# The study of Transboundary Groundwater Governance in the notion of Governmentality: in the case of Guaraní Aquifer

Withanachchi, Sisira Saddhamangala

Veröffentlichungsversion / Published Version
Zeitschriftenartikel / journal article

# The study of Transboundary Groundwater Governance in the notion of Governmentality: in the case of Guaraní Aquifer

**Sisira Saddhamangala Withanachchi**

**Abstract:** Although groundwater has traditionally supplied a significant portion of the water that humans use for drinking, agricultural and industrial purposes, it has not been a mainstream topic in environmental politics and in the environment policy-making process. This is despite the importance of the groundwater's contribution to the development of local economies and the livelihood of people. Transboundary aquifers, in particular, play a key role in international politics and diplomatic relations. The International Shared Aquifer Resources Management (ISARM) initiative, which was institutionalized by the International Hydrological Program (IHP) of UNESCO, aims to improve the understanding of the multi-disciplinary issues related to groundwater governance. ISARM's second phase, which began in 2011, focuses mainly on filling the gaps for effective groundwater management and on building a coherent and operative framework of action on groundwater governance. This framework will particularly provide rules and practices for decision-making and policy-making on groundwater and for the implementation of decisions and policies with cross-country and cross-sectoral stakeholders. In this paper, the governance of transboundary aquifers is discussed in light of Michel Foucault's definition of governmentality, a key concept in environmental governance studies. This concept can be used to analyze environmental governance within a broader context, hence facilitating the design of policy strategies and legal mechanism that are both effective and practical. The case study described in this paper is the Guaraní aquifer system in South America. This aquifer system is one in which the notion of governmentality was used to respond to the challenges related to transboundary groundwater governance, and demonstrates the potential synergies that may emerge between ministries and other forms of governments horizontally and vertically when this approach is applied. It is hoped that this analysis will be of assistance to those who are considering regional-based governance mechanisms in other parts of the world.

**Keywords:** Groundwater Governance, transboundary aquifer, governmentality, nature of power, Guaraní aquifer system, Regional Consultation Mechanism

**Sisira Saddhamangala WITHANACHCHI**
University of Kassel
Nora Platiel-Str. 1
D-34127 Kassel - Germany
siswitha@googlemail.com

**Riassunto**:*Nonostante le acque sotterranee rappresentino una delle principali fonti di acqua per uso potabile, agricolo e industriale, la loro gestione a livello di politica ambientale ha spesso rappresentato un elemento di minore interesse. Questo malgrado l'importante contributo che esse hanno nello sviluppo delle economie locali e nella vita della popolazione. In particolare gli acquiferi transfrontalieri hanno un ruolo molto importante nelle relazioni politiche e diplomatiche fra nazioni limitrofe. L'iniziativa International Shared Aquifer Resources Management (ISARM) sviluppata all'interno dell'International Hydrological Program (IHP) dell'UNESCO ha lo scopo di migliorare la comprensione delle varie discipline che concorrono alla gestione delle acqua sotterranee in un'ottica multidisciplinare. La seconda fase di ISARM, iniziata nel 2011, si è concentrata principalmente nella costruzione di una serie di azioni coerenti e operative volte al governo delle acque sotterranee. Questo al fine di fornire regole e pratiche per supportare adeguatamente decisioni e scelte gestionali fra operatori in paesi confinanti che sono coinvolti nella gestione di acquiferi transfrontalieri. In questo lavoro la gestione di questi acquiferi è analizzata sulla base del concetto di "governmentality" di Michel Foucault. Questo concetto può essere utilizzato per la gestione dell'ambiente in ampi contesti, facilitando lo sviluppo di strategie gestionali e legislative che possano essere contemporaneamente efficaci e pratiche. Il caso di studio descritto nel lavoro si riferisce al sistema acquifero del Guaranì in America del Sud. Lo studio mette in evidenza come il concetto di "governmentality" possa essere applicato agli acquiferi transfrontalieri individuando potenziali sinergie tra gli organismi coinvolti che sviluppino forme di governo delle acque che coinvolgano attivamente politici e cittadini a diverso livello.*

