

# WATERLAT NETWORK WORKING PAPERS

## Research Projects Series SPIDES

### DESAFIO Project



## Working Paper Vol. 2, N° 14

### Democratisation of Water and Sanitation Governance by Means of Socio-Technical Innovation

#### Theoretical and Methodological Framework

Newcastle upon Tyne, UK

December 2015

Cover picture: Exhibition of posters with research results at DESAFIO's Final International Conference, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil, 27-28 July 2015.

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# **WATERLAT-GOBACIT NETWORK WORKING PAPERS**

## **Research Projects Series SPIDES DESAFIO Project –**

### **Working Paper Vol. 2 N° 14**

#### **Democratisation of Water and Sanitation Governance by Means of Socio-Technical Innovation**

#### **Theoretical and Methodological Framework**

**José Esteban Castro (Ed.)**  
**Newcastle University, United Kingdom**

**Newcastle upon Tyne**

**December 2015**

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## **Democratisation of Water and Sanitation Governance by Means of Socio-Technical Innovation**

### **Theoretical and Methodological Framework**

#### **Keywords**

Water and sanitation, socio-technical innovations, inequality, vulnerability, democratization, rural sanitation, community participation, citizenship, water politics

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## **Presentation of the SPIDES Series and the Working Paper**

SPIDES stands for Research Projects Series (SPI), DESAFIO Project, for its acronym in Portuguese and Spanish. WATERLAT-GOBACIT is a network dedicated to research, teaching and practical interventions connected with the politics and management of water and water-related activities. The DESAFIO Project ([www.desafioglobal.org](http://www.desafioglobal.org)) was developed by researchers of WATERLAT-GOBACIT's Thematic Area 3, dedicated to the Urban Water Cycle and Essential Public Services, jointly with invited partners.

DESAFIO had a lifetime of 30 months, from 1 February 2013 to 31 July 2015. It was funded by the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement N° 320303. The information contained in the documents published in the SPIDES Series reflects only the views of the researchers, and the European Union is not liable for any use that may be made of the information contained therein.

DESAFIO is the acronym for “Democratisation of Water and Sanitation Governance by Means of Socio-Technical Innovations”, the project's full title. DESAFIO literally means “challenge” in both Portuguese and Spanish, the two main working languages of the project owing to its focus on Argentina, Brazil, and Colombia. This was a fitting acronym for the project, as it concerned what still now after the end of the Millennium Development Goals in 2015, constitutes one of the most difficult challenges facing developing regions: eradicating structural social inequality in the access to essential water and sanitation services. In other words, as the full title states, the project was about the democratization of the politics, management, and access to essential public services, with an empirical focus on water and sanitation services.

The project focused on the study of eight experiences identified in Brazil, Argentina and Colombia, which targeted the deficit of essential services in vulnerable communities through the design and implementation of socio-technical innovations. These experiences had in common an approach that articulated technological development with a clear concern for some aspects of the democratization process, for instance involving community members in one or more stages of the design, implementation, and long-term maintenance of the systems. Bolder initiatives extended the involvement of common citizens to the design of public policy and introducing mechanisms of radical democracy to empower citizens-users to monitor the performance of the government, the service providers, and other relevant power holders. Latin America has been an experimental field for this kind of developments, and the project chose a range of experiences in order to cover a variety of socio-political, cultural, and policy-institutional contexts, in addition to a wide selection of settings including urban and rural communities in the three countries. DESAFIO placed these experiences of socio-technical innovation at the heart of the study: “the main tenet of [the project] is that achieving the development goals set by the international community [...] crucially depends on harnessing existing and developing new appropriate and innovative socio-technical solutions for the provision of safe water and sanitation services” (Castro, 2013: 3).

This way of framing the research problem led to the formulation of specific questions that guided the study:

How can we harness existing and develop new socio-technical innovations in order to change policies, to develop strategies and practical interventions, and to enhance policy learning for tackling unacceptable inequalities and injustice in the access to essential water and sanitation? What conditions, factors and processes facilitate the emergence of socio-technical innovations in this sector? What are the critical requirements to make successful socio-technical innovations sustainable and replicable? What are the obstacles to their sustainability and replication? (Castro, 2013: 3).

In order to respond to these research questions, DESAFIO adopted a comparative, interdisciplinary approach grounded in the social sciences and involving the participation of technical disciplines, particularly sanitary engineering, epidemiology, health, and ecology. It was also transdisciplinary, as the research team included practitioners from public sector and civil society institutions, and was developed in close co-operation with community organizations and other relevant actors, as explained in the articles that compose this Working Paper.

This Working Paper presents an edited version of two research reports corresponding to the project's theoretical and methodological framework. Article 1 presents a discussion centered on the socio-political dimension of the research, while Article 2 offers a synthesis of the overall framework applied in the project.

As mentioned above, DESAFIO was an inter- and transdisciplinary project grounded in the social sciences<sup>1</sup> but incorporating technical disciplines and adopting a participatory research approach involving non-academic actors. The project was also wide ranging in terms of geographical focus, cultural identities and languages, and specific research and policy problems. Therefore, it was aimed at ensuring that the research work kept focused on how socio-technical innovations may contribute to the democratization of the politics and management of essential water and sanitation services for the benefit of vulnerable communities. In other words, the framework was not intended to be a conceptual and methodological straightjacket, and was rather intended to provide a flexible guidance for the research teams. In some cases, for instance when the research teams included post-graduate students developing their own dissertations as part of the research, alternative theoretical and methodological inputs were incorporated. In most cases this enriched the project, although in other cases a careful reader will be able to identify potential contradictions and some friction between the approaches adopted in specific case studies and the framework presented in this Working Paper.

