



Graduate School of Development Studies

**Integrated Water Resource Management (IWRM):
EXPLORING THE GAP BETWEEN EXPECTATIONS
AND OUTCOMES**

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Malinda Wink

(Australia)

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Members of the examining committee:

Dr. Karim Knio

Dr. Bram Buscher

The Hague, The Netherlands

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Inquiries:

Postal address:	Institute of Social Studies P.O. Box 29776 2502 LT The Hague The Netherlands
Location:	Kortenaerkade 12 2518 AX The Hague The Netherlands
Telephone:	+31 70 426 0460
Fax:	+31 70 426 0799

Contents

List of Acronyms

Abstract

Introduction	1
Structure	3
Methodology	4
Theoretical Framework	6
Chapter 1. IWRM: A Network Institution?	9
Chapter 2. An ‘Ostromian’ tilt?	18
Chapter 3. A comparative analysis of IWRM	30
Conclusion	38

References

List of Acronyms

ADB: Asian Development Bank

GWP: Global Water Partnership

IADB: Inter American Development Bank

AfDB: African Development Bank

EBRD: European Bank for Reconstruction & Development

IEG: Independent Evaluation Group

IWRM: Integrated Water Resource Management

NIE: New Institutional Economics

RCI: Rational Choice Institutionalism

SIDA: Swedish International Cooperation and Development Agency

TAC: Technical Advisory Committee (GWP)

UNDP: United Nations Development Programme

WWAP: World Water Assessment Program

WB: The World Bank

WWAP: World Water Assessment Program

WWC: World Water Council

Abstract

The paper examines the relationship between the version of Integrated Water Resource Management (IWRM) promoted by the Global Water Partnership (GWP) and its contribution to achieving not only “peaceful co-operation and synergies between *uses* of water at all levels” but also among *users* at all levels. The paper considers the application of IWRM to resolving water resource allocation and management dilemmas within common water resource property management arrangements, where the common property resource is defined in Ostrom’s terms as a resource that is “jointly used, (and) managed by groups of varying sizes and interests” (Hess & Ostrom 2007: 5). The allocation and management dilemmas are then related to the fiercely opposed yet seemingly inevitable processes of enclosure of water resource commons whose purpose is to exclude not only for productive use, but also to conserve and protect an important and vital resource.

Relevance to Development Studies

Considered one of the most pressing public policy challenges for the twenty-first century, water has emerged as a national and international priority since the 1990s (Pahl-Wostl, Gupta & Petry 2008: 405, Boelens, Zwarteveen & Roth 2010: 1). Potable water is essential for human wellbeing and food security and thus questions of social and environmental justice ((Bakker 2010, Pahl-Wostl et al. 2008 : 405). Concurrently, water is a critical factor input within economic growth programs – agriculture, mining, and transportation – adding pressure on water quality and quantity. Regarded on a global scale, the figures are alarming – one third of the global population lives under water stress, one fifth of the world’s people lack access to safe drinking water (Pahl-Wostl et al. 2008: 405).

Keywords

Water, Integrated Water Resource Management (IWRM), Global Water Partnership (GWP), New Institutional Economics, Rational Choice Institutionalism, Elinor Ostrom, Douglas North, Oliver Williamson, Karl Polanyi, Neo-Polanyi.

Introduction

The management and allocation of common property resources is a central concern within environmental studies and is a key theme within related studies of international cooperation and resource management (Ostrom et al. 2002: vii). Considered one of the most pressing public policy challenges for the twenty-first century, water has emerged as a national and international priority since the 1990s (Pahl-Wostl, Gupta & Petry 2008: 405). Potable water is essential for human wellbeing and food security and thus questions of social and environmental justice (Pahl-Wostl, Gupta & Petry 2008: 405; Boelens, Zwarteveen & Roth 2010: 1). Concurrently, water is a critical factor input within economic growth programs – agriculture, mining, and transportation – adding pressure on water quality and quantity. Considered on a global scale, the figures are alarming – one third of the global population lives under water stress, one fifth of the world’s people lack access to safe drinking water (Pahl-Wostl, Gupta & Petry 2008: 405).

Although the term itself is more than sixty years old, Integrated Water Resource Management (IWRM) gained renewed prominence through the establishment of the Global Water Partnership (GWP) in 1996. Jointly established by the UNDP, World Bank and Swedish Development Agency, the GWP was tasked with the promotion of IWRM as a way to achieve goals of “efficiency, sustainability and equity” in water management (About GWP, GWP Website n.d.).¹ For this purpose, the GWP defines IWRM as the:

“...process which promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems and the environment.” (What is IWRM? GWP Website n.d.).

Touted as the accepted “mantra that will solve all the world’s water problems”, proponents of IWRM consider it to be universally applicable to water resource issues of different scale, geography or socio-political contexts (About GWP, GWP Website n.d.). The suite of policies within the IWRM framework attempts to unpack water’s “wicked problems,” characterised by complex interdependencies and often contradictory or shifting requirements of the fields that it spans: climate change, population growth, urbanization, industrialization, and agricultural development (Glick et al. 2002; Gupta 2004; Petrella 1999 cited in Boelens, Zwarteveen & Roth 2010).

IWRM has been endorsed by a series of declarations and commitments at international fora on water, environment and sustainability, and promoted via

¹ No Date (n.d.)

strategic commitments by international development agencies, multilateral institutions and finance institutions (IEG 2010: 23).² Since the establishment of the GWP, the World Bank has declared IWRM to be a key component of its annual \$3.3-billion commitment to achieve to “equity, efficiency and sustainability” in water resource management. As part of its water finance program from 2006 to 2010, the Asian Development Bank identified 25 river basins where it can fund the introduction of IWRM (Water Financing Program, ADB Website 2010). Similarly, the Inter-American Development Bank has declared IWRM as a “paradigm shift” in water resources management and has committed to linking IWRM with the totality of its investments in the water sector (IADB 2006).

The paradigm shift is partly attributed to the way the water crisis has been reconceived, from a scarcity crisis to a governance or management crisis (‘Water Crisis’, WWC Website n.d.). This reconfiguration of problem diagnosis is reflected in the solutions embraced in dominant international policy forums on water and by key institutions within transnational policy networks, including the World Water Council and World Commission on Water. At the 2002 World Summit on Sustainable Development in Johannesburg, IWRM was internationally recognised as “the mechanism to achieve sustainable water management” (Rahaman & Varis 2004: 18). World leaders at the summit declared that water management was a critical priority for the achievement of Millennium Development Goals, and co-signed a declaration that urged all countries to commit to the development of IWRM and water efficiency plans by 2005 (IEP 2010: 25; UN Water 2007). Since the Summit, the GWP has also facilitated a number of regional agreements, including the 2008 Lima Declaration, where 22 Ibero-American nations committed to the implementation of IWRM plans and policies (‘Lima Declaration for IWRM’, GWP Website n.d.).

Paradoxically, despite the ubiquitous nature of IWRM, key scholars in the field of water and environmental management claim that successful examples of IWRM in the field prove elusive (Biswas 2009: 2). As Biswas (2009) noted, “...so strong has been the faith in IWRM in many quarters that ... hundreds of millions of dollars are being spent each year to promote IWRM without seriously analyzing its implementation status in the real world, or determining its actual impacts” (Biswas 2009: 2).³ Biswas’ criticism seems to be borne out by a Global Program Review conducted by the Independent Evaluation Group

² Financial Institutions include the Asian Development Bank (ADB), Inter-American Development Bank (IDB), African Development Bank Group (AfDB) and European Bank for Reconstruction and Development (EBRD).

³ Biswas’ view was confirmed by a workshop in Rio de Janeiro, which comprised twenty-two leading water experts from “academia, national and international institutions, non-government organisations and the private sector” (Biswas 2009: 2). The workshop participants were “hard-pressed to identify even one good macro- or meso-scale IWRM project in Latin America which has been successfully operating for at least 10 years, and which would not have occurred without the use of IWRM” (Biswas 2009: 2).

(IEG). The IEG found that despite the formation of international consensus and agreement, the objective of facilitating development of IWRM water policy and strategy was achieved “more slowly and in fewer countries than planned” (IEG 2010: 20). The GWP had aimed to facilitate preparation of IWRM plans in at least 15 countries by 2005 and a further 25 frameworks by 2007 (IEG 2010: 20). The first plans were to be implemented by 2006 and the second tranche by 2008. The reality has fallen well short of the objectives. Only five national IWRM plans were processed by 2008 and only two were approved for implementation. The gap between expectation and outcome has contributed to mounting criticism that IWRM may be an “emperor without clothes” (Biswas 2009: 24).⁴

This paper seeks to explore why IWRM proves difficult to put into practice, and, in the face of such difficulties, this paper asks on what is the methodology is nonetheless so widely embraced. For this purpose, this paper seeks to explore the interplay of ideas and institutional structure of the GWP’s IWRM network and to understand the implications of that interplay. In light of the analytical paradigm proposed by Ostrom’s Bloomington Research Program’s Institutional Analysis and Development, the nature of institutional arrangements is considered function as knowledge processes and decision frameworks (Aligica & Boettke 2009: 35).

The hypothesis proposed by the paper is that an analysis of the institutional logic that informs the structure and ideas of the GWP’s IWRM network will allow us to derive an understanding of why IWRM as a framework encounters barriers to implementation.

⁴ Evaluators were asked to focus on the following four questions: Is GWP doing the right things? Is GWP doing the right things well? What recommendations can be made to enhance GWP’s effectiveness? How can the sustainability of GWP be ensured?” (IEP 2010: 24).

Structure

The first chapter seeks to explore the contours of IWRM's evolution as a policy framework and the institutionalisation of these ideas through the establishment and development of the GWP's IWRM network. Thus shown, the second chapter explores the logic and assumptions that inform the perspectives of the GWP's IWRM network institution. This chapter proposes that the GWP's IWRM is informed by a selective reading of New Institutional Economics (NIE), particularly the literature of key Rational Choice Institutionalists, including the scholarship of John Williamson, Douglas North and Elinor Ostrom. The final chapter then examines the implications of selective engagement with NIE theories, with particular emphasis on Ostrom's research on the evolution of institutions for collective action. This is then examined through a Neo-Polanyian lens to offer an alternate perspective that illuminates different characteristics of IWRM absent from the IWRM's NIE-inspired institution and analysis.

Methodology

The paper aims to study the interaction between the institutional structure of the GWP's IWRM network and the dominant institutional preferences and ideas within the GWP's IWRM framework. The paper adopts tools of institutional analysis to examine the version of IWRM promoted by the GWP and its efforts to achieve not only "peaceful co-operation and synergies between *uses* of water at all levels" but also among *users* at all levels (Ministerial Declaration, World Water Forum, The Hague 2000). To this end, the paper examines how institutional perspectives of common property resources (CPR) have been advanced through the GWP's IWRM network.

The paper first traces the evolution of IWRM as a concept and links this to the formation of the GWP's IWRM network, which formalizes and gives structure to the IWRM idea. The GWP's IWRM network is distinct from, but closely intertwined with the activities of the GWP Organisation (GWPO). The formation and post-formation processes is explored with reference to formal primary source documentation (declarations, minutes, agreements, attendance registers, independent reviews); and the Technical Committee Papers published by the GWP for the GWP's IWRM network. Primary source data is supported with reference to secondary accounts, reviews, summaries and analyses of water and sustainability conferences.