"Water is the blood in our veins." - Levy Eshkol (1962)

Received: 20 november 2011 / Accepted: 15 december 2011
Published online: 30 june 2012





DOI 10.4409/Am-038-12-0038

## Introduction

Water is a crucial natural resource in the contemporary world. It strongly influences the behavior of individual human's and institutionalized humans. Water is a natural and a common resource, however, disparities in the utilization of water can be observed in every part of the world. This differentiation constructs the politics. It interconnects all communities, countries, and governance institutions. Thus, water as a sociopolitical phenomenon has been embedded within the global governance mechanism.

Natural resources management developed as a focal thematic area in environmental governance. According to Yoram Eckstein and Gabriel E. Eckstein's (2005) analysis, it can be observed that transboundary groundwater management (transboundary aquifer) has emerged as a new theme within the last ten years in water management discourse (Eckstein & Eckstein, 2005). The governance and the management of a transboundary aquifer is a complex mechanism. It involves actors in multilevel governance with different interests. Governments, international governmental organizations, international nongovernmental organizations, local administrative bodies, local nongovernmental organizations, companies and civil society cooperate in the transboundary aquifer governance. The theoretical discussion raises an important debate as to whether this mechanism either causes changes in the role of actors and reduces the power of actors or there is a share in power and responsibilities. The global governance approach tends to argue that the role of the state is diminishing, contrary to the state-centric regime approach (Rosenau, 1997; McGraw, 2002; Kütting, 2011). Conversely, s*ome scholars accentuate the theoretical lacunas of the deductions in both state centric and global governance approach by applying Michel Foucault's notion of governmentality. This analysis emphasizes those different governmental rationalities in* multilayered and polyarchic networks (Sending & Neumann 2006) that are comprised of all actors to articulate and implement global governance (Barry & Eckersley, 2005; Sending & Neumann, 2006 and Okereke et al, 2009).

This research paper is going to discuss this theoretical argument by focusing on the subtheme of the nature of power in the case of the Guarani transboundary aquifer management system, which is a large aquifer in South America. The United Nations Educational, Scientific and Cultural Organization (UNESCO) report (2001) on Internationally Shared (Transboundary) Aquifer Resources Management indicates the management of transboundary aquifers as a multidisciplinary and multidimensional issue (UNESCO 2001). In the first section, the theoretical view of the global governance perspective and the governmentality in environmental governance is briefly discussed. The second section explains the nature of power of Guarani transboundary aquifer system with reference to transboundary groundwater governance. The article concludes with a brief summary of arguments of the paper.

## Environmental Governance in Global Governance Perspective and Governmentality Perspective

Lamont C. Hempel (1996) states that environment is the latest series of threats to international security and development. This accentuated the new phase of global governance with people, non-governmental organizations and political institutions rather than centralized world governance (Hemple, 1996). According to the global governance viewpoint, this global environmental governance restructured the role of international organizations (IGOs), Inter-state relationships, functions of non-state actors and global civil society (Ford, 2011). Global governance perspective considers Governance as a process (McGraw, 2002; Woods, 2002 and Ford, 2011). This process has been defined as public private involvement in governance as a part of the institutional engagement. Woods (2002) denotes that the globalized international financial sector, security tension and environmental issues allow emerging multiple actors in global governance. As a result of that process, non-governmental organizations became a prominent actor in global governance process in the last decades. Non-governmental organizations involved moderate international politics and domestic politics while playing the role of monitoring global governance. Thus, Woods defined the arena of global governance as a more deliberative one.