For the above reasons, the reader interested in these topics should also read the individual case-study reports produced by the different partners, which have been published in the SPIDES Series (all the references are listed in the Reference List of Article 1). Also, the reader may benefit from complementary information that we have made available online, including video records of public presentations made by the researchers in a number of events organized by DESAFIO. These include the First Project Conference, which took place in Recife on 25 February 2013 (<http://desafioglobal.org/meetings/open-meetings/conference/>), the Final

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<sup>1</sup> DESAFIO was funded under the “Socio-economic sciences and humanities” research programme of the European Union's Seventh Framework Programme.



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Project Conference that took place in Rio de Janeiro on 27-28 July 2015 (<http://desafioglobal.org/meetings/open-meetings/second-international-conference/>), and a special dissemination seminar that took place in the city of Brasilia on 9 September 2015 (<http://desafioglobal.org/meetings/open-meetings/post-project-meetings/seminar-in-brasilia-9-10-september-2015/day-1-a-seminar-for-research-and-debate-desafio-project-9-september-2015/>). The presentations of the First Conference were published in the SPIDES Series of Working Papers (CASTRO et. al, 2013, available at: <http://waterlat.org/WPapers/WATERLAT%20Working%20Paper%20SPIDES%201.pdf>).

The Working Paper constitutes work in progress that may be revised, and may be further developed and later published in journals or as book chapters. We are pleased to present this work to the interested public.

José Esteban Castro  
Project Co-ordinator

Newcastle upon Tyne, December 2015

References:

Castro, J. E. (2013). Democratisation of Water and Sanitation Governance by Means of Socio-Technical Innovation (DESAFIO), Research Proposal (Annex I - Description of Work), ([www.desafioglobal.org](http://www.desafioglobal.org)), EU 7<sup>th</sup> Framework Programme. Newcastle upon Tyne: Newcastle University.

## **List of Acronyms**

|                          |  |
|--------------------------|--|
| ADB                      | Asian Development Bank   |
| AIDIS                    | Asociación Interamericana de Ingeniería Sanitaria y Ambiental  |
| AMC                      | Mexican Academy of Sciences  |
| APRODEH                  | Asociación pro Derechos Humanos, Mexico  |
| ASSEMAE                  | National Association of Municipal Water and Sanitation Services  |
| CEDA                     | Centro Ecuatoriano de Derecho Ambiental  |
| CEDAL                    | Centro de Asesoría Laboral del Perú  |
| CEDEP                    | Centro de Estudios para el Desarrollo y la Participación   |
| CENSAT                   | Centro Nacional Salud, Ambiente y Trabajo, Colombia  |
| CIES                     | Consortio de Investigación Económica y Social  |
| CNA                      | National Water Commission, Mexico  |
| DESAFIO                  | Democratisation of Water and Sanitation Governance by Means of Socio-Technical Innovation                        |
| EC                       | European Commission  |
| ECLAC                    | UN-Economic Commission for Latin America and the Caribbean   |
| EPSU                     | European Federation of Public Service Unions   |
| ETOSS                    | Tripartite Entity of Sanitary Works and Services   |
| EU                       | European Union   |
| FASE                     | Federação de Órgãos para Assistência Social e Educacional, Brazil  |
| FNSA                     | National Front for Environmental Sanitation  |
| GoverNat                 | Multi-level Governance of Natural Resources: Tools and Processes for Water and Biodiversity Governance in Europe |
| GOVERN-<br>PARTICIPATORY | Achieving sustainable and innovative policies through participatory governance in a multi-level context          |
| GWP                      | Global Water Partnership   |
| ICSID                    | International Centre for Settlement of Investment Disputes   |
| IFIs                     | International Financial Institutions   |
| IIED                     | International Institute for Environment and Development  |
| IIED-AL                  | IIED – Latin America   |
| IMTA                     | Mexican Institute of Water Technology  |
| IPEA                     | Institute of Applied Economic Research, Brazil   |
| IWA                      | International Water Association  |
| LA&C                     | Latin America and the Caribbean  |
| MDGs                     | Millennium Development Goals   |
| MIT                      | Massachusetts Institute of Technology  |
| MSP                      | Municipal Services Project   |
| NEWATER                  | New Approaches to Adaptive Water Management under Uncertainty  |
| NGOs                     | Non Governmental Organizations   |
| NRC                      |  |
| OECD                     | Organisation for Economic Co-operation and Development   |
| OSN                      | Obras Sanitarias de la Nación  |
| PAHO                     | Pan American Health Organization   |
| PLANASA                  | National Sanitation Plan, Brazil   |

|                  |  |
|------------------|--|
| PPPs             | Public-private partnerships  |
| PRINWASS         | Barriers and Conditions for the Involvement of Private Capital and Enterprise in Water Supply and Sanitation in Latin America and Africa: Seeking Economic, Social, and Environmental Sustainability |
| PSIRU            | Public Services International Research Unit  |
| Red VIDA         | Inter-American Vigilance for the Defence of and the Right to Water   |
| SABESP           | Companhia de Saneamento Básico do Estado de São Paulo S.A, Brazil  |
| SARH             | Secretariat of Agriculture and Water Resources, Mexico   |
| SENAC            | Serviço Nacional de Aprendizagem Comercial (Sao Paulo)   |
| SIWI             | Stockholm International Water Institute  |
| TNI              | Transnational Institute (TNI)  |
| UCA              | Universidad Centroamericana, Nicaragua   |
| UN               | United Nations   |
| UN-DAW           | United Nations Division for the Advancement of Women   |
| UNDP             | United Nations Development Programme   |
| UNESCO           | United Nations Educational, Scientific and Cultural Organization   |
| UNESCO-IHE       | UNESCO-Institute for Water Education   |
| UNESCO-WWAP      | UNESCO-World Water Assessment Programme  |
| UN-Habitat       | United Nations Human Settlements Programme   |
| UNICEF           | United Nations Children's Fund   |
| WATERLAT-GOBACIT | Inter- and transdisciplinary network for teaching, research and practical action on the politics and management of water and water-based services.   |
| WHO              | World Health Organization  |
| WSP-PPIAF        | World Bank's Water and Sanitation Program (WSP) - Public-Private Infrastructure Advisory Facility  |
| WSS              | Water and sanitation services  |
| WWII             | World War II   |