The evolving institutional form of the GWP's IWRM network is explored with reference to the Global Water Partnership's governance statutes, organisation charts, membership accreditation and the GWP's partnership policy, the 2004-2008 Strategic Plans, the 2008 Joint Donor Group performance evaluation, and the Independent Evaluation Group (IEG) evaluation released in 2010. These materials are used to give an insight into the institutional hierarchy

and internal dynamics of the network, including how institutional rules and norms are established, and how these are legitimated and reproduced throughout the GWP's institutional hierarchy.

The second chapter then examines the perspectives that inspire the contemporary understanding of the IWRM put forward by the GWP network. This entails an investigation of the ontological basis of dominant institutional preferences with the GWP's IWRM framework. This is examined in accordance with key documentation produced and published by the GWP, including the IWRM "Tool-Kit", which established the implementation template for IWRM, and the Technical Advisory Committee (TAC) policy papers, which are published following processes of consultation and discussion with the GWP's IWRM network.

The final chapter examines IWRM from the perspective of, first, Ostrom, whose scholarship informs the policy prescriptions within the IWRM framework and the institutional design, rules and norms of the GWP's IWRM network itself. This is then compared to alternative perspectives offered by applying a neo-Polanyian lens.

Theoretical Approach

“To understand institutions one needs to know what they are, how they are crafted and sustained, and what consequences they generate in diverse settings. Understanding anything is a process of learning what it does, how and why it works, how to create and modify it, and eventually how to convey that knowledge to others” (Ostrom 2005: 3).

The term “institution” has come to mean a number of things in everyday parlance. For the purpose of this paper, institutions refer to the “rules that humans use when interacting within a wide variety of repetitive and structured situations at multiple levels of analysis” (Ostrom 2008: 24). From the institutional perspective we can elaborate on the nature of IWRM as both an actor and an arena – critically assessing its origins, actors, norms, values and mechanisms. As Hall (1986) describes, networks are an important mechanism to distribute power, construct identities and realise interests as evidenced in the “dynamics of interaction” (Ansell 2000: 75). Comprised of a distilled set of norms, values, rules and procedures mapped on the terrain of social forces, the institution offers a lens to expose the organised practices that frame the conceptualization of water as an economic good to be managed; and further, to demonstrate the connection between dominant policy prescriptions for good governance, privatization and decentralization that are also informed by the same institutional logics.

The Ostromian and Neo-Polanyian institutional perspectives are infused by a social philosophy that forms the basis of their insights into the management of CPRs. This paper compares the insight and application of Ostromian principles within the IWRM framework to alternative institutional and theoretical insights of neo-Polanyian scholarship. The analysis commences with a comparison of three key Ostromian ideas that inform her eight principles for the management of CPRs: bounded rationality, nested or polycentric institutions and the assertion of a third type of property arrangement that is neither state- nor market-led. This is compared an exploration of neo-Polanyian readings of themes relevant to IWRM: “embeddedness”, “enclosure” and “double movement”. This paper considers these three concepts in relation to the broader sphere on Polanyi’s concerns, theory and interpretation of the economy as an instituted process.

This paper examines common property resource management, defined according to the definition of Hess and Ostrom (2007) who describe the commons as “a general term that refers to a resource shared by a group of people”.⁵ In accordance with Ostrom’s definition, the “the unifying thread in all commons resources is that they are jointly used, managed by groups of varying

⁵ Hess & Ostrom, 2007: 4).

sizes and interests”.⁶ The two major contributions to our understanding of CPRs, Elinor Ostrom and Karl Polanyi, are drawn upon to gain an appreciation for the nature and implications of IWRM and the IWRM network as it is conceived and promoted by the GWP. Both institutional theorists are frequently cited within the literature in relation to the management and dominion of common property resources. Insights gained from examining IWRM from Ostrom’s institutional perspective are compared to neo-Polanyian perspectives that add modern relevance to Polanyi’s understanding of the economy as an instituted process.

Taking inspiration from Ostrom’s mode of institutional enquiry, the paper seeks to understand the nature of IWRM, how it is “crafted and sustained” and the consequences IWRM generates in diverse settings (Ostrom 2005: 3). The Institutional Analysis and Development framework developed by the Bloomington School considers the institution in relation to their knowledge and decision-making functions (Aligica & Boettke 2009: 69). These two aspects underpin the institutional arrangements that aggregate preferences and information. In Ostrom’s analysis knowledge has an important role within institutional design, whereby “ideas” reflect and shape the institutional order (Aligica & Boettke 2009: 74-75). The approach reflects the methodological individualism within Ostrom’s work, and would be powerfully augmented with an account of how the structure conditions formation of ideas and behaviour.

This paper considers the shaping of institutional order from the perspective of Archer’s (1990) theory of morphogenesis, such that the institutional structure of IWRM shapes and is shaped by ideas such that the present structure of the GWP’s IWRM network and the IWRM framework is a complex residual of the dynamic interplay between ideas and structure over time (Archer 1990: 82, cited in Bieler & Morton 2001: 9). This lens is applied to Ostrom’s idea of nested systems of polycentric governance, a term elaborated later in the paper, but which relates to structures within structures. It thus follows that some actions will elaborate certain structures within the polycentric governance arrangements, but not others.

The analysis of the interaction of the structure and ideas that inform and drive the GWP’s IWRM network responds to a lacuna in the literature. Such an investigation complements Goldman’s (2005) predominantly ideational account that locates the World Bank’s influence within discursive genealogies and relational biographies of water policy. While Goldman’s account is illuminating in terms of positioning the GWP’s IWRM network within a broader global water policy sphere, his insights can be enriched by an analysis of the institutional rationale that informs the ideas of IWRM and how they are encountered by or reproduced within the structure.

⁶ Hess & Ostrom, 2007: 5).

The paper has a parenthetical relationship to the incisive scholarship of policies familiar to the IWRM framework including decentralized decision-making; private property rights reform and market-based solutions such as privatization in its various forms (Boelens & Zwarteveen 2005; Bakker 2003; 2010; Swyngedouw 2005). Although the latter scholars do not specifically refer to the GWP's IWRM network or framework, their scholarship provides insight into variances between stated aims and practical realities, and identifies the neo-classical and new institutional economic rationale that informs the policy logic. The paper hopes to contribute to the research of such scholars by showing how the structure of the GWP's IWRM network relates to the implementation. The analysis also aims to dig deeper into the assumptions that pervade these policy choices, and argues that it is not neo-classical economics, but a distinct school within new institutional economics, that informs the policies and institutional arrangements of the GWP's IWRM network. The importance of this distinction will be made clearer throughout the course of this paper.

Chapter 1: IWRM – A Network Institution?

The purpose of this chapter is to examine the historical formation of IWRM and to explore the interaction of the material capabilities of the GWP's IWRM network with the development and perpetuation of certain key concepts and ideas within international fora. The chapter first delves into how IWRM as a concept and a policy network evolved, and then turns to the characteristics of the network, such as its design, capacities, constraints and complexity. These points are elucidated through an investigation of structural hierarchy and interdependencies via cross-scale linkages with existing and emerging institutions at local, national and international levels; analysis of institutional constraints and access and control over resources; and finally, processes of reproduction and legitimation of certain perspectives of IWRM. These factors relate to the GWP's ability to consolidate and enlarge its role as a norm entrepreneur and trigger processes of institutional isomorphism (Ansell 2007: 76). These factors are weighed up to consider the nature of the IWRM network – can the GWP's IWRM network be understood as an institution?

Conceptually, IWRM has roots in the 'far-sighted' water management arrangements that have occurred for centuries, such as the basin-level participatory water tribunals in Valencia, Spain, which have operated since the tenth century (Rahaman & Varis 2005:15). In contemporary history, some scholars point to the Reasonable Use Principle developed in the 1960s by scholars such as Todd (1965: cited in Garcia 2008:24). The Reasonable Use Principle relates to the resolution of conflicts where more than one user requires the same reservoir or body of water. Given that simultaneous use is not possible, the Reasonable Use Principle states that the conflict should be resolved for the benefit of the whole rather than its parts; that is, the concerns of the system over the individual (Garcia 2008:24). Since it was drafted into international water law arrangements, the approach forms a natural precedent to institutional arrangements that coordinate the multiple actors to ensure that collective disequilibria is avoided (Garcia 2008: 24). Maximising benefits to the system, however, were mainly conceived in terms of economic terms. (Garcia 2008: 24).

In the Latin American context, Garcia (2008) argues that the systems-based approach that characterizes IWRM has been applied since the 1970s. During this period water managers shifted from project-based approaches to water management to sub-sectoral approaches. The sub-sectoral approach is characterised by an emphasis on basins or systems as the unit of management (Garcia 2008: 24). Garcia's view concurs with literature on traditional water management arrangements, which also suggests that many indigenous societies also had system-based, multi-stakeholder approaches (Gadgil & Berkes 1991). The existence of indigenous precedent, however, is noticeably absent from early literature on IWRM and is not emphasized until after 1992.

The 1977 Mar del Plata conference was convened with the objective to "promote a level of preparedness, nationally and internationally, which would

help the world to avoid a water crisis of global dimensions by the end of the present century” (Biswas 2004: 71). The conference was one of a series of mega-conferences held by the United Nations system during the 1970s, which involved high-level decision-making on critical global issues (Biswas 2004: 71). Responding to a global crisis, the Mar del Plata conference was thus vested with legitimacy to pursue an internationally coordinated approach to IWRM. The meeting was weighted towards developing nation representatives and participants with technical expertise in the management of water, particularly engineers. Industry was “all but absent” (van Dam 1977: 252). The content and agreements resulting from the conference reflected the concerns and normative assumptions of the attendees. The substance of the conversation was directed towards resolving the resource constraints that arose from economic development priorities founded on a modernizing vision.

The focus of the Mar del Plata dialogue was to build consensus for action (Stockholm Water Institute, 2007). The resultant ‘road map’ elaborated on the basin-level approach and was predicated on three broad agreements: first, that water mismanagement was a key obstacle to social wellbeing and economic development (Falkenmark, M 1997: 9); second, that the water “crisis” was a crisis of global proportions; and, third, that common ownership of river basins and lakes was one of the “four basic problems of the water crisis”, alongside environmental phenomena such as uneven distribution between areas, seasons and years, water contamination and utility (Falkenmark 1997: 11). Proposed solutions were weighted towards resolving legislative issues, with key agreements concerning the public ownership of water (Cano 1980: 385) and “a steep rise in the cost of water, advocated *inter alia* by the World Bank” (van Dam 1977: 250). The price on water was regarded as a mechanism to secure new technologies that would increase the efficiency, supply and management of water. For this purpose, the private sector was tacitly invited to cooperate in the provision of water and its management (van Dam 1977: 251).