Sending and Neumann (2006) mention three main arguments in the global governance perspective; governance as a process, the increased role and power of non-state actors and the resulting diffusion or de-centralization of political authority (Sending & Neumann, 2006). The increased role and power of non-sate actors refer to the decline in the role of the state. Ford (2011) points out that, transnational activism, in global environmental politics caused the diminishing of state power in the globalized world. It is explained that the non-state sector hold power instead of the formal state actors in the decision-making procedure, regulation enactment and management of the environmental governance. However, Foucault's governmentality notion theorizes this restructuring of non-state actor as a shift of logic or rationality of government instead of a transformation of power from the state to non-state (Sending and Neumann, 2006). Foucault argued that the analysis of the political rationality indeed allows the scrutinizing of the technologies of power (Okereke et al, 2009).

Power is the micro and essential political concept behind governance. State power and its constitutional ability are challenged in the global governance perspective. According to Dingwerth and Pattberg (2006), the concept of transnational politics is embedded within a wide range of institutional nongovernmental societal actors. Also, global governance focuses on the complex inter linkages between different societal actors and governmental institutions. It indicates power as a distributive phenomenon. This distribution caused an imbalance in governance to emerge. Further, Dingwerth and Pattberg (2006) denote fundamental changes in the nature of core political concepts such as sovereignty and authority. Okereke et al. (2009) analyze the theoretical limitations of the global governance perspective. The concept of governmentality theorized the distinction between sovereignty and government as different forms of power. Sovereignty refers to the power and functions of the state, which is exercised over territory. Government refers to the totality of the specific mechanisms, techniques, and procedures which political authorities deploy to realize and enact their programs over population. Foucault's 'biopower' concept elaborates on power exercised over a population. However, it might be more coercive or disciplinary forms of power (Joseph 2009). By quoting Foucault's words, Okereke et al. (2009) concede that government refer to

*"the ensemble formed by the institutions, procedures, analyses and reflections, the calculations, and tactics, that allow the exercise of this specific, albeit complex, form of power"*

According to the governmentality concept, Okereke et al. (2009) analyze power as multiple and relational rather than distributive and zero-sum. They point out that governing beyond the state does not necessarily entail governing without the state. It means that the tools of power and technologies in governance have been changed. They explain that non-state actors' involvement in the governance process constructs a new nature in governance and the relationship among state and non-states actors in the global climate governance.

The point is that the global climate governance is a network of actors with international organizations, regional organizations, global social movements, nongovernmental organizations, transnational scientific networks, business organizations, multinational corporations and other forms of private authority. It creates a new form of power and relational governance process to understand environmental governance. Najam et al. (2006) define global environmental governance as the sum of organizations, policy instruments, financing mechanisms, rules, procedures and norms that regulate the processes of global environmental protection. This definition does not mention a hierarchical power relocation of actors. It is meant as a multi sectoral collaboration between civil society, government and market actors in transnational networked governance (Bäckstrand, 2008). Scholars who initiated the notion of Eco-governmentality to examine environmental Politics have broadened up the understanding of policy making process and implementation of governing strategies while considering large scale representation in the governance process. Agrawal (2005) analyzes the relationship between government and subjectivity and regulatory strategies and community decision-making in environmental governance through the application of Eco-governmentality in the case of forest councils in Kumaon, India. According to Agrawal (2005), governance of the environment is designed by various institutional government regimes of the environmental regulation process. States or formal hierarchical administrative bodies cannot be considered as supreme within the decision making or policy implementation process. While accepting the notion of state sovereignty, government as the representation of the state exercises territorial legitimacy. However, within the territory and beyond the territory, political power functions further than government. Local community decisions as well as international agencies play vital and particular roles in the formation of regularities and governing principles. This can be analyzed through various sub themes in environmental governance. There are many sub topics that are compressed in environmental governance such as natural resource management, environmental policy adoption, climate governance. Hence, water management is enhancing as a prominent topic in natural resources management.