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Original report cover – Article 1



**GOVERNANCE AND ACTIVE CITIZENSHIP:  
LINKAGES BETWEEN ECONOMIC  
AND SOCIAL DEVELOPMENT,  
AND ACCESS TO ESSENTIAL  
WATER AND SANITATION SERVICES**

Work Package 1 Report  
(Deliverable 1.1)

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With the support of the consortium partners



Newcastle upon Tyne, 31 July 2013

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## **Article 1**

# **Governance and active citizenship: linkages between economic and social development, and access to essential water and sanitation services**

Prof. Jose Esteban Castro  
Newcastle University

## **Introduction**

This report focuses on the theoretical and empirical aspects of the politics of public services, focusing on the democratization process in the water sector, particularly in relation to water and sanitation services (WSS). It forms part of DESAFIO's research work to develop a conceptual and methodological framework that addresses the project's objectives and research questions. DESAFIO aims to contribute to the democratisation of the government and management of and the access to essential (WSS) to foster economic and social development through social transformation in vulnerable communities. In this context, the overarching objective of the project is assessing existing experiences and contributing to the development of new strategies that may bring about sustainable, appropriate, and innovative socio-technical solutions in relation to WSS.

In the first section, the report addresses the concept of governance, placing emphasis on debates about water governance. It argues that in the fields covered by our project, there is a prevailing policy-centred understanding of "governance" that is strongly instrumental and reduces it to the administrative and techno-managerial dimensions. This prevailing understanding of "governance" is aimed at "sterilizing" the concept to make it a supposedly neutral policy tool, devoid of politics and power relations. We call this an idealized and ideologized understanding of governance. This would be a mere academic disquisition about the concept, if it did not have the highly influential impact that it has worldwide in the field of water policy. The report suggests that we may need to abandon the concept of governance altogether, and recover the concept of politics, to re-focus debates about the democratization of water and water services on the most substantive problems.

The second section presents a discussion about "governance" regimes that can be identified in the recent history of WSS. These regimes are structured around diverging, even incompatible principles and goals, which leads to enduring confrontations that are reflected in particular institutional structures and processes and their corresponding policy preferences. The report deals first with the "privatist" regime, which provided the framework for the development of domestic water services in the countries that pioneered them since the late eighteenth century, Great Britain and France. This regime was structured around the principle that domestic water services are private good, a commodity that must be available only to those that can afford to pay for them. During

the nineteenth century, systems of WSS inspired by the privatist framework were exported around the world, including Latin America and the three countries addressed in DESAFIO, Argentina, Brazil, and Colombia. The failure of this regime to deliver universal access to water supply and its neglect of sanitation and related services like urban drainage eventually led to its replacement in the first decades of the twentieth century. The report discusses the emergence of a new regime, “administrative rationalism”, that brought together scientific expertise and professional bureaucratization in a powerful strategy centred on the state as the main actor responsible for the investments, implementation, and overall control of WSS. The administrative rationalist regime is credited with the great advances made during the twentieth century, which included the universalization of access to WSS in developed countries and the adoption of the notion that access to these essential services is a public good and a social right of citizenship. However, administrative rationalism did not achieve the same results in less developed countries, including the Latin American countries addressed in DESAFIO. In addition, this regime was historically characterized by a techno-centric, top-down, often authoritarian approach that left no room for public scrutiny of policy decision making and implementation. While in developed countries this weakness was relatively disguised by the high success of this regime in delivering universal access to high quality services, in less developed countries this became a major source of conflict and confrontation, often made more acute by the extremely authoritarian character of the state, notoriously during the dictatorships that ruled some of the countries addressed in DESAFIO since the 1950s. The struggles for the democratization of politics in South America, our focus region in DESAFIO, saw the emergence of diverse grassroots strategies either to put pressure on the state and force the adoption of more egalitarian approaches or to develop alternatives to the state-centred provision of essential services. These included the proliferation of community-led services in rural and peripheral urban areas, service cooperatives, and other forms of alternative WSS. Since the 1980s, these developments converged with the international promotion of policies aimed at re-establishing the privatist regime, adapting the nineteenth-century principles and mechanisms to the late twentieth century. This led to the emergence of neoprivatism, fuelled by the policies of the neoconservative governments of the United States and Great Britain, which sought to transfer most responsibilities from the state to the private sector, whereby the latter became an umbrella term for all actors placed outside the state, from private businesses to NGOs, religious organizations, and community self-help groups. The section deals with this third “governance” regime in some detail, including references to examples from recent research.

The third section examines the particular relationships between the state and the population that have evolved in the course of these “governance” regimes in the WSS sector. It focuses particularly on the concept of social participation, and the different degrees to which each regime may give or not scope for citizen or user involvement in some aspects of policy making, implementation or monitoring of the performance of WSS. This section also makes reference to relevant examples from recent research to ground the analysis. It argues that technocratic, top-down, often authoritarian arrangements have been and are still prevalent in the WSS, precluding meaningful participation of citizens and users or at most providing highly restricted, bounded, controlled spaces of participation, which often function as mechanisms to diffuse dissent

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and keep control over the population. There are however widespread successful experiences of emergent forms of grassroots, autonomous participation oriented at challenging the technocratic and top-down institutional framework that characterizes the status quo. The section offers a review of some examples, and examines the ups and down and the obstacles and opportunities that these more autonomous forms of participation face within the framework of the democratization process in the access to and management of WSS.