Despite the relative success of the conference, the issue of water languished in the international arena during the 1980s, playing only a minor role in environmental and human development forums. The International Conference on Water and the Environment (ICWE) in 1992 – hereafter referred to as the Dublin Conference – marked an attempt to put water back on the international agenda. The format departed from the inter-governmental convention in the spirit of Mar del Plata and other mega-conferences of the 1970s (Biswas 2004: 83). Instead, the Dublin Conference was convened as a “meeting of experts” and comprised of more than five hundred delegates, including government representatives and representatives of eighty international, intergovernmental and non-governmental organizations (Dublin-Rio Principles, GWP Website n.d.). Criticised for lacking the institutional memory and formal imprimatur of the Mar del Plata, the meeting was nevertheless instrumental in nurturing an emergent global network of water policy experts that incorporated finance, private sector and civil society voices alongside bureaucrats and engineers; and organizing that network around an agreed set of four principles (hereafter

“Dublin Principles”) and positioning IWRM as the guiding framework for their realization.

The four Dublin Principles were presented and incorporated into the 1992 UN Conference on Environment and Development (Rio Summit) which reiterated its commitment to IWRM and called for effective implementation and coordination mechanisms to promote IWRM based on public participation. The Dublin Principles comprised the following:

- Principle 1: Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment
- Principle 2: Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels
- Principle 3: Women play a central part in the provision, management and safeguarding of water
- Principle 4: Water has an economic value in all its competing uses and should be recognized as an economic good

The four principles became the organizing philosophy of the Global Water Partnership’s IWRM rationale and strategy. Notably, the second principle elaborated on the governance component with a focus on aspects of demand (including users) alongside supply. In this manner, the scope of activity broadened from previous agreements, which had emphasized issues of infrastructure and investment requirements relative to water availability. In addition, the fourth principle emphasized the economic value of water, with mention of its social value or notions of equity – as per the Mar del Plata agreement – noticeably absent.

The formation of the GWP coincided with the establishment of World Water Council (WWC) in 1996 with strong support from the private sector. The WWC assumed responsibility for convening the World Water Forums, which are held every three years and have become the main domain for debate and discussion over water management arrangements, effectively replacing the state-based forums formerly organized within the UN system. The World Water Forums have also served as an important domain for establishing the legitimacy and expanding the idioms, technologies and plans of the GWP’s IWRM. These have been translated into reality through a series of ministerial agreements, state pledges and conditionalities imposed in loan agreements by international financial institutions including the World Bank, IMF, African Development Bank and Inter-American Development Bank (Goldman 2005: 794). The second section of this chapter examines how the establishment of the GWP and its mandate to promote IWRM intertwines with global governance mechanisms such as the World Water Forums.

The first World Water Forum, hosted in Marrakech in 1997, sketched a

long-term vision for managing a scarce global resource. The main contribution of the first forum was to establish the prestige and legitimacy of the World Water Forum through the involvement of heads of government and leaders of international financial institutions. The substantive shift related to broader agreement about *how* IWRM could be structured to resolve the crisis, setting out a clear agenda vis-à-vis private participation in the water sector. The meeting was followed by the release of three papers from the GWP's Technical Committee. Published between 1998-1999, the papers had the express purpose of establishing a common view of IWRM via "clarification and formulation of certain principles and recommendations" (GWP Technical Advisory Committee Paper 1 (TAC 1): 1998: Explanatory Note). The three papers clarified arrangements for private sector participation (TAC 1, 1998); the legal implications of the Dublin Principles (TAC 2, 1998b); and guidance for practitioners on how to estimate the cost and value of water across a range of sectors – agricultural, industrial and urban (TAC 3, 1999).

The Second World Water Forum and Ministerial Conference, held in The Hague in 2000, significantly enhanced the GWP's global IWRM network and its ability to mobilise information and influence (IEP 2010: 19, 24, 25). The Ministerial Declaration of The Hague World Water Forum endorsed the IWRM's basin-level, user-based approach to promote "peaceful cooperation and develop synergies between different uses of water at all levels" and positioned the GWP as the global authority on IWRM (IEP 2010: xix). The GWP's approach was elaborated by the Technical Advisory Committee's release of its first paper specifically on IWRM in 2000. The first part of the paper was devoted to developing the case for global implementation of IWRM and defined the concept and process (TAC 4: 2000). The second section of the paper provided technical guidance regarding the implementation of IWRM in a range of conditions (TAC 4: 2000). This section explains the complementary elements of the IWRM framework, including what the GWP's TAC term "the enabling environment", "institutional roles" and "management instruments" that facilitate the goals of "economic efficiency, equity and environmental and ecological sustainability" (TAC 4, 2000: 30).

The 2001 International Conference on Water in Bonn (The Bonn conference) was the third in a series of conferences that set international principles concerning IWRM through a series of agreements – preceded by Dublin in 1992, The Hague in 2000 (Rahaman & Varis 2008: 173). In each conference, the views government representatives, NGOs, donor agencies and international organisations reiterated and added detail to the Dublin Principles and their implementation. The agreements forged at the Bonn Conference focused on practical arrangements to bridge the gap between principles and implementation (Rahaman & Varis 2008: 175). The agreement thus endorsed not only the principles that underpinned the GWP's IWRM, but also the approach. This included agreement about specific governance arrangements, including decentralization and participatory approaches (TAC 7 2003: 15). Further, the relevance of IWRM was extended to a broad spectrum of development aspirations including poverty reduction, gender equality, good governance and transparency

(Rahaman & Varis 2004: 18).

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The next phase of the development of IWRM was characterised by a shift towards mandates for action. The 2002 World Summit on Sustainable Development in Johannesburg marked the first international mandate to develop IWRM and water efficiency plans by 2005. This commitment was reaffirmed within the Ministerial Declaration of the Third World Water Forum in Kyoto, 2003, which declared support for developing IWRM and water efficiency plans. The Kyoto agreement coincided with the release of the controversial Camdessus Report on private sector investment in the water sector (Chapman & Mancini 2009: 5). Progress towards the goal was incorporated in the monitoring and reporting mechanisms of the United Nations (UN) system-wide World Water Assessment Program (WWAP), which collates and reports progress according to the Dublin Principles (Water Targets, WWAP website 2011). A key achievement in the Kyoto forum was the first multi-stakeholder dialogue (MSD) with government representatives joined by key stakeholders in the water sector, including international organisations and water-user groups. While discussion over private sector participation remained polarized, the MSD did move towards broader consensus around the IWRM framework and recommendations for action (Chapman & Mancini 2009: 5; Rahaman & Varis 2004: 18).

Again, the World Water Forums in Mexico in 2006 and in Istanbul in 2009 enhanced the implementation mandate of the IWRM model, which was matched by the GWP initiating a review of the IWRM toolbox (GWP 2002). Despite continued cynicism surrounding the role of corporate institutions in defining the water reform agenda, IWRM and its key tenets remained broadly supported across the political spectrum. The delegates within the political forums attempted to bridge the divide by asserting that water was a public good and a basic right, but added that these tenets were irrespective of whether or not water was provided by a private company (Ministerial Declaration, World Water Forum 5 2009). Within the Istanbul Forum's "Parliamentarian for Water" declaration, emphasis remained on local and regional decentralization of water management authority, the need for private and public partnerships and technology transfers (for example desalination technology) for those countries whose "needs" were greatest (Statement, Parliamentarians for Water, 2009). Notably, though, the level of consensus-building that had accompanied the development of IWRM meant that it was regarded as a neutral instrument for achieving water allocation.

The second section of this chapter examines the nature of the GWP's IWRM global policy network and how it has evolved alongside the series of international agreements. Described by the GWP as a semi-autonomous "assembly of partners", the GWP's IWRM network is central to promoting IWRM across the globe. Between 1996 and 2011 the GWP built support for its IWRM network, increasing its membership to over 2,400 members from across a broad spectrum, including developed and developing country government institutions, UN agencies, financial institutions, research institutions,

NGOs, and the private sector (About GWP, GWP Website n.d.). The interpenetrating connections, organisations and individuals within the network create a level of complexity such that the network can no longer be reduced to its individual components. The arrangements are highly complex and cross-cutting. For example, some network partners may belong to multiple partners groups within of the network (the government body, a professional association) or alternatively, they may be an actor across a spectrum of non-partner and partner institutions.

As the network expanded, so did the prevailing rules and norms as governed by formal apparatus such as statutes, partnership agreements and accreditation processes. This was supported by a participatory framework that served to build the “rules of the game” at two levels – via the international forums and within the network itself. The results of participatory processes took shape in terms of the development of an IWRM Tool-box and supporting materials, as well as the language and idioms of the policy network. These materials form the basis for capacity building and implementation of the GWP network’s IWRM policies that were mobilized after The Hague and Bonn conferences and significantly boosted by the 2002 Johannesburg Declaration, in which all signatory countries committed to the development of IWRM plans by 2005. As per the recommendations for action agreed at the Bonn conference, capacity building within and throughout the network comprises “education and training regarding water wisdom, research, effective water institutions, knowledge sharing and innovative technologies” (Rahaman & Varis 2005: 17). At the same time, the language shifted towards a more managerial tone with its specific focus on governance arrangements.

As the IWRM network has consolidated, so too have the resources, constraints and expectations placed on and available to partners within the network. The role of knowledge sharing is a key component of the partnership agreements and accreditation process that comprise both a resource and constraint within the global IWRM policy network. The key benefits of the partnership identified by the GWP include the ability to share information and resources between partners and to contribute to the conceptual development of IWRM. The obligations of partners include the coordination of relevant activities with partners to the network. In addition, the partnership agreement requires the commitment to actively recruit GWP partners and facilitate adherence to GWP principles. Adherence to the principles means adoption of an institutional template promoted within the GWP. At the basic level, this requires a commitment to consider water as a resource that can be managed through the assignment of property rights.

Like the policy prescriptions within IWRM, the network comprises a set of nested institutional layers whose governance and implementation responsibilities are meted out according to localized domains. These layers are responsible for implementation and governance (including monitoring and enforcement). The implementation level comprises three levels: thirteen regional water partnerships, 74 country water partnerships, and more than 2,400 sub-national

partnerships (GWP Fact Sheet, GWP Website n.d.). From these groups a selection of consulting partners is appointed through democratic processes. The Regional Representatives appointed by the regional water partnerships form a Steering Committee, which provides network guidance and policy and financial oversight within the network. The Steering Committee reports to the Sponsoring Partners who assume the role of high-level governance. The Steering Committee then feed back into the implementation level via the Consulting Partners who meet on an annual basis to recommend action to be adopted by the Steering Committee on the basis of agreed strategic direction and policies. The meetings are open to observers for information exchange and discussions. The Consulting Partners also have a governance responsibility for oversight of financial statements and annual report of the Steering Committee (GWP Partners, GWP Website n.d.).

The complex management and participatory frameworks also form part of the process of knowledge formation and transmission that generates and enforces normative notions of IWRM promoted by the GWP. The Regional Representatives have an additional function to share knowledge across national boundaries incorporating a broad spectrum of stakeholders. The knowledge sharing has the objective of finding solutions adapted to local conditions and informed by local experiences. The regional representatives and partners work closely with the Technical Advisory Committee (TAC), which is tasked with bringing together “both local and traditional knowledge in giving technical advice” and generating policy consistency (About GWP, GWP Website n.d.). A team of twelve, members of the TAC have international credentials and offer “greater technical capacity and intellectual capital” to support the GWP’s IWRM network (About GWP, GWP Website n.d.). The TAC occupies an influential position within the GWP and IWRM network and gains legitimacy through knowledge credentials that add status, prestige and authority to inform policy (Stone 2002: 3). Nested within the GWP itself, the TAC has privileged access to decision-making power, particularly in relation to their role within strategic dialogue between financial partners to the GWP, including the World Bank, the UNDP, the European Commission and international development agencies. Beyond their power to inform ideas and normative frameworks, they also have the power to establish the formal and informal “working rules” of the GWP’s IWRM Policy Network.