Due to scarce resources and a wide utilization in consumer and industrialization sectors, water resource has to be managed. Generally, surface water management is more attentive than groundwater management (Puri, 2002). However, this outlook has been changed recently. Approximately 40% of the global population lives in transboundary water basins, shared by more than one country (Mylopoulos, 2008). Transboundary international water management includes rivers, aquifers and lakes (Dombrowsky, 2007). The 'Aquifer' refers the groundwater that is contained in the pore spaces of rock formations (UNESCO, 2001).

Puri (2002) mentions 90% of aquifer waters are accessible fresh water. This aquifer was already accessed by states. There is a potential that conflicts could emerge among communities and federal states and countries because of transboundary water resources. Eckstein notes that questions and problems arise relating to ownership, use, access, protection, and development of groundwater resources, traverse international political boundaries (Eckstein & Eckstein, 2005). Thus, cooperation and management is an essential factor for transboundary water resources. Under these circumstance, Dombrowsky (2007) defines the management as the regime of action that modify resource flow and stock. The effective transboundary water resource management is a crucial factor as 'global' public goods, because it has high risk in mismanagement which could lead to the emergence of conflicts between communities and countries (Sweden Report, 2001).

## Guarani Aquifer and the Nature of Power: rationalities, techniques and mentalities of organized practice in governance

The Guarani aquifer is located about 1,087,879 sq. /km in the Southern Cone area in South America (Brzezinski, 2010). It covers an area of about 840,000 sq. /Km in Brazil, 355,500 sq. /Km in Argentina, 58, 500 sq. /Km in Paraguay and 58,500sq. / Km in Uruguay (Flor and Flor, 2002). It has a projected total reserve of more than 30 trillion cubic meters of water (Cox, et al., 2009). The name of 'Guarani' was applied for this aquifer in honor of aborigines (Flor and Flor, 2002). The Guarani Aquifer system (referred to as GAS) spreads over four different countries. The regional political diversity requires a coherent management. Flor and Flor (2002) points out that the GAS motivates comprehensive governance to address the behavior of individuals, groups and governing bodies in the region. The GAS is already utilized by local governments and national governments with private firms. The Brazilian city of Riberão Preto used this resource for its urban water supply. In contrast, at the border of Uruguay and Argentina, the Salto and Concordia cities exploit the aquifer for geothermal tourism (Walter, 2010). The possible mismanagement of this system will lead to water pollution of the Guarani aquifer. Therefore, there will be political implications due to the Guarani claim about sovereignty and regional integration (Brzezinski, 2010).

The GAS is connected through local communities to international organizations. Local government institutions or institutions in federal government level are primarily utilizing the GAS system for their local functions such as urban water pumping, geothermal tourism, agricultural propose. National governments are involved in connecting as a facilitator as well as regional mediator for regional consensus. The role of international organizations such as the UN and UNESCO is to construct effective regional governance and support technical advancement for sustainability. This relational power emphasizes the influence of actors in relation to other relevant actors (Okereke et al., 2009)

## Treaties and Agreements: organized techniques of power

In the Guarani aquifer system, the policy formation for a sustainable and an equitable usage of aquifer is the main focal point in a regional governance mechanism. However, there are different power structures and its practices among countries regarding shared natural resources. Countries and its local communities have different interests and necessities. In some cases, national laws and regulations as techniques of organized power might be incompatible with interests and necessities. Foster et al (2006) highlight disparities of legislation and governance systems in Argentina, Brazil Paraguay and Uruguay. As unitary states, Paraguay and Uruguay consider groundwater to be within the jurisdiction of national governments. Thus, national governments hold the responsibility for groundwater resources. Argentina and Brazil have devolved responsibilities and power of administration over groundwater resides with federal states and provinces. Consequently, the lack of proper mechanisms for groundwater governance in these countries would raise multiple governing issues of the transboundary aquifer (Foster et al. 2006). Under the Constitution of Brazil, the Federal government has been institutionalized through the enactment of the Federal Law, the National Water Resources Management System and defines the criteria of utilization (Brzezinski: 2010). It recognized water as a public good and so its management should favor multiple uses. Politically, it indi-