The report ends with a brief section of conclusions summarizing key points.

## **Governance**

The concept of “governance” has become the subject of significant debate in general, including the area concerned with DESAFIO: the **democratization of management and access** to essential water and sanitation services. In addition to very extensive academic literature on the topic, the concept of governance can be found in most public policy documents produced in the last two decades by governments and international bodies as well as by private-sector and civil society organizations. The increasing body of literature on governance includes a wealth of research funded by the European Union (EU). The European Commission (EC) published a synthesis of EU-funded governance research in 2007 (Mokre and Riekmann 2007), and a summary of EU-funded research on governance and citizenship up to 2008 (EC 2008), although much of this research was focused on the governance of European institutions and the consolidation of a Europe-wide polity and much less with the topics addressed in our project. During the last two decades, global institutions have also dedicated significant attention to definitions of the concept of governance in relation to different aspects of public policy (e.g.: ADB 1995, UNDP 1997, UNDP 1997, World Bank 2015). Policy-related understandings of governance have evolved in different ways, surely as a result of intense debate and criticism of the heavily instrumental approach to “governance” adopted by international financial and development institutions like the World Bank and others (see for example critical analysis by: Goldman 2001, Robertson 2004, Heynen and Robbins 2005, Swyngedouw 2005).

It should not be surprising that the concept has taken many different meanings, which are often contradictory and even irreconcilable. In this regard, we believe that there are good reasons to abandon the concept altogether, in the understanding that the “governance debate” of the last few decades has been largely driven by reforms introduced worldwide since the 1980s, which were **inspired by a powerful combination of neoliberal and neoconservative ideologies**. A perverse effect of this debate, even if we participate from a critical perspective in it, is that it has contributed to obscure the fact that much of what is being debated in the name of “governance” belongs to well-established debates in the social sciences about **politics and the political**. In other words, key elements in the definitions of “governance” that have proliferated in the last two decades are presented as novelties, while there is actually a long-standing tradition of debate about these issues that has been largely ignored or downplayed. For instance, the key argument in mainstream governance debates that the term is needed to conceptualize the fact that governments are not the only actors **exercising power and authority in a territory** seems to ignore the fact that this has been a long-term, well-established



presupposition in sociology and political science. There are indeed good grounds to assert that much of the “governance debate”, especially in relation to the field of public policy, seems to detach “governance” from “politics”, a sort of sterilization of the term to make it usable as a supposedly **neutral conceptual tool** in policy reforms deemed to be “technical”, non-political. The case of “water governance” provides an excellent ground to examine these issues.

### Water “governance”

The academic debate on the topic is very extensive and wide ranging. It includes the now classical work by Ostrom on institutional diversity and polycentric water governance arrangements (Ostrom 1990, Ostrom 2005), studies on water governance and complexity (Bressers and Lulofs 2010), on the global and multi-scale dimensions of water governance (Swyngedouw, Page et al. 2002, Conca 2006, van der Valk and Keenan 2011, Thielborger 2013), on adaptive water governance and conflict (Scholz and Stiftel 2005), on social struggles over water, governance and citizenship (Castro 2006), on governance to foster private sector participation (McGranahan and Satterthwaite 2006, Rouse 2007), on the failures of private-sector oriented water governance (Castro 2005, Swyngedouw 2005, Castro 2007a, Bakker 2010), on conflicting governance regimes in the water and sanitation sector (Castro 2005), on “indigenous” water governance (Wilson 2014), on the ethics of water governance (Groenfeldt 2013), in addition to an endless list of case-focused studies of water governance, among many other. The EU has also funded a number of specific projects on water governance or where water governance was an important component, including GOVERN PARTICIPATORY (Heinelt, Schmitter et al. 2002), NEWATER (Pahl-Wostl, Gupta et al. 2008, Pahl-Wostl, Holtz et al. 2010), GoverNat (Lancaster University et. al. 2010), among others.

International financial institutions (IFIs), development agencies, nongovernmental organisations (NGOs), and think tanks connected with the corporate private sector, among others, have also carried out research and published extensively about governance (Moss, Wolff et al. 2003, Rogers and Hall 2003, UNDP 2004, Hoekstra 2006, OECD 2012), and keep specialised websites about the topic (OECD 2013, UNDP and (SIWI) 2013, World Bank 2015). These actors have been long arguing for “sound” and “effective water governance” in water management, including water and sanitation services (e.g.: ADB 1995, UNDP 1997, EC 2000, EC 2002). They have also argued that efficient water management requires transparency, accountability, and coordinated action at different levels (subsidiarity principle), with public participation by all sectors (active citizenship), including women and children (UN-DAW, WHO et al. 1998, UNDP 2003). This has important implications at all levels –global, regional, national, and local– as the lack of “good governance” came to be regarded as a **major constraint to development**. Therefore, donors, aid agencies, and IFIs have been requiring the adoption of “good governance” principles as a condition for **development cooperation and aid**. However, as a recent review of EC-funded research on governance in Europe highlights, these requirements of “good governance” are difficult to achieve even in the countries that are supposedly the model to follow (Mokre and Riekmann 2007). In fact, as suggested by the conclusions of another EU-co-funded project, recent developments in Europe’s core

capitalist democracies, particularly since the 2008 global financial crisis, have worsened the “democratic deficit” (Bellamy and Staiger 2013). This is particularly relevant in addressing the situation of developing countries, including those covered in our project, where the challenges facing the process of **substantive democratization** have been and remain significant (Fleury 1997, UNDP 2004, Garcés, Giraldez et al. 2006, Yamin 2006, Castro, Heller et al. 2015). These developments have far-reaching implications for “governance” in the water sector, which has been historically characterized by **top down, often authoritarian practices**, even in the central capitalist democracies.

