclusiveness of cooperation is low. Finnish cooperation has not managed to address the poor level of shared responsibility within Nepalese water governance. Fourth, the lack of comprehensive auditing and monitoring mechanisms lead to a low level of transparency.

Table 5.<sup>1</sup> The level of achievement of the Busan Partnership Criteria in cooperation between Nepal and Finland

Criterion	Level of achievement
Ownership of development priorities by developing country	Low
Focus on results	Medium
Inclusive development partnerships	Low
Transparency and accountability to each other	Low

1. Source: OECD (2011), modified on the basis of the results of the present study

These results suggest that while transnational water governance cooperation may be relatively successful locally, it is far more difficult for it to contribute to the sustainability of multi-level governance structures. The present research does show encouraging signs that transnational actors have been able to implement some changes and development at the local level.

However, a more comprehensive and inclusive approach is needed to ensure the commitment of all administrative levels. For example, a common understanding that the finalization of project implementation genuinely marks full transfer of ownership to the community needs to be better pursued. Attention should also be paid to improving relations between different levels of governance and strengthening their mutual commitment to water management projects, whether funded from domestic or transnational sources. The major challenge for transnational water governance will be to contribute to the sort of structural changes that will be required to achieve sustainable impacts in the long term.

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