The GWP’s IWRM policy network mobilises information, social influence and resources toward the goals in a highly differentiated manner (Ansell 2006: 76). Internal mechanisms to condition formal rules and a normative framework within the IWRM network are augmented by inter-governmental agreements including those reached at successive forums and summits. The participatory processes, policy papers and international agreements have established a normative framework for thinking about and implementing IWRM, a framework that permeates much of the literature discussing IWRM – including critiques and suggested improvements. Supported by the resources of the GWP, the GWP’s IWRM network has both the capacity to project its version of IWRM and the power to facilitate dialogues that, in the GWP’s own words, “[result(s)]

in changes to policies, laws, and institutions” (‘Distinctives’, About GWP, GWP Website n.d.). These changes feed back into the global policy network itself, reinforcing certain norms and policy prescriptions.

The combination of rules, norms and resources contributes to stable patterns of behavior between network members that characterize IWRM as an institution rather than an organisation (Ansell 2000: 75). The normative order establishes a degree of predictability and continuity despite the inevitability of change (Heclo 2000: 736). The IWRM’s present and future institutional properties carry residual characteristics of the past via the evolutionary transformation of origins throughout processes of institutional formation and change.

As the policy network has evolved, it has acquired the characteristics of an institution, including a mixture of formal and informal constraints and enforcement characteristics (North, 1994: 1). The network also conforms to Ansell’s (2006) typology of a network institution, which is based on the satisfaction of four meta principles: the relational perspective; complexity; the existence of resources and constraints; and mobilization informed by institutional bias (Ansell 2006: 76). As Ansell (2000: 75) describes, no single model of a network exists, but network institutions do share these four characteristics. In its modern institutional incarnation, the GWP’s IWRM network is inextricably entwined with the executive organisation of the GWP (GWPO), but also has formal structures and emergent properties, that extend beyond its connection with the GWPO.

Situating the analysis of IWRM within an institutional framework departs from the instrumental policy critiques that are dominant within the literature. Understanding IWRM as a network institution enables us to adopt a view that systematizes networks of power and influence and regard how they interact with structures. The material realities inform how practice shapes the ideas and, dialectically, these ideas shape material realities in a continuous interplay of structure and agency. Thus, IWRM cannot be regarded as a static entity rooted in historical determinism. Rather, it is shaped and reshaped by actors who respond to the “dynamics and rigidities” of the structures “(Drainville 1994 cited in Apeldoorn, Overbeek & Ryner 2001: 38). The shaping and reshaping of IWRM is subject to a parallel process. First, to establish IWRM as the dominant paradigm at the expense of alternative knowledge and practices related to basin-level or ‘commons’ water management. Second, the struggle enacted by different social forces to define IWRM. Each process is ideologically driven and privileges some perspective or approaches towards water management over others.

By establishing that the GWP’s IWRM network as an institution we are also able to refer to the coherence of the ideas put forward by the GWP’s IWRM network, not as a solitary notion within a disparate abstract debate, but as a compendium of ideas that interacts with structures and thus has material force. Its institutional form opens up new avenues for analysis, particularly

how certain ideas are reflected within and shape the institutional order. The next chapter explores the proposition that New Institutional Economics, particularly the school of Rational Choice Institutionalism informs the design and rationale within IWRM.

Chapter 2. IWRM: An Ostromian tilt?

This chapter explores some of the basic assumptions, main themes and philosophies that frame the institutional design and perspective of the GWP's IWRM. This paper proposes that the institutional perspectives of the IWRM network are inspired by ideas emanating from leading figures within New Institutional Economics (NIE), particularly the perspectives of Elinor Ostrom and her Nobel laureate contemporaries, Douglass North and Oliver Williamson, who are situated within the Rational Choice (RCI) school of NIE. NIE emerged as an important development philosophy during the phase that the GWP was established. The paper commences with an explanation of key ideas within NIE and an exploration of Ostrom's key principles. This is followed by identifying the relationship between Ostrom's work and the guiding principles, policies and institutional design of the GWP's IWRM network.

According to the GWP's Technical Advisory Committee, "institutional development is critical to the formulation and implementation of IWRM policies and programmes" (TAC 4, 2000: 44). The focus on the institutional structure and processes of IWRM is an attempt to explain and facilitate the achievement of the GWP's three headline goals: equity, efficiency and sustainability. This is reflected in the TAC's (2000) policy paper, which states that:

"...[I]nstitutional development is not simply about the creation of formally constituted organisations ... it also involves consideration of a whole range of formal rules and regulations, customs and practices, ideas and information and interest or community group networks, which together provide the institutional framework or context within which water management actors and other decision-makers operate" (TAC 4, 2000: 45).

The link between the GWP's IWRM and RCI understanding of rules and incentives relates to a deeper engagement with the philosophy of NIE. Ostrom and North share a perspective of institutions as "the rules of the game", comprising formal and informal rules, norms and behaviours that govern and structure individual behaviour and social interaction (North 1991, Ostrom 1990: 23). According to this logic, the problem and solution to environmental degradation can be found in the absence (or presence) of incentives and rules.

Within the RCI perspective, institutions are a critical constraint on economic performance (Harris, Hunter & Lewis 1995: 3). Although the economic rationale that informs RCI is drawn from neo-classical economics, the key departure is the inclusion of transaction costs within the model. The departure is informed by the seminal works of Ronald Coase: 'The Nature of the Firm' (1937) and 'The Problem of Social Cost' (1960), which demonstrated that the firm was not an abstract economic actor but had an important administrative role in the market (North 1995: 18-19). The neo-classical model is based on the market as the only medium of exchange, with costs of acquiring information, uncertainty and transactions considered exogenous (Harris, Hunter & Lewis

1995: 8). In accordance with Coase's findings, however, the efficient market model of neoclassical economics only held when it is cost neutral to transact, in all other instances "institutions matter" (North 1995: 18). Given that a large section of the economy is directed towards management of transaction costs, proponents of NIE conclude that regulative institutions complement the functioning of the market, providing an effective coordination mechanism to drive improved practices and outcomes (North 1995: 18-19).

Inspired by the work of Coase, Williamson's work on Transaction Cost Economics (TCE), for example, is concerned with the allocation of economic activities "across alternate modes of organisation" including the firm and markets (Williamson 2005: 41). His work departs from neoclassical economics and its reliance on marginalism, price and output, and the consideration of the firm as a "production function" (Williamson 2005: 41). Within this construct, the vertical hierarchy of firms and intra-firm trade is compared to the horizontal nature of the market (Harris, Hunter Lewis 1995: 3). Williamson notes that in situations where the asset is more suitable to simple market exchange, the neoclassical economic construct is more useful (Williamson 2005: 41). On the other hand, when transaction costs are high, the activities are more likely to be handled by the firm or other non-market organisations (Toye 1995: 63). A useful application of TCE is within the situation of natural monopolies where the market-based approach often proves problematic. Rather than a simple bidding process as per a market mechanism approach, TCE emphasises the contract implementation phase. A simple example is to require significant investments in assets that are vulnerable to market and technological uncertainty (Williamson 2005: 57).

As North (1995) explained, the inclusion of transaction costs is one way that NIE offers alternative insights to "what have otherwise remained as puzzles in neo-classical theory" (Harris, Hunter & Lewis 1995: 1). North proposed an alternative to instrumental rationality within neo-classical economics, which assumes that individual agents will select the most efficient means of maximising their utility in a given situation (North 1995: 18). In its place, North (1995) proposed the notion of "bounded rationality" whereby individuals make rational decisions with the information available to them at the time and in accordance with their own mental models. The mental models are culturally-infused value and belief systems that orient the behaviour and perception of the boundedly rational individual. Given the diversity of value and belief systems, the mental models vary radically (North 1995: 18). The consequence of accepting multiple models rather than a universal rationality is that this presumes multiple rather than single equilibria (North 1990: 37, North 1995: 18). The notion of the boundedly rational individual thus offers a perplexing ideational variable that enriches the empirical models of Ostrom and fellow RCI theorists (Aligica & Boettke 2009: 114-5).

The notion of bounded rationality contributes one explanation for why an identical institution may thrive in one context and falter in another. Simply, individuals respond to different incentives and constraints according to the

conditions of their bounded rationality and mental models. The nature of enquiry, therefore, is not only the way that a boundedly rational individual responds to incentives, but also how those incentives are represented (Aligica & Boettke 2009: 114). The mental models have particular relevance to North's analysis of formal and informal institutions. North argues that formal institutional models developed in one area and supplanted in another will yield very different results due to the way the rules interplay with socio-political specificities of the local context. (North 1995: 25). Rather, one must pay attention to the interplay of formal institutions such as property rights, and informal institutions such as the norms that respect contractual obligations and thus legitimise the property rights. The mental model is thus conceived as having both an opportunistic and cooperative nature, with institutions and other cooperative arrangements representing the attempt to promote the positive benefits of cooperation and curb opportunistic behavior, or direct such behavior in a way that minimizes negative externalities (Harris, Hunter & Lewis, 1995: 3).

Ostrom's (1990) research on common property resource dilemmas offered an alternative contribution to systems of governance. In "Governing the Commons", Ostrom empirically tests three models which, at the time, dominated public policy prescriptions for common property resource dilemmas: Hardin's Tragedy of the Commons, The Prisoner's Dilemma and Olson's Logic of Collective Action.

The first, Hardin's (1968) "Tragedy of the Commons" described the expected degradation of environmental resources when shared as a "commons", which results from the lack of incentive for individual common pool users to restrict their behaviour for the benefit of the collective. In Hardin's pastures, an individual user benefits solely and directly from overgrazing, but only proportionately shares the costs of over exploitation with the whole group. Thus, the individual has little incentive to modify their behaviour for the benefit of the group (Ostrom 1990: 7-10). The second model, the "Prisoner's Dilemma", found that individuals derive greater benefit from defection; however, when all 'players' defect they produce an equilibrium result that is "third best" (Ostrom 1990: 5). The final model, Olson's (1965) "Logic of Collective Action" advanced the free rider argument, stating that without coercion or "some other special device" there is little incentive to voluntarily contribute to provision of a collective good if the person is not otherwise excluded from obtaining the benefits of that good (Ostrom 1990: 6). In its own way, each dilemma demonstrates that "individual rational strategies lead to collectively irrational outcomes" (Ostrom 1990: 5).