Exploring the meaning

Before going any further in this discussion we need to step back and reflect on the concept itself, rather than taking its meaning for granted. After all, what does “water governance” mean? Even at the discursive level, we cannot take for granted the meaning and applicability of the concept. The notion of “governance” and other related concepts such as “civil society” or “citizenship” emerged from the specific historical experience of developed countries and their **empirical reference** may be frail if not completely absent in other societies. Yet, in ongoing debates “governance” is applied as a concept that would be universally valid, independently of the context and conditions. This overgeneralization of the concept may render it meaningless for understanding and explaining the **politics and management** of water in specific situations locally, regionally or nationally. More generally, although there is increasingly a rhetorical recognition of the need to take diversity and specificity into account, the dominant pattern continues to be characterized by **instrumental and overgeneralizing** applications of concepts such as “governance”, “civil society”, “participation”, and related terms. Let us consider some examples.

In some ways, it can be said that UNESCO’s 2006 World Water Report titled Water, a Shared Responsibility, constituted a milestone in the policy debates about “water governance”. In the presentation of the report, former UN General Secretary Kofi Annan stated that the world water crisis is mainly “a crisis of governance” (UNESCO, 2006: 1). At least, here there was a most authoritative report on the state of the world’s water recognizing from the start that the water crisis that we face worldwide cannot be explained primarily by reference to physical-natural factors or to the lack of technological development, not even to the lack of financial resources. Even if these and other factors remain significant, especially in the majority of countries outside the “developed” world, the report asserted that the key element that helps to understand the crisis is “governance”, or to be more precise, the crisis of governance would be the **primary factor to explain** the water crisis. However, a detailed reading of the report showed that there were problems with the **understanding of governance** adopted by its authors. Despite a very good discussion about the high complexity involving water management around the world, in the end the report did not introduce significant changes to the standard understanding of “governance” promoted by the IFIs and other powerful actors in the public policy arena since the 1990s. In this understanding, “governance” is restricted in its meaning mostly to the **administrative and techno-managerial aspects**. Governance, in this dominant view, would be almost an equivalent of **good management and administration**, and would have little if anything to do with **politics and power**.

Moreover, rather than recognizing existing debates about governance, and particularly about water governance, the report takes the side of one of the most controversial policies that have been implemented recently in the water and sanitation sector: the **commodification** of these basic services. In Chapter 12, after paying lip service to the “multifaceted value of water”, we read that domestic water and sanitation services are “commodities”, not public goods (the category of public goods was reserved to other aspects of water management) (UNESCO-WWAP 2006: 400, 409). The UNESCO report provides no justification for having taken such a radical position in the international debate; they just seem to have taken for granted that domestic WSS are commodities. As discussed in more detail elsewhere, here UNESCO’s report was in contradiction with alternative views held by other UN departments, particularly the Committee on Economic, Social and Cultural Rights that was at the time heavily engaged on a discussion about the “human right to water” (Castro 2007b), which would be eventually sanctioned by the UN in 2010 (UN 2010). Moreover, they were also at odds with the wide range of social actors that have been campaigning against water commodification and related neoliberal policies.<sup>2</sup>

The example illustrates some of the main points we want to make here. The understanding of “water governance” that prevails in the public policy debate led by international institutions, donors, governments, etc., is highly instrumental and restricted to the practical matters of management and administration. The concept is emptied of **substantive political meaning**, even when the terms “political” or “social” are included in the definition. For instance, one of the definitions of “water governance” elaborated by a think tank closely connected to water multinationals and the IFIs, states that water governance would be the “range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services” (GWP 2002, cited in Rogers and Hall 2003: 7). In a similar vein to the UNESCO 2006 report, the rhetoric includes a recognition of different dimensions, including the political. Yet, it is about **political “systems”**, it is not about **politics**. In fact, the definition is supposed to be **politically “neutral”**. However, going back to the passage quoted from UNESCO’s report, it is clear that there is no political neutrality, as the report takes one of the sides in a heated political debate: it states that domestic WSS are commodities, not a public good or a human right. Thus, a not-so-subtle operation has taken place, by which a highly political stance is disguised as a merely technical-administrative matter. This “neutral”, supposedly sterilized understanding of water governance has become dominant and part of the common sense in policy debates.

Another example relevant to our discussion is a definition of “governance” put forward by the institutional economist Robert Picciotto, former Director General of Operations Evaluation at the World Bank back in the 1990s:

[T]he art of governance consists of achieving an appropriate balance between the products of various institutional goods so as to achieve a

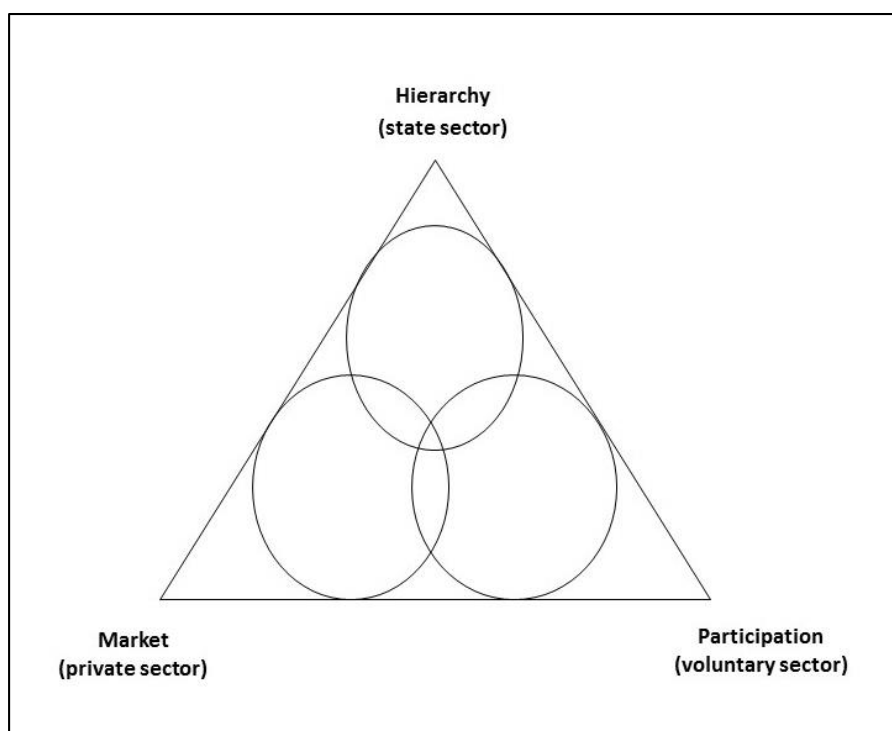
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<sup>2</sup> This is not the place to discuss the implications of the “human right to water”, including the distortions of the concept that make it potentially compatible with commodification and privatization of water services, which we addressed elsewhere .Castro and Heller (2009); Castro, et al. (2015).