DOI 10.4409/Am-038-12-0038

cated that water resources management should be decentralized and the participation of the government, users and communities should be taken into account (Brzezinski, 2010). However, with the GAS, Brazilian Legislative Decree PDC (the legal announcement) 1697/02 issued harmonizing legislation for all four countries that accessed the Guarani Aquifer (Flor and Flor, 2002). If there are contradictions in this law, it is a reason for cross boarder governance cooperation in local governance level. For example, the twin cities of *Concordia and Salta* in Argentina and Paraguay agreed upon common regulation of drilling practices, waste disposal and the establishment of minimum distances between wells (Walter, 2010). Moreover, the *La Plata* River Basin treaty was signed by Argentina, Brazil, Paraguay, Uruguay and Bolivia for regional climate change and vulnerabilities (Brzezinski, 2010). In addition, this water basin is one of the main natural recharge areas for the Guarani Aquifer. The main goal of this treaty is a sustainable management of the La Plata River basin and its waterfront (OSDE report 2005). This treaty has applied regional collaboration on the GAS.

The techniques and rationality of power in governmentality discuss the deliberative power tools, which imply the harmonized mode of governance with other governance bodies (Okereke et al., 2009 and Joseph, 2009). This allowed the construction of comprehensive coordinated policies for local-level solutions for the management of the transboundary aquifer. Thus, local government institutions have the possibility to implement policies. The city of *Riberão Preto* in Brazil began regulating groundwater abstraction and the protection of the aquifer's local recharge zones. It has not produced the hierarchical power. This legal framework allows common framing of groundwater problems simplified policymaking at the local level. However, still there is lack of attention on local government level in groundwater governance. Local government institutes and agencies have more potential to manage issues regarding groundwater usages. Thus, Foster et al (2006) argue that strengthening the personnel and financing of local water resource management agencies are the more crucial while considering the international position (Al-Eryani et al., 2006). This broad perspective of shared natural resources governance is important factor for effective and sustainable usage of groundwater resources.

Brazil National Policy for Water Resources Law has less focus on transboundary waters (Brzezinski, 2010). The UN resolution adopted by the General Assembly 64/123 on the Law of the Transboundary Aquifers mentioned the sovereignty of states which share the transboundary aquifer (Article 2, 64/123 resolution). By following the UN resolution the Guarani Aquifer Agreement in 2010 among Argentina, Brazil, Paraguay and Uruguay respect their own sovereignty over the territories while compromising the multiple, reasonable, sustainable, and equitable use of aquifer (Article 4). This regional cooperation regarding shared natural resource can be identified as the rationalization of power practices. According to the governmentality approach, it shows the international framework to rationalize the behavior of states. Treaties and agreements among countries can be noted as rationalities of power practices of sovereign states.

## Cross sectoral collaboration: relational power

The Foucauldian view of the Government refers to relatively systematized, regulated and reflected modes of power rather than power exercising over others (Lemke 2001). This indicates cooperative government technologies. The cooperation among states as well as non-state actors results in the welfare of the population and individual liberty (Okereke et al., 2009). The United Nations General Assembly adopted in 2009 the Resolution on the "Law of Transboundary Aquifers" (Resolution 63/124) (Brzezinski, 2010). This international law attempts to construct the compromise between partner countries on a transboundary aquifer. Also, it focuses on avoiding long-term effects of climate change and sustainable development. In August 2010, GAS countries signed the Agreement on the Guarani Aquifer, in San Juan (Argentina). According to the agreement, GAS countries agreed to the sustainable use of the aquifer. Further it was agreed to avoid activities that could harm another State or the environment (Brzezinski, 2010). These shared responsibilities promote the regulated mode of power for benefits for all parties in Guarani aquifer.