Ostrom argued that the models were not necessarily wrong, but rather that the circumstances where the models' assumptions held were "particular" (Ostrom 1990 :12). Ostrom demonstrated that all three models applied only when the individuals' trust, capacity to communicate, or ability to enter into binding agreements was low. The 'tragedy' in each scenario is also characterised by lack of monitoring arrangements or enforcement mechanisms (Ostrom 2000: 10-12). Ostrom's dismantling of the universal applicability of Olson's

case is perhaps more significant to Hardin's tragedy. Ostrom's contribution demonstrated through empirical research that, in fact, many groups *did* collectively derive solutions to manage the commons resources. With reference to real world scenarios, Ostrom showed that while commons arrangements sometimes fail, this is not always the case (Ostrom 1990: 216; Ostrom interview, cited in Sharing Power website: 2011b). The power and danger of the three models, according to Ostrom, lie in their metaphoric value, particularly when, in a public policy setting, the assumptions may go unchallenged (Ostrom 1990: 6).

The compelling feature of Ostrom's empirical work is her resistance of stylized solutions in favour of complexity, which forms the centre of her diagnosis and problem solving. In dismantling the logic presented by Hardin, Olson and the Prisoner's Dilemma, Ostrom succeeded in problematizing the policy prescriptions that each dilemma logically inferred – either the imposition of full property rights or centralized regulation (Ostrom 1990: 8-12, 14). Ostrom demonstrated the significance of a third type of property ownership which was “neither privately or state controlled, but based on common ownership”(Ostrom 2011b). By doing so, she alerted her contemporaries to a misdiagnosis of commons resources within economic literature. Commons, in this conception, did not entail the “absence of property rights but are often based on carefully constructed rules for the management of the resource” (Ostrom 2011b). Her analysis details a number of local, voluntary and community arrangements where users of common resources have initiated enduring institutional arrangements that managed commons property and achieved sustainable resource management. In most cases this was achieved without government or market intervention (Ostrom 1990: 215-6; Ostrom 2011b).

Thus shown, Ostrom turned her interdisciplinary and empirical approach to understand the conditions for development of contingent self-commitment among common pool users (Ostrom 1990: 15-17). These conditions are characterised by the eight “design principles” elaborated in the next section of this chapter. The rules adumbrate Ostrom's response to her own research question: “[H]ow can a group of principals who are in an interdependent situation organize and govern themselves to obtain continuing joint benefits when all face temptations to free-ride, shirk, or otherwise act opportunistically?” (Ostrom 1990: 90). The principles are defined as follows:

1. Clearly defined boundaries
2. Congruence between appropriation and provision rules and local conditions.
3. Collective choice arrangements
4. Monitoring
5. Graduated sanctions
6. Conflict resolution mechanisms
7. Minimal recognition of rights to organize
8. Nested enterprises (*For CPRS that are parts of larger systems*)

To better understand how these principles function, this section will briefly examine each in turn.

The principles relate to the congruence between North and Ostrom's understanding of and enquiry into the rules and norms that structure patterns of interaction, and the relationship of the boundedly rational individual to those rules. Ostrom's boundedly rational individual makes decisions based on what she terms a "universal rational framework" comprising four internal variables – "expected benefits, expected costs, internal norms and discount rates" (Ostrom 1990: 37). Although the calculus remains utility-seeking, the individuals in Ostrom's construct are entirely "individually subjective and forward looking" (Aligica & Boettke 2009: 109). This calculus is shaped by the mental model of the individual, which is shaped in turn by the shared norms of others within the particular situation (Ostrom 1990: 37). In her later work on institutional diversity, Ostrom asserts that there are underlying components within markets and hierarchies that constitute "elemental parts of multiple, complementary theories that explain regularities in human behaviour across diverse and complex situations" (Ostrom 2005b: 820). Employing game theoretic constructs, she argued that the universal rational framework is composed of "nested sets of components within components for explaining human behaviour" (Ostrom 2005a: 7).

Individual rationality was only one source of multiple equilibria within Ostrom's institutional model of common resource management. Ostrom demonstrated a plethora of variables that added layers of complexity to theory building and analysis (Ostrom et al. 2002: 25). The existence of multiple variables informs Ostrom's emphasis on "design challenges" rather than institutional attributes "such as the type of property rights they establish" in reaching outcomes (Ostrom et al: 25). For this reason, Ostrom omits including property rights as a principle requisite in favour of the more flexible principle of "clearly defined boundaries" (Principle 1).

Although Ostrom's work is in dialogue with Coase and Williamson, the study of the human condition implicit in Ostrom's work marks a departure from the formalism of Coase. Ostrom's study splits in two directions, the first being the context which Ostrom defines as the material and physical conditions, community attributes and existing sets of rules. The second is the study of the action arena, which generates incentives that create a pattern of social interactions that either conflict with or reinforce the context (Aligica 2009: 112-113). The approach is characteristic of Giddens' (1984) structuration where structure and agency are considered as two sides of the coin, although no direct reference is made by Ostrom (Giddens 1984: 75 cited in Bieler & Morton, 2001: 7). By implication, Ostrom's approach is concerned primarily with the role of human agency to shape the institutional constructs they inhabit (Ostrom 1990: 216). By extension, they are also "the medium of its constitution" (Giddens 1984: 75 cited in Bieler & Morton, 2001: 7). This perspective underpins Principles 2, 3, 4, 5 and 6, which all link to the need for individuals to work collectively to establish the rules of the game and devise solutions

within and appropriate to their domain. Central to Ostrom's proposition is that "choice" is the fundamental element for "both humans and the social world they create" and is thus the source of social order and change (Aligica & Boettke 2009: 56). Ostrom's notion of choice is a philosophical point, not related to rational choice paradigm. Rather, it refers to the capacity to consider and select from alternative possibilities (Aligica & Boettke 2009: 56).

Principle 7 requires that the state, at a minimum, recognises the rights of the community to organise. This principle reveals the liberal values inherent to Ostrom's conception of the individual within society. Ostrom's individuals resolve their dilemmas through their own gumption and coordination, or via recourse to institutions within the state apparatus such as courts and local or legislative authorities (Ostrom 1990: 216). Ostrom demonstrates through empirical data that the individual is more likely to shirk responsibility or free-ride if governments intervene and disrupt the pattern of common pool management arrangements (Ostrom 1990: 49). But Ostrom also takes the matter of the state one step further by unpacking the analytical construct of "the state", critiquing writers such as Rolph (1983) who refer to the government as an amorphous, omniscient entity (Ostrom 1990: 216). Ostrom exposes the state as comprised of hierarchical, nested layers of governance – much the same way as Williamson opened up the 'black box' of the firm.

Reflecting back on the three commons scenarios outlined earlier – Hardin, Olsen & The Prisoner's Dilemma – Ostrom rejects the idea that individuals cannot coordinate to resolve common property dilemmas without third-party intervention. Ostrom also asserts that individuals are capable of long-term coordination, adjusting the rules, norms and strategies to changing conditions. Rather than imposing an external solution, Ostrom argued that attention should be paid to the local or community-based rules and norms and, where applicable, the locally-derived common property institution. Ostrom found that working with local institutions had the potential to reduce monitoring and enforcement costs (Principle 4), and ensuring the equitable allocation and appropriation of the common property resource (Ostrom 1990: 216).

The final principle relates to Ostrom's work on nested institutional layers. The model grew out of the findings of Ostrom's (1965, 1972) early work on metropolitan governance. The research challenged the assumption that increased scale delivered efficiency gains within public economies. The economic logic assumed that removing duplication of functions could increase efficiency. Ostrom found, however, that the reverse was the case. Ostrom drew inspiration from the market economy where efficiency was enhanced by multiple firms operating in the same market (Ostrom 1965: 3, cited in Aligica & Boettke 2009: 13). With empirical data, she showed that similar dynamics apply within public economies. Her mode of enquiry challenged the top-down, centralized and technocratic perspective on public administration (Aligica & Boettke 2009: 11). Ostrom found that efficiency in public economies could be enhanced by inter-organisational arrangements that created multiple centres of power at different scales. This had the effect of diffusing opportunities for misallocation of

authority and outcomes and evoked self-regulating tendencies (Ostrom 1998, cited in Aligica & Boettke 2009: 23). Instead of a command structure, Ostrom recommended a polycentric system with multiple centres of decision making (V. Ostrom 1972, cited in Aligica & Boettke 2009: 19).

Ostrom's work inspired an explosion of new scholarship on common property institutions and common pool resources. The new scholarship reinforced Ostrom's findings that privatization or state control is not the only alternatives for management of common property resources and shifted the focus of existing scholarship on common pool resources towards the analytical and structural elements of commons management (Argawal 2002: 42). The scholarship inspired an Ostromian vanguard that asserted the role of community in the management of the commons, a message that has permeated contemporary efforts to conserve environmental resources (Argawal 2002: 42).

This section begins with an examination of the philosophy that informs the guiding principles of the GWP's IWRM – efficiency, equity and sustainability – which are reformulated as key goals drawn from the Dublin-Rio Principles of 1992. The paper then turns to a consideration of the policies proposed by the IWRM network institution via the Technical Advisory Committee (TAC). A close reading of the Technical Advisory Committee (TAC) papers will show linkages with key tenets of NIE, drawing selectively from Rational Choice Institutionalism to resolve distribution and efficiency issues within water resource management.

The main concern of the TAC papers is institutional development, which is described as “critical to the formulation and implementation of IWRM policies and programs” (TAC 4, 2000: 30). At the centre of the institutional perspective is methodological individualism. The individual within the GWP's IWRM construct is a utility-maximising *homo economicus*, a rational agent who is “self-seeking and opportunistic” (TAC 7, 2003: 8). This key assumption informs the prescribed governance arrangements to achieve the three key goals of the IWRM framework – efficiency, equity and sustainability.

Ostrom recommended that institutional performance be measured according to “multiple evaluative criteria including efficiency, sustainability and equity”. In practice, Ostrom argued, the institution will exhibit preferences among the goals as it is difficult to realise each goal in equal measure. In her estimation, “efficiency usually dominates” (Ostrom, Dietz, Dolsak, Stern, Stonich & Weber 2002: 25). Not only do Ostrom's measures of institutional performance reflect the three main goals of the GWP's IWRM, but her assertion is borne out by the content of international agreements and the emphasis within the Technical Advisory Committee (TAC) publications. While there has been a stream of publications that assiduously grapple with concepts of economic efficiency, the first specific paper on equity was not released until 2011. Sustainability is yet to be properly defined despite the release of a TAC paper on water management and ecosystems in 2003 (TAC 9, 2003).

Early publications of the TAC suggest that economic efficiency and equity were considered fundamentally synonymous. Baldly, the argument was that the vast needs of the poorest could only be met by the development of efficient systems. In economic terms efficiency refers to the notion of scarcity, such that the water is distributed in an effective manner for the greatest number of beneficiaries. The first three TAC papers are devoted to shaping the scarcity argument in relation to water. The IWRM model based on the presumption of scarcity is distinguished from supply side models, which were based on the assumption of abundance. These models were considered synonymous with bureaucratic allocation and subsidized provision (Lloyd, McCarron & Stacey 2005: 39). The adoption of efficiency measures that emphasized market-based allocation and full-cost pricing resonated with the NIE approach (Saleth & Dinar 2004: 9, Watson 1998: 228).