positive interplay between the state, the market, and the voluntary sector. There is a natural tension between each of these actors given their contrasting mandates and their different constituencies. And an appropriate balance is struck when excessive power by any one sector is counteracted by one or the other two. Thus, if one sector is patently weak, judiciously selected capacity-building projects can help redress the balance. Thus, effective governance involves cross-cutting and shifting alliances as well as deliberate capacity-building efforts aimed at mutually supportive operation of the state, the market, and the civil society (Picciotto 1995: 17).

Picciotto illustrated this “appropriate balance” to be reached between the state, the market, and civil society, the latter identified as the “voluntary sector”, as a symmetrical relationship between the three “sectors” (Figure N° 1).

Figure N° 1. Governance as a symmetrical power balance



Source: Adapted from Picciotto, 1995: 16.

This understanding of governance emerged from a discussion about the institutional reforms required for the implementation of the “new agenda for sustainable development” promoted by the World Bank, which demanded “pragmatic, tailor-made solutions” (Picciotto 1995: 6). As we know, these solutions involved a radical redesign of the state and, particularly, of the **relations between the state and the market**, which included “increased competitiveness of the business environment; improved

effectiveness and efficiency of public agencies; restructuring, liquidation, and privatization of public enterprises; and decentralization of government administration” (Picciotto 1995: 19-20). The idealized character of Picciotto’s image of governance as a symmetrical relationship between three “sectors” can be misleading, as his analysis showed a much more realistic assessment: “[j]ust as governments set the rules for markets, markets are now setting constraints on the role of governments (Picciotto 1995: 19).<sup>3</sup> This last statement, with the benefit of historical hindsight, was prophetic. As illustrated by the previous example from the 2006 UNESCO World Water Report, “markets” have set **constraints not just on the role of governments** but also on **the role played by international institutions** like UNESCO. We discuss this later in more detail.

Pragmatic, instrumental understandings of “governance” as those discussed above are fitting for the design and implementation of public policies in absence of substantive democratic control. The message is that a pragmatic, instrumental approach would help to reduce the influence of messy social and political processes on the appropriate administration and management of goods and services, such as WSS. This understanding of governance became a core component of the **neoliberal political project** that seeks to reorganize the social order around market principles and give primacy to **market interests**. In the more moderate perspective of institutional economists like Picciotto, “appropriate governance” means reducing the role of the state to that of providing an **enabling environment** for market efficiency and protecting the poor and the natural environment from the consequences (Picciotto 1995: 18). However, the empirical evidence demonstrates that the model of governance that has become dominant is far more radical, and rather than producing a mutually balancing relationship between states, markets, and civil societies, we have seen the emergence of a highly **authoritarian dominance of market actors** that are seemingly **immune to almost any kind of democratic control**. In fact, the neoliberal political project openly sought to free market actors from almost any constraints and controls. For instance, Penelope Brook Cowen, another World Bank officer writing in the late 1990s, argued for fully “unregulated privatization” and “unregulated private monopolies” to solve the lack of access to WSS in poor countries (Brook Cowen and Cowen 1998: 22). Brook Cowen’s was a very straightforward and transparent exposition of the fundamental thrust of the neoliberal project: “privatization”<sup>4</sup> of WSS **transferring public utilities to monopoly private companies, with no regulation and no competition**. As demonstrated by a wealth of empirical research, this policy was not only implemented worldwide but is still systematically promoted today (e.g.: Drakeford 1997, Hukka and Katko 2003, Bakker 2004, Castro 2004, McDonald and Ruiters 2004, Melosi 2004, Swyngedouw 2005, Hall and Lobina 2006, Goldman 2007, Hall and Lobina 2007, Saurí, Olcina et al. 2007, Hall 2008, Castro 2009, Bakker 2010). This has significant consequences because in fact, as Picciotto predicted, “markets”, or perhaps we should say more precisely powerful market actors, have set unsurmountable “constraints on the role of governments” (Picciotto 1995: 19) to the point that regulation and democratic accountability of private WSS monopolies

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<sup>3</sup> Picciotto later produced a more elaborated version of his paper (Picciotto, 1997), which we discussed in more detail elsewhere Castro, J. E. (2007b).

<sup>4</sup> As discussed later, “privatization” is used in the literature as an umbrella concept encompassing a range of policy reforms and arrangements.

is currently virtually impossible in less developed countries but often also in the central capitalist democracies (for instance, see this report on the regulation of privatized water utilities in England: Yarrow, Appleyard et al. 2008).