The other important regional engagement is the Strategic Action Program (SAP), which is the outcome of the cross sectoral collaboration of the GAS project that emphasizes the sustainable management of the Guarani aquifer (Sindico, 2011). Also, the German Geological Survey and the International Atomic Energy Agency grants technical assistance (Amore and Tröger, 2010). The Global Environment Facility project in the Guarani established the Guarani Citizen Fund. Development of strategies in advance to political agreements or discussions is one of the aims of GEF (Lopez-Gunn, 2008). This SAP program aims to establish in each country an implementation process and promote integration of dispersed information from different institutions dealing with groundwater. Hence, its purpose is to introduce improved mechanisms for regional cooperation and adequate functioning of management tools (Amore and Tröger, 2010). This process involves academic institutions, research institutions, NGOs and civil society from the GAS countries. Amore and Tröger (2010) concede that this agreement articulates positive outcomes as a cooperation structure. They are the implementation of all Guarani management instruments by national and sub-national institutions, the priorities in national and sub-national level to strengthen groundwater, water resources management and cooperation framework. Also, the SAP suggests that the different administrative tools for federal and local level for good governance in water governance. Thus, it has established the Local Management Support Committees in the pilot areas (Amore & Tröger, 2010.) It gives a positive signification to develop coordinated policies among countries in the region. If there is mismanagement and zero-sum political power distribution between political neighbors, there will be the potential for conflict. Furthermore, concrete actions for encouraging environmental education and participation of community-based NGO in groundwater management would lead to sustainable usage of aquifers (OSDE report 2005).

UNESCO - IHP (International Hydrological Programme) project is a main actor in transboundary water management. UNESCO and the International Association of Hydrogeologists (IAH) established a particular program to facilitate the development of regional cooperation and sustainable environmental programs. The Internationally Shared Aquifer Resources Management (ISARM) which was institutionalized in 2000 by UNESCO's International Hydrological Program (IHP) focuses on improving the understanding of scientific, socio-economic, legal, institutional, environmental issues related and socio-economic condition to the management of transboundary aquifer with multi-disciplinary approach. Establishing a legal and administrative mechanism is claimed as the main aspect of the ISARM (Aureli and Eckstein, 2011). A. Aureli and Ganoulis (2010) describe that the ISARM established a methodological approach and tools to achieve sustainable transboundary groundwater management. It is an attempt to gain partner countries in comprehensive

governance. Major alarming factor is over-exploitation of groundwater resources, basically by the agricultural sector. Population growth, urbanization and inefficient use of water for agricultural irrigation have been identified in this ISARM project (Aureli & Ganoulis, 2010). Their recommendation is to transfer with states for sustainability. GAS countries already applied these techniques for their national plan. This process can be analyzed through Foucault's governance from a distance and how states are subjected to those principles (Joseph, 2009)

Okereke et al describes (2009) within in the governmentality perspective the multiple nature of power which refers to the relation between state and non-state actors and ways in which roles and responsibilities are ascribed. For example, in the GAS, the Ministry of Environment in Paraguay works together with *NatureServe,* that is a non-profit conservation organization. The mission of the collaborative program is to develop specific guidance related to watershed and aquifer management and conservation of the region's rich biological resources. The active civil society participation in the GAS countries and governments policy decision embedded. For example, in 2004, more than 60% voted for the amendment in Uruguay to reestablish water as a nationalized resource, as before it was private property. Civil society uprisings can be observed in Latin America in since 1999 against water privatization. Cochabamba in Bolivia, civil society resistance to water privatization is prominent social uprising (Moshman, 2005).