Economic efficiency remains at the heart of the pursuit of social equity and sustainability within IWRM. In the TAC's 15th publication (2011), equity was couched within a "holistic" approach targeted at people "in all their dimensions and not just as water issues" (TAC 15, 2011: 9). The holistic approach requires a full consideration of the Total Economic Value of water comprised of multiple values: its direct and indirect use value, use value by social goals (such as achieving the Millenium Development Goals), optional use value and non-use value (TAC 15, 2011: 13). In determining an equitable outcome, the TAC proposes that the totality of benefits generated by water usage be considered – including direct and indirect such as the benefits derived from the productive value of water (TAC 15, 2011: 24-25). Like equity, sustainability is largely dealt with as a complementary concept to efficiency. Where the issue of sustainability *is* raised, it is in relation to the incompatibility of socio-economic development and sustainability objectives, resolving that "human security involves landscape modifications" (TAC 9, 2003: 12). Beyond that, sustainability considerations are inferred rather than directly addressed by reference to the long-term planning horizons that suggests sustainability considerations should be taken into account (TAC 9, 200X: 8; (Lloyd, McCarron & Stacey 2005: 35).

The first few papers released by the TAC reflect a more general engagement with notions familiar to NIE, particularly rational choice institutionalism. Ostrom's scholarship has become increasingly embedded in the GWP's IWRM framework, however, as the emphasis of the TAC's papers turned to governance arrangements for the basin-level institutions that manage and monitor common pool resources (TAC 4, 2000). Ostrom's concepts resonate in the TAC's emphasis on participatory processes and distributive governance, which focus on building conditions for self-organisation and governance, and institutional diversity. The institutional development described in the GWP's IWRM (2000) paper conceptually resembles Ostrom's eight design principles for stable local common pool resource management. Through implementation and advice, the GWP's IWRM has put these principles in dialogue with the realities of

the GWP's IWRM praxis as well as views of her contemporaries, including North and Williamson.

The next section of this chapter considers how Ostrom's ideas relate to the design of the IWRM framework. Consistent with Ostrom's first principle, the task to establish clearly defined boundaries is the subject of the first three TAC papers (1998a, 1998b, 1999), which explore the diversity of property regimes and institutional frameworks from full property rights to centralized regulation as well as hybrid property and management entities that fit between the two poles (TAC 1998a; TAC 2000: 59). The framework proposed in TAC 1 (1998) structures strategic interaction of actors within the market and provides information and enforcement mechanisms to reduce transaction costs, discourage rent seeking and ameliorate negative externalities (Hall & Taylor 1996: 12; TAC 1 1998: 4, 6). The first paper draws inspiration from Williamson's work on Transaction Cost Economics in relation to the deregulation of natural monopolies. Part of the contract implementation phase is explored within what the paper terms "effective regulatory regimes" that comprise four distinct elements: the general framework of laws; water allocation and protection mechanisms; water and sanitation regulation (including enabling legislation for private sector participation); and individual contracts or licenses (under which companies can operate) (Williamson 2005: 57). The assumption is that market mechanisms will be shaped by governance strategies that ensure that sufficient attention is paid to potential investment and contractual hazards (Williamson 2005: 57). In Williamson's terms this means identifying potential problems and incorporating them into the "design calculus" (Williamson 2005: 57).

The linkages between Transaction Cost Economics and deregulation of public water assets were complemented by the TAC's second paper, which described price and market signals relevant to market mechanisms. This reflected the key assumptions of NIE: that such signals would deliver economic efficiency and environmental sustainability (TAC 2 1998: 31). The paper encourages the deployment of price calculation and assignment of rights to regulate allocation and demand for water. The interaction of the Transaction Cost Economics' design calculus and market mechanisms is referred to among successive Technical Committee papers. According to the TAC's Paper 7, "Effective Water Governance", for example, IWRM "demands a new framework within which there may be a need for significant changes in interactions between politics, laws, regulations, institutions, civil society and the consumer-voter" (TAC 7 2003: 5).

The TAC's (2000) paper focuses on participatory approaches that establish the rules of the game. For this purpose, the GWP's IWRM strategy attempts to incorporate the views and needs of *all* users into the decision-making framework (Soussan & Harrison 2000: 2; TAC 4, 2000: 28, 36). The role of participatory processes is a central element of the GWP's IWRM strategy and flows through the achievement of most of Ostrom's principles. The management of participatory processes is carefully addressed within the TAC's papers with advisory papers focused on aspects such as negotiating conflicting agendas and

ensuring that all voices are heard (TAC 4 2000: 48, 56). Subsequent papers explore the role of heterogeneity among users and criteria for determining the relative weight of influence over matters of water rights, land ownerships and usage (TAC 15, 2011: 37). As a key mechanism to establish the rules of the game, participation relates not only to rules, but to how the community can modify those rules (Principle 3), monitoring, accountability and enforcement arrangements (Principle 4 & 5), and the resolution of conflict as part of the participatory process (Principle 6).

Ostrom's third principle relates to the ability of individuals to modify operational rules. This aspect is facilitated by participatory processes, which allow a diverse range of resource users to reach agreement regarding institutional rules but also to participate in the ongoing management and evolution of the institution. The ability to modify the rules is specifically referred to in the conclusion of TAC 10 (2004), which states that all countries who have implemented IWRM processes in governance systems should also build in regular review processes to ensure flexibility to respond to new or additional issues that have arisen since the first agreement was struck (TAC 10, 2004: 33). Although it is referred to, this criterion is not explored at length. An aspect explored in more detail is the use of awareness raising, capacity building and education to modify individual preferences. The TAC 7 paper on governance recommends this strategy to avoid "voter ignorance and imperfect information" and an "imprecise reflection of consumer preferences" (TAC 7, 2003: 39).

Participatory processes also relate to Ostrom's fourth and fifth principles regarding monitoring and accountability arrangements and graduated sanctions for violation of community rules. The process engages the community stakeholders as co-designers of their institutional model. The blueprint recommended by the TAC (2011) includes ensuring an allocation of functions within the organisation that diffuses power, separating the conflict resolution roles from decision-making in order to create "neutral forums for appeal" (TAC 15, 2011: 37). Further, the paper advises that accountability measures be integral to the common property institution structure (TAC 15, 2011: 37).

A number of Ostrom's principles are addressed through description and TAC advice related to "distributive governance" (TAC 2003: 7). Distributive governance takes account of authority exercised through formal and informal institutions, and asserts that IWRM functions need to be identified and designated "according to their lowest level of implementation; at each implementation level the relevant stakeholders need to be identified and mobilized" (TAC 2000: 29; TAC 2003: 7). The emphasis on self-organisation and self-governance is offered as an alternative to command-and-control regulation, which can be both costly to administer and ineffective (Ostrom 1990: 183; TAC 2000: 65). According to the TAC 4 (2000) paper, coordination mechanisms are the purview of high-level policy, while implementation should be the domain of community and private corporate institutions best able to realise the benefits of independent decision-making and economies of scale (TAC 4 2000: 39). This perspective is elaborated in a later paper released by the TAC (2003)

which states that there are a plethora of local institutions with capacity to “administer the rules and police water use and users in a water system” (TAC 7 2003: 21).

In relation to Ostrom’s Principle 6, the TAC proposes to diffuse or prevent conflict through participatory processes that build consensus around rules and norms; where conflict arises, the TAC also advises on mechanisms to resolve conflict emerging from the common property institution. For both cases, the GWP’s IWRM network has developed conflict management tools for practitioners. Conflict, according to the TEC (2000) document, rests on the inability of markets to fully capture the value of water and thus coordinate allocation according to its highest value uses and users (TEC 4 2000: 56). This has roots within historical arrangements and intrinsic value of the resource. The processes of determining water’s value, therefore, rest on the participatory decision-making processes, which can anticipate and resolve latent or existing conflict. Where conflicts are between upstream and downstream users the TAC recommends political negotiations or involvement of judiciary with government given default jurisdiction for conflict adjudication (TEC 4 2000: 56-57). Finally, in accordance with the Ostromian idea of polycentricity, conflict is resolved at the appropriate layer – first within local-level institutions nested in multiple governance layers to help ensure its cost-effectiveness and accessibility.

Finally, the local or appropriate-to-scale-based focus of the institutional arrangements adheres to Ostrom’s observation that top-down strategies are often an impediment to collective group function and may provide incentives to act opportunistically or blur boundaries of responsibility (Ostrom 1990: 36, TAC 4 2000: 46). The TAC (2000) recommends layers of nested sub-national governance organisations which have regulatory functions to ensure local service providers fulfil their responsibilities. Inspired by Ostrom’s Principles 7 and 8, larger common pool resources are supported by the creation of community based organisations that may be democratically elected and representative (TAC 4 2000: 46). In addition, the TAC 4 (2000) paper explores the appropriate linkages between formal levels of government with end user associations in order to manage the relationship (TAC 4, 2000: 39-40). The paper argues the institutional arrangements should be autonomous to the public sector, although sometimes sitting within it and functioning to coordinate and reduce conflict.

Reflecting back on the evolving design of the IWRM institution elucidated in Chapter 1, the institutional design of the IWRM network also exhibits key features that resemble Ostrom’s eight principles for the design of commons property institutions. Consistent with Ostrom’s definition, institutional knowledge is a form of ‘commons’ jointly used and managed by all users within the network, and both informs and is informed by the design of the IWRM network institution. First, participatory processes and an international and network level have established the rules of the game and set boundaries on behaviour and expectations of the partners to the network. Ongoing processes of consultation, strategic review and discussion throughout the nested levels of

the institution parties to the institution can modify institutional rules, such that learning processes are fed back into the rules and norms of the IWRM institution – such processes form part of donor conditionality (IEP 2010: xxii). The processes of review, discussion and rule formation forms part of the monitoring, sanctions and conflict resolution mechanisms. The recognition of national governments is afforded by international agreements and their partnership to the network itself, which requires an acknowledgement and legitimation of the work of the IWRM institution. Finally, the design of the institution itself embraces the polycentricity that is central to Ostrom’s institutional design. As described in Chapter 1, the institution comprises a series of nested layers at a local, national, regional and international level with intersecting layers based on specialist knowledge, for example governance, engineering, finance, conflict resolution, capacity building specialist networks within the IWRM institution. Following the GWP’s program review in 2008, more funding is being redirected from the central organisation towards the organisational capillaries to strengthen these nested components (IEP 2010: xxiii). Not only, therefore, is the implementation inspired by an Ostromian logic, but this logic is infused at the institutional level of IWRM.

Ostrom’s research is cited as “support to our [the GWP’s] continuing efforts to increase vulnerable people’s possibilities to participate in decision making processes” (“Water aid can solve the crisis”: News & Activities, GWP 2011). This chapter has examined the themes, philosophy and assumptions that underpins the GWP’s IWRM and demonstrated that the institutional design and perspectives are informed by a particular school within NIE, Rational Choice Institutionalism, with a particular tilt towards an Ostromian logic. This logic is selectively infused within the implementation strategies of the GWP’s IWRM global policy network, and permeate the design of the global policy network itself. The implementation goals and design of the GWP’s IWRM network are informed by key tenets of Rational Choice Institutionalism (RCI) and, in particular, Ostrom’s scholarship on the creation of institutions to facilitate collective action.