### **“Governance” regimes: a short historical review**

To overcome the limitations of one-fits-all, instrumental, and overgeneralizing definitions of “water governance”, it is important to place the debate in a long-term perspective. This, as suggested before, may lead us to stop using the concept of governance altogether. If we examine the history of modern, urban WSS dating back to the late 18<sup>th</sup> century we argue that it is possible to broadly identify two contrasting, largely incompatible **“governance” regimes** that dominated the sector of WSS for the best part of two centuries.<sup>5</sup> For analytical reasons we call these two regimes “privatist” and, borrowing from Dryzek, “administrative rationalist” (Dryzek 1997). The emergence of modern WSS since the late 18<sup>th</sup> century in England and France took place within the framework of a privatist “governance” regime, which was dominant in all spheres of society at the time. The failures of this regime reached a critical point in the late 19<sup>th</sup> century, when it was displaced from central stage by “administrative rationalism”, the regime that would become the dominant framework for WSS “governance” worldwide. Since the 1980s, we have witnessed the re-emergence of privatism, or **neo-privatism, converging with neo-conservatism** in what came to be known the neoliberal policy agenda. This division in historical stages does not pretend to be exhaustive, as there are important differences in the experiences of different countries and territories, but the sequence corresponds to the overall pattern of development of the WSS sector. Also, the emergence of “administrative rationalism” in the 19<sup>th</sup> century and the eventual displacement of privatism as the dominant regime does not mean the disappearance of privatism, which has co-existed ever since and has come back with much strength since the late 20<sup>th</sup> century.

#### The privatist regime

The emergence of the early domestic, networked, urban water supply services in modern times took place in England and France, the two pioneering countries in this sector, since the late 18<sup>th</sup> century. These early domestic services were provided by private entrepreneurs, though the investment required for the infrastructure was often funded with public resources. In this early period, domestic access to piped water was an **individual choice**, and the service was provided as a **private, mercantile contract** between the provider and the client. A typical example of this model of provision was London, where in the middle 19<sup>th</sup> century the provision of piped water to family houses was in the hands of small private companies that operated as **territorial monopolies**

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<sup>5</sup> This section is partly based on Castro (2005, 2006, in preparation).

(Hassan 1998, Castro, Swyngedouw et al. 2003). Similar processes took place in France and the United States (Goubert 1986, Melosi 2000, Pezon 2000), and the privatist model was soon exported worldwide, including the countries involved in DESAFIO, Argentina, Brazil and Colombia (Herz 1979, Bordi de Ragucci 1997, Casas Orrego 2000, Castro and Heller 2006, Rezende and Heller 2008).

This privatist regime faced enormous obstacles from its inception. For instance, the **profit-oriented domestic provision of piped water** required the creation and expansion of a **new social identity, the private, creditworthy water customer**. The social disciplinization required to produce the expansion of this new social identity was aptly captured by historians like Colin Ward, who remarked both the **exclusionary** character of the regime and its own limitations (Ward 1997). In fact, the expansion of for-profit private water supply services also gave rise to the **criminalization** of people who for different reasons resisted the implementation of the privatist regime or were altogether excluded from accessing the service. For instance, in some cities that introduced privatised water supply services in the 1840s people who resisted the policy and tried to access water without having a contract with a private company were labelled “water thieves” and prosecuted (Ward 1997: 5). This disciplinization is understandable from within the logic of the privatist regime, as it was grounded on the **principle of exclusion**: domestic water supply was a private good available only to those who could pay for it.

A couple of examples will help to illustrate the fundamental importance of this principle in the privatist regime. French historian Jean-Pierre Goubert commented on a situation registered in France in 1819. A Consultative Committee of the French government was charged with evaluating a request to install systems to purify water for human consumption. The public officers decided that although the provision of clean water was desirable, it was not within the remit of the government and the issue had to be treated as a private matter (Goubert 1986: 40). In England, an article published by *The Economist*, the voice of British liberal capitalism, written just two years after the cholera epidemics that ravaged London in 1847-8 provides an even clearer example. The article was written in the heat of a political debate, with many calling for the statization of the private water companies in the aftermath of the epidemics. In this context, *The Economist* made a strong defence of the privatist regime arguing that the city already had the technology to deliver water to all households, but this was **dependent on the willingness of property owners to foot the bill**, suggesting that **providing universal access to water was not a matter for the government**. To dispel any doubts about the political-ideological character of urban water supply in mid-19<sup>th</sup> century London, the editor stated:

the great distinction between England and the nations of the continent, the principal source of our superiority, was the great scope here given to private enterprise and the very limited sphere of the operations of the government. Late events have strengthened that creed, and we cannot allow the influence of momentary terror occasioned by an epidemic, to suppress all the moral convictions which have been tangibly the experience of ages (*The Economist* 1850: 62).

These examples illustrate the dominant vision during this period: the notion that access to clean water for human consumption had to be guaranteed to the whole population **was not contemplated in the privatist regime of water “governance”**. According to the “creed” characterizing this particular regime, the provision of clean water must remain a **strictly commercial relationship between private parties**, even in the context of the calamitous water-related epidemics that were ravaging European cities during the 19<sup>th</sup> century. In addition, it must be remarked that the monopoly private companies were interested in providing clean water to profitable neighbourhoods but did not engage in the management of “dirty water”. Wastewater management and the development of sewerage and treatment systems became an **exclusive responsibility of the government**. In addition, as anticipated earlier, one of the implications derived from the exclusionary character of the privatist, commodified, regime of water “governance” was the **limitation of service coverage to those urban areas considered profitable by the private companies**. This approach led to the pattern of **high inequality** in the access to essential water supply services that would characterize mid-19<sup>th</sup> century Europe, the United States, and later also the countries where the model was exported, including Argentina, Brazil, and Colombia.