## Inclusiveness Vs exclusiveness: challenges

This geographical region is inhabited by indigenous people. According to the UNHCR report in 2006 there were 190,000 Afro-Uruguayans who lived in Montevideo in Uruguay. This indigenous community lives in deprived economic conditions. They have less access to infrastructure facilities. This discrimination leads to vulnerability in their living conditions. The important factor to highlight is that they are often without access to safe water and sewage (Minority Rights Group International, 2006). A negative externality is the marginalization of indigenous people from the governance process. The critiques underline the paradox of foreign companies which access the Guarani aquifer for commercial purposes and rights of indigenous communities (Earth Institute 2010). They institutionalized some formal organizations to raise their voices such as the Council for Aboriginal Events, the Commission of Indigenous Jurists of the Argentine Republic, the Community of Students of the First Nations of America (CEPNA), the Indigenous Association of the Argentine Republic (AIRA), the Association of Indigenous Communities (ACOIN) (IWGIA online source). Therefore, some local NGOs raised the voice. On one side, they claim to enhance the participation of indigenous people in decision making bodies. The Guarani Survival Fund can be identified as an approach of the organizational behavior of indigenous communities. In the 2005 GAS agreement, it was denoted that to provide information for indigenous people about the project indigenous and get consultation from key indigenous actors (OSDE report, 2005). The indigenous movements deal with government decisions and policy implications in international level.

## Conclusion

This research paper discussed the application of Foucauldian analysis on power in the Guarani Aquifer system. The governmentality concept is different from sovereignty and government. The government demonstrates rationalities, techniques, mechanisms and procedures in governance. The governance tools in GSA water management construct the positive power techniques in all level. The SAP program, ISARAM expertise recommendation, UN resolution 2009, agreement on Guarani Aquifer in 2010 August and *La Plata* River Basin treaty implement systematized and regulated power on GAS mechanism. These proposals and treatises show that there is no any superior or inferior actor. Every actor participates in the GAS through their practices. Local government institutions, federal states, national government institutions, regional and international organization and NGOs participate in the GAS through their power exercises. There is no hierarchical power relation. The cross sectoral agencies including governments involve in the process of Guarani aquifer governance.

The global governance approach locates the actors in a certain order in order of power and responsibilities. Thus, the state has minimum power in comparison to other actors. The power is identified in the global governance approach through 'territorially bounded' and 'equated' with the nation state (Okereke et al 2009). In governmentality, States are involved in the governance process through policy tools, management techniques and regulations. Civil society, NGOs, international organizations and experts participate in implementing regulations, policies and management practices directly or indirectly. All agencies exercise power and they compromise each other. For example, border local governance institutions implements policies in GAS to sustainability. It proves that power is a circulating phenomenon. It cannot be located in a particular source. Thus, it has to be analyzed in its effects. It means that power is relational. In the global governance approach power is distributive and zero-sum. However, when analyzing the GAS, power of agencies is defined by organized behavior within common governance.

One other point is the nature of power. In the regime approach and global governance approach, power is applied over institutions or people. Power is utilized to control others' behavior (institution or individual). However, Foucault's governmentality describes how power is an application of which can have a positive outcome on governance - for example, the wellbeing of people. The GAS aims for productive outcomes for people in the region. The cooperation between countries demonstrates sustainable management in the Guarani aquifer. Overall, it can be stated that the nature of power has a broader contextual meaning in the governmentality approach rather than what global governance approach observed in the environmental approach. This approach will be helpful in broader perspectives to understand and to analyze the concept of groundwater governance. The Challenges are to count the regional priorities and governance spectrum with particular regional interest. This regional interest on governance would be shaped through economic capabilities, social conditions and culture. As Foucault described, the tool and techniques of power is a crucial factor to design the governance mechanism. The distance between power agents or actors and the way power has access needs to be understood in order to establish the governance mechanism for regional shared- transboundary aquifers. In conclusion, the notion of governmentality can be applied to facilitate the design of policy strategies and legal mechanism in effective and practical manner in a shared natural resource.


DOI 10.4409/Am-038-12-0038

**Acknowledgment:** I am grateful to Professor Stephen Foster, Dr. Alice Aureli, Dr. Francesco Sindico and Dr. Raya Stephen for conferring their knowledge about groundwater governance and management, constructive comments and thoughtful insights. If some of their suggestions did not manage to enter the published version, it was my stubbornness rather than their acuity which is to be blamed. I would also like to thank Matthew Lagod, Chisha Chakanga, Damien Frettsome and Siyat Gaye for giving their feedback.

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