Throughout the evolution of IWRM, the institution and framework are mutually conditioned. In this manner, the structure defines the prevailing norms and shapes the ways people think of themselves in relation to the norms; this cognitive shaping then informs the way agents perceive and relate to the structure (Watson 2005: 183). Thus, just as an Ostromian logic has been increasingly (but not yet totally embedded) within the IWRM framework, so too the expectations of partners to the network and proposed strategies for institutional reform of the IWRM network have been characteristically Ostromian. Here “Ostromian” is held to mean a partial engagement with the ideas derived from Ostrom’s empirical work on common property resource management, fused with other concepts within the RCI school, including North and Williamson. Now that the connection between Ostrom’s work and IWRM has been established, this paper will consider the implications of this connection for the implementation of the IWRM framework.

Chapter 3 – A comparative analysis of IWRM

The previous chapters have established a connection between Ostrom's ideas and IWRM at the institutional and implementation level. The previous chapter found that while the GWP's IWRM has increasingly engaged with Ostrom's work, the TAC have not yet fully embraced her empirically-based findings and social philosophy, nor their consequences. This section will examine the implications of a partial engagement with Ostrom's ideas within the GWP's IWRM institution and framework. This is discussed in relation to three central features that inform Ostrom's eight design principles: rule setting; participatory processes and polycentric governance arrangements; and assumptions of human behaviour. In doing so, the paper aims to arrive at an alternative insight to why IWRM may prove difficult to operationalize. These aspects are then explored via a neo-Polanyian analysis, which offers alternative insights that augment or challenge the propositions and analysis afforded by an Ostromian lens.

Careful assessment of the policy and practice of IWRM shows that certain aspects of Ostrom's work have been elaborated, while other aspects have been ignored. As Chapter 2 explored, the practical implementation of IWRM selectively engages with Ostrom's eight principles for effective common property resource management. This is reflected in the vacillation between programs inspired by the ideas of Coase and Williamson, and principles familiar to Ostrom. At a superficial level, this appears unproblematic. In fact, Ostrom (1990) credits both theorists for "substantially adding to (her) understanding of how institutions work". The two theorists, however, have significant differences in their method and ontology. Fundamentally, this includes Ostrom's understanding of the market as an "intermeshed" institution with its own set of rules and norms, rather than as a rarified domain as argued by Coase and Williamson (Ostrom 1990: 15). Ostrom's approach leaves room for a continuity of analysis between the market and the underlying public institutions that support it (Ostrom 1990: 15). Although she does not abandon utilitarianism, Ostrom's appraisal resonates with Polanyi's notion that individuals may not be compelled by economizing actions (Stanfield 1980: 596-7). As Ostrom observes, common property institutions are rarely driven towards efficiency as the major objective; rather, such a focus may be "exactly the strategy that will destroy the common property resource, leaving everyone worse off" (Ostrom 1990: 207).

The GWP IWRM's continued adherence to particular readings of Coase and Williamson's theoretical approach reflects a continued penchant for the formalism of a generation of neoclassical scholars including Hayek, Knight, Viner and Wicksell (Aligica & Boettke 2009: 112). The formalism is problematic because it ignores ideas that cannot be translated into formal models (Aligica & Boettke 2009: 112). The rigidity of formalism is at odds with Ostrom's approach, which attempts to fuse social theory with economics. The subordination of equity and sustainability to efficiency goals reflects the emphasis on activities and goals that can be more easily modeled and benchmarked (TAC 15:

2011, TAC 8: 2003). The considerable emphasis on efficiency may render contextual observations inaccurate or blinker the consideration of alternative forms of being and organizing that inform IWRM policy prescriptions. In practice, the focus on economic efficiency undermines the interlocking polycentric governance arrangements and participatory processes.

Despite participatory processes being a vibrant part of the IWRM institution and framework, inaccurate assumptions, observations and conclusions may lead to the deployment of IWRM rules and norms that are fundamentally incongruent with local conditions. The deeper contextual orientation offered by an Ostromian perspective would require IWRM to jettison relics of formalism. In accordance with Ostrom's logic, efforts to develop "congruence between appropriation and provision rules and local conditions" could also reduce or prevent conflict downstream and strengthen accountability, monitoring and compliance measures (Ostrom 1990: 92). This process is necessarily complex. Local norms and conditions that apply in one community may vary in a neighbouring area. Given the interdependencies of Ostrom's eight principles, this also means that a failure to get this right may result in other arrangements being based on a misreading of the local context.

Distributive governance arrangements within IWRM emulate aspects of Ostrom's polycentric governance systems, but are infused with the persistence of economistic conceptions. Ostrom (2005) emphasized the multiplicity of institutional arrangements that can respond to a diverse array of repetitive and structured interactions (Ostrom 2005: 3). Ostrom's version of rationality rests within interlocking layers of nested units that comprise the structure. Thus, what appears as a whole system is an incomplete unit of another system (Ostrom 2005: 11). The nested units form a series of conceptual maps that provide "an explanatory space" to derive an understanding of the diverse patterns of human behaviour (Ostrom 2005: 8). Understanding contextual variables, therefore, requires theoretical concepts to be matched to the appropriate level of governance. Ostrom (2005) warns that the concepts required to comprehend "phenomena at one level do not necessarily scale up or down" (Ostrom 2005: 12). This perspective resists the universal assumptions of human motivation and opens a pathway to consider aspects of cooperation, trust and reciprocity. While this understanding remains incomplete, what we do know is that endeavours to establish rules and incentives based on fallacious "universal" behaviours will be effective only under specific conditions, not all.

The strength of the polycentric governance system, according to Ostrom, is the redundancies that are built into the system, which create opportunities for individuals to "innovate and intervene so as to correct maldistributions of authority and outcomes" (Ostrom cited in Aligica & Boettke 2009: 23, 157). The polycentric order pursued by the IWRM matches the polycentricity of the market, where order is generated through mutual adjustment processes at varying scales (Aligica & Boettke 2009: 25). Following the logic that the market is an institution supported by public institutions, polycentric governance arrangements of IWRM are a natural and essential addendum to support the effi-

ciency objectives of the IWRM institution and framework. Tensions between polycentric market realities and institutions constructed according to a monocentric vision – which assumes centralised power and authority – will experience a stable coexistence. Both principles strive towards replicating their dynamics in related domains such that: “once the logic (of mono or polycentricity) is introduced in one domain, it requires the extension in all other areas” (Aligica & Boettke 2009: 26).

The desire to diffuse implementation and governance throughout the GWP’s IWRM network institution is at odds with a parallel desire of the GWP Organisation (GWPO) to control the IWRM agenda. The task of establishing rules and norms in relation to IWRM takes place at multiple and intersecting layers of the IWRM framework – the implementation, policy, institutional and international levels. The coordination role of the GWPO, which is distinct from the GWP’s IWRM institution, creates a power asymmetry that creates preferential amplification of the “higher echelons” within the Technical Committee, reflecting a “top-down” perspective (IEP 2010: xx). This aspect has been formalized within the institutional formation of the IWRM network and infused with the rules and norms of the IWRM network. The institutionalization of IWRM was concurrent with emphasis on consensus building and convergence of rules and norms, which has constrained diversity and hindered sharing of knowledge based on heterodoxical observations sharing required to implement and evolve IWRM (IEP 2010: xxii). Institutional diversity and learning requires IWRM’s development in parallel jurisdictions and for that knowledge to be shared across jurisdictions (Ostrom cited in Aligica & Boettke 2009: 156). Although attempts are being made to shift budget allowances and communication flows, in the current institutional form not all of the benefits of institutional diversity are realized (IEP 2010: xxiii).

The failure to invest in substantive polycentric governance is reflected in the Independent Evaluation Group (IEG) review of the IWRM framework. Despite structural arrangements and assertions within the documents of the GWP’s IWRM that the processes are inclusive and participatory, the review stated that while the GWP’s IWRM policy leadership continued to be recognised, stakeholders had the perception that it had lost some of its “cutting edge, focus, and ability to drive the global policy agenda edge” (IEG 2010: 20). Power and decision-making remained primarily centralized and country-level partnerships were hindered by “financial insecurity and small budgets”. Further, the institutional mechanisms within IWRM to synthesize and share lessons between countries were “ineffective” (IEG 2010: 20). In addition, earmarked funding arrangements for project-based activities skewed the budget allocation process for partners within the network – reflecting a top-down rather than a bottom-up process informed by local conditions (IEG 2010: 20). Together, the reviewers concluded that the organizational trends “posed the risk of the partnership becoming primarily a ‘talk shop’ at the country level and thereby losing its relevance” (IEG 2010: 20).

From a structural perspective, the IWRM institution has pursued high-level agreements, which have not translated into implementation and reform. As the IEG reflected, “the appropriate level may be fairly local” (IEG 2010: 31). Thus the contradiction is that the IWRM proposed polycentric governance but has not sought to operationalize IWRM from these very centres. The implementation has paid less attention to complex causality within the system and adopted a top-down approach based on a command system of government. This runs counter to Ostrom’s approach, which considers local engagement essential for all stages of the process. This effort is constrained by an economic preference within the institutional logic of the GWP’s IWRM network, which measures its success in terms of outputs and inputs rather than a more holistic account of impact and relevance that may be derived from self-examination and feedback processes (IEP 2010: xxv).

Convergence over the ideas and implementation rationale of the IWRM framework obscures the specificity of context. The creation of the GWP’s IWRM toolbox is a case in point. While it offers a range of tools for the implementation of IWRM, the toolbox limits the frame of application for IWRM strategies. This may affect aspects such as institutional diversity within the nested institutional arrangements of the GWP’s IWRM. As Ostrom cautions: “the effort to preserve biodiversity should not lead to the destruction of institutional diversity” (Ostrom cited in Aligica & Boettke 2009: 151). This requires an engagement not only with Ostrom’s scholarship on the benefits of nested governance arrangements, but also with her later scholarship on the “multilevel taxonomy of the underlying components of the situations human actors face” (Ostrom 2005: 6).

At another level, the Ostromian perspective reveals that the IWRM institution and framework are infused with an economic perception that has emphasised the economic aspects and subordinated the goals of equity and sustainability within the framework and the institution itself. Framed within Ostrom’s understanding of the market as an institution intermeshed and supported by social institutions, the economic processes at the heart of the IWRM institution and network opens up new avenues of analysis, relating the IWRM institution and framework as an economic process, dependent on the coexistence of “instituted social, political, legal or cultural processes” (Harvey 2007: 167). An exploration of the elements relevant to the economic process of IWRM will add important context to implementation barriers encountered by the GWPs IWRM network.

The final section of this chapter examines the IWRM institution and framework from a neo-Polanyian perspective. It will commence with a discussion of the key divergences between neo-Polanyian perspectives and Ostrom. The discussion leads from the shared perspective that the market is an institution intermeshed within and supported by social institutions (Ostrom 1990: 15; Harvey 2007: 167). This serves as an opening to explore the different ontological variables that inform Polanyi’s understanding of the market institution and his perspective on key tenets within Ostrom’s framework: rationality, equilibri-

um and utilitarianism. This section does not engage with the full body of Polanyi's work, rather, it concentrates on contemporary understandings of Polanyi's *market institutedness* and *double movement* to illuminate key issues relevant to the implementation agenda of IWRM that may further illuminate why IWRM has proven difficult to implement.