Text box N° 1. Key characteristics of the privatist regime

- The provision of domestic water supply was in hands of unregulated private companies
- These companies were granted territorial monopolies to deliver the service
- Domestic access to water was an individual choice, subject to a contractual arrangement directly between private actors, the provider and the client (without state mediation)
- The privatist regime consolidated the identity of the citizen-property owner, which is typical of the liberal-individualist version of citizenship
- The formation of new institutions required in the privatist regime, like the new criminal offence of “water theft”
- The formation of the corresponding social identities: the private water client and the “water thief”
- The concentration of water supply services in the wealthy neighbourhoods of the wealthiest cities
- The financial and technical incapacity, or the lack of interest, of private service providers to
  - extend the coverage of water supply services to the whole population
  - develop sanitation (sewerage) services

It is understandable that the privatist regime faced strong opposition and resistance, which led to increasing attempts to **control and regulate** the private utilities, and the expansion of **government involvement**, especially at the municipal level, in the provision of water supply and later sanitation services. London was a notorious case, where after decades of political confrontations a Conservative government decided in 1902 to **close the private monopolies** and place all water services in the city under the



control of a **public entity**, the Metropolitan Water Board. Similar processes took place in the rest of England, Europe, the United States and also in Latin America, including the countries covered in our project (Mukhopadhyay 1975, Ogle 1999, Casas Orrego 2000, Melosi 2000, Pezon 2000, Rezende and Heller 2008, Castro and Heller 2009). An important driver of this process was the Sanitary Movement, although the actors that participated in these confrontations for the expansion of the access to essential water services formed a **wide-ranging alliance that included defenders of the free market and private enterprise**. As a general trend, towards the early 20<sup>th</sup> century a certain consensus had emerged that the **responsibility for the control and management of essential public services must be in public hands**. This was reflected in the progressive displacement of the privatist regime of water “governance” and the consolidation of the emerging regime of **administrative rationalism**.

#### The regime of administrative rationalism

The concept of administrative rationalism is derived from Max Weber’s work on **rationalization and bureaucratization** (Weber 1978; Dryzek, 1997). It refers to the management models that were increasingly adopted in Western capitalist countries from the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. Administrative rationalism is grounded on the **articulation of scientific knowledge and the development of organized state bureaucracies** in the management of resources, goods and services. The increasing regulation of private activities such as the introduction of regulation of private water supply services in the late 19<sup>th</sup> century mentioned earlier is a clear example. This was a process that progressively led to the development of a management model centred on the **control and direct intervention of the state** in almost all spheres of activity. The process was consolidated after the collapse of free market capitalism in the inter-war period, which would eventually derive in the 1929 global financial crisis (Polanyi 1957, Aglietta 1976, Hobsbawm 1994). As a result, during the first half of the 20<sup>th</sup> century the regime of administrative rationalism displaced the old privatist regime as the prevailing model for the management and administration of essential public services such as WSS. In fact, after World War II a global consensus was established, even among defenders of the free market, that the state had a fundamental role to play in the direct organization and provision of these services.

One of the undeniable results of the expansion and consolidation of administrative rationalism in the field of essential public services, and particularly WSS, was the virtual universalization of quality WSS in the core capitalist countries, including some areas of the capitalist periphery. In the majority of these countries, the universal access to urban domestic water services was achieved during the 1960s. In the countries that had been the birthplace of the privatist regime, like England, the adoption and consolidation of administrative rationalism in the WSS sector represented a radical departure from the past. In Latin America, the advance of administrative rationalism was reflected in the creation of **powerful public institutions** dedicated to the management of urban WSS and, resembling the process that took place in Europe and the United States, the

nationalization of most private water companies that had been operating since the 19<sup>th</sup> century.<sup>6</sup>

From another perspective, it is important to highlight important contradictions and shortcomings of the administrative rationalist “governance” regime. Undoubtedly, administrative rationalism must be credited with the success in organizing **effective universal access** to essential WSS and other services wherever this goal was achieved. In turn, the universal access to these essential services was a fundamental step in the **redistribution of the benefits of social wealth** to ever-wider sectors of the population that had been historically excluded from access to these services. This expansion of access to essential goods and services was part of the **qualitative and quantitative expansion of citizenship rights**, particularly in Western Europe, with the consolidation of the notion of **social rights**. In this new political scenario, access to essential goods and services became sanctioned as social rights, meaning that the access must be **universal**, and **independent from the capacity of individuals and families to pay for them**. In the words of one of the now classical theorists of social citizenship, British sociologist T. H. Marshall, “[s]ocial rights in their modern form imply an invasion of contract by status, the subordination of market price to social justice, the replacement of the free bargain by the declaration of rights” (Marshall 1950: 68).

The recognition of these rights in post WWII Great Britain was a response to the claims from the excluded sectors of the population who sought to get **access to the minimum standards of civilized life** achieved by the country. As he put it, this was a claim from the majority “to the right to share to the full in the social heritage and to live the life of a civilised being according to the standards prevailing in the society” (ib.:11). This approach represented a complete **reversal of the principle of exclusion** that was at the heart of the privatist regime. In the social-liberal concept of citizenship defended by Marshall, access to essential services like WSS had become part of the standard of civilized life achieved by British society and could no longer be conceptualized as a matter for individual choice, something to be bargained and contracted between private actors, a commodity available only to those who could afford to pay for it. In contrast, **access to these essential services now became a state duty to all members of society**, independently from their individual standing in the market. Moreover, social rights not only became a core component of citizenship, but also came to be conceptualized as a requirement to enable people to become full citizens that could exercise the rest of citizenship rights, particularly political rights. It is worth highlighting here that the concept of social citizenship has been and still is a major cause of disagreement in several areas, and has been attacked from both left and right, particularly the latter, though this is not the place to engage in this discussion. The main point here was to illustrate the radical departure represented by administrative rationalism, reinforced in post-WWII Western Europe by the development of welfare systems