By adopting the neo-Polanyian concept of institutedness we are able to retain the specificity of economic processes in relation to other processes. This also creates a comparative construct that is useful for our assessment of NIE rather than a rival construct such as embeddedness, which denies specificity and differentiation of the economic from society (Harvey 2007: 170). Extending the application of the neo-Polanyian lens, the institutedness approach unveils water as a multi-dimensional resource "enmeshed in nested political economies" which is interacting with the market institution (Allan 2003: 4).

The animus of Polanyi's work was a concern for the origins and formation processes of capitalism and its insertion within society. The view of the market as an instituted process arises from Polanyi's research into the historical origins of capitalism and its insertion within varied socio-economic conditions. In Polanyi's "instituted" economy, the "pursuit of gains through exchange" was institutionally reinforced (Stanfield 1980: 596). The term "process" relates to the modification, displacement or erasure of social relationships and non-economic institutions. By implication, the market is not a given, coordinated according to natural laws, but is the result of historical processes that created an ensemble of social relationships and values, which themselves gave "meaning and stability to the material process" (Stanfield 1980: 599; Harvey, Randles & Ramlogan 2007: 10). In turn, what Polanyi terms "market society" is constructed out of the specificity of historical and economic transformations. This account of the societal aspects is augmented by the commodification of by the account of the manner in which land, labour and capital are co-opted into the market system as "fictitious commodities" that are subordinated to the market mechanism and stripped of their sacred value (Block 2003: 8).

The view of the market as an instituted process is complemented the ontological starting point for Polanyi's analysis, society, not the individual. The individual in his analysis is located within their "concrete setting", within the space of the market. This view contrasts with the methodological individualism that characterises the worldview of Ostrom and her NIE contemporaries. By looking at the individual, Ostrom is able to draw attention to the "sequences of decisions, events, causal sequences, and consequences in complex environments and situations" (Aligica & Boettke 2009: 28). The downside, however, is that the individual is ahistorical, static and abstracted (Stanfield 1980: 601). This comes at the expense of alternative analysis, which may elucidate the locus and administration of power (Stanfield 1980: 601). Thus, when Ostrom considers the market as an institution, this is associated with a constellation of other concerns relevant to and limited by the domain of her analysis.

Polanyi's study of origins has implications for the assumptions that underpin the scholarship of Ostrom – particularly rationality (albeit in modified form), utilitarianism and equilibrium (Mendell 2007: 82). By considering the market as an instituted process, he alerts us to the social conditions that predated the market. Fundamental assumptions of rationality, utility and equilibria are contested by an account of socialisation, transformation and change (Stanfield 1980: 599-601). Thus, the assumptions of the neoclassical model only work in accordance with a certain cultural and temporal specificities – relevant only to a static moment in “market society” and not exhibiting universal qualities that can be extrapolated across a range of societies and contexts. By extension the investigation of origins reveals the narrow context that informs the liberalism that runs deep through the scholarship of Ostrom and her contemporaries, most often cast as distrust of and freedom from the state and a celebration of the individual's capacity to self organise (Stanfield 1980: 605).

The study of origins identifies structural inequity and processes of accumulation and commodification relevant to different implementation levels of the IWRM framework. The origin of property rights, for example, informs the nature of participatory processes and is also the key institution that underpins the market. The participatory policies of IWRM may mask or facilitate processes of enclosure (or primitive accumulation) as readily as they protect the rights and interests of multiple users. As Langton et al. (2004) noted, voluntary negotiations and agreements are often only attempts to “negotiate improvements on existing social injustices” (Langton, Tehan, Palmer and Shain 2004:). In this manner, IWRM in some cases will act as the source or exacerbate the conflict it seeks to resolve. This view concurs with observation of Boelens, Zwarteveen and Roth (2010) that an increasingly global governance and policy discourse on water creates a tension between various levels of governance and management where policies and interventions are “contested, reinterpreted and transformed... (by) locally specific sociocultural normative systems and relations of power and control” (Boelens, Zwarteveen & Roth 2010: 2).

The view of the market as an instituted process opens up the analytical space for the interaction of economic and non-economic processes that give shape to the IWRM's implementation framework (Harvey 2007: 169, 178). Harvey (2007) makes an analytical distinction between institutedness and embeddedness, stating that the concept of embeddedness blurs “significant differences of process” (Harvey 2007: 170). By contrast, the neo-Polanyian concept of institutedness retains the specificity of economic processes in relation to other processes. Harvey (2005) described institutedness as having five main features or “theses”. The *specificity* thesis, that separates the economic processes from non economic; the *variable differentiation* thesis, that alerts us to the notion that not all economic processes are the same; the *interdependency* thesis, which observes the coexistence of economic processes with social, political, legal or cultural processes; the *multiplicity* thesis, which states that economic processes cannot be totally abstracted, and contain elements of non-economic processes; and the *complex causality* thesis, which asserts the relevance of multiple overlapping domains and causalities (Harvey 2007: 167).

The economic processes required to facilitate the suitable context for IWRM are comprehensively captured within the IWRM implementation framework which establishes three categories of action – the “enabling” framework, which comprises legislative change; the “institutional framework”, which involves political sponsorship and inter-ministerial coordination and cooperation; and finally the “management instruments” which include accountability, monitoring and capacity building mechanisms. These processes are aligned with Harvey’s (2007) transformation processes, which relate to the organisation of the exchange, which, he argues, “gave pre-eminence to capitalism as a market economy”. These are predicated on an economic transformation agenda which attempts to: qualitatively change the production and provisioning of water and its usage; change arrangements for appropriation through exchange (*vis-à-vis* property rights); the activities in relation to water through distribution arrangements; and the consumption of water (Harvey 2007: 169-170). Within each process, however, the IWRM framework has adopted an economic emphasis and neglected the necessary social dimensions of each of these processes. The transformation processes are expressed by the GWP’s IWRM network as the power “to change laws”. Viewed from the perspective of complex causality, instances of resistance can be linked to a failure to understand and respond to the intermeshed social and historical processes required to successfully implement strategies familiar to IWRM.

A more complex and dialectical view of double movement arises from adopting Harvey’s institutedness as the medium to comprehend the complex causality and interaction between intermeshed economic and non-economic processes. The term double movement relates to the shifting emphasis of the economy within society, along a historical continuum (Harvey, Randles & Ramlogan 2007: 4). At different points along the continuum the economy dominates society creating asymmetries and tensions (Harvey, Randles & Ramlogan 2007: 4). The Polanyian perspective of double movement is based on the ideas of a society asserting itself as a protective response against market subordination, often understood as the market attempting to differentiate itself from society (Harvey, Randles & Ramlogan 2007: 4). The neo-Polanyian perspective proposed by Harvey (2007) and Mendell (2007) suggests that diversity of institutional arrangements requires a more complex view that requires “continuous analysis of continuous change” (Mendell 2007: 81).

The dynamic described by Harvey (2007) is not based upon “reduction subordination of one or other.” By implication, the double movement cannot be understood as corresponding to a vertical hierarchies, but are instead diffuse (Harvey 2007: 170). This corresponds with the Polanyian vision of power and social change, which is not situated within the socio-economic demarcation of class struggle (Stanfield 1980: 604). Thus the double movement is separated from production processes but is connected to economic processes (Stanfield 1980: 604; Harvey 2007: 170). As a result, we are able to consider the notion of resistance as a diffuse concept, inhabiting the plural spaces of an Ostrom-inspired polycentric governance arrangement of the IWRM network. Re-

sistance is at multiple levels, diffuse and interacting within different spatial and cultural dimensions. Thus Harvey's (2007) notion of complex interdependency fuses with and informs the experiences of the multiple centres within the IWRM institution (Harvey 2007: 167).

The comparative analysis of the IWRM framework provides alternative explanations for why IWRM proves difficult to implement. At one level, stricter adherence to Ostrom's empirically-based ideas may address the inconsistencies that underpin IWRM. This will strengthen the outcomes derived from participation and the diffuse governance arrangements (or polycentricity) that form the backbone of the IWRM's institutional arrangements. At a deeper structural level, however, the issue encountered by the IWRM institution is characterised by resistance emanating from the divergences between the social processes pertinent to the specific context, and economic processes imposed by the introduction of IWRM.

The interaction of the ideas and institutional structure of the GWP's IWRM imposed and imposing on a diversity of interspersed social, historical and cultural contexts reveals a dialectical double movement (a la Polanyi) that interlinks the double helix of institutional composition and policy of IWRM itself. At an institutional level, this involves different scales of community and polity asserting itself through the IWRM network. At a policy level this is expressed through instances of resistance towards economic processes are both imposed and adapted within local contexts. By implication, the double movement comprises multiple resistances occurring at multiple centres of governance. Thus, the polycentricity of the market is interacting with economic processes introduced within the specificities of context. Consequently, claims of "inertia" would be more accurately read as "resistance", a distinction that requires the GWPO and IWRM network to reconsider the utility of top-down strategies that they have deployed to achieve their implementation targets – strategies that may exacerbate existing tensions.

Conclusion

“What makes these models so interesting and powerful is that they capture important aspects of many different problems that occur in diverse settings in all parts of the world. What makes these models so dangerous...is that the constraints that are assumed to be fixed for the purpose of analysis are taken on faith as being fixed in empirical settings”

(Ostrom 1990: 6)⁷

Throughout this paper, IWRM has been explored in relation to its evolution, institutional formation and the philosophy that inspired the design of both the institution and framework of IWRM. It was argued that IWRM was predominantly inspired by a logic drawn from the scholarship of Ostrom, albeit only selectively applied. The selective application has consequences for the IWRM framework, reflected in the emphasis on economic aspects, such as efficiency, over the IWRM's other stated goals, equity and sustainability. The analysis of IWRM, first from an Ostromian and then a neo-Polanyian perspective, offered alternative readings of the difficulties encountered by the GWP's network in implementing IWRM strategies throughout the globe. At the very basic level, an analysis of the theoretical underpinnings of the IWRM institution and framework reveals the limitations of the framework which does not take into consideration the entirety of the assumptions that inform their institutional design and policy framework. At a deeper level, the 'inertia' could be read as a dialectical double movement that comprises multiple and diffuse resistance to an institution and framework informed by a rationale that does not match the multiplicity of contexts that it encounters.

Although water may be conceived as a common resource, the complexities and particularities of spatial, historical and cultural contexts means it is a resource that resists common solutions. The application of a neo-Polanyian lens alerted us to deeper contextual dimension that explains why IWRM proves difficult to implement in a variety of contexts. Through the lens of market institutedness, the rationale that informs IWRM is revealed as being particular to a specific historical and cultural milieu. Given the diversity of contexts, the rationale does not always hold. Thus, IWRM is not the only solution for resolving water management issues, despite being touted as the 'mantra' to do so. Like the Prisoner's Dilemma, Hardin's (1968) Tragedy of the Commons and Olson's (1965) Logic of Collective Action, IWRM as a policy framework is not wrong; rather, the conditions in which the policies are appropriate are particular. IWRM is powerful because it speaks to important aspects of diverse water problems. The danger, like that of the metaphors, results from IWRM's application as the universal solution for the world's water problems.

⁷ By 'these' models, Ostrom is referring to the models of Hardin, Olson & the Prisoner's Dilemma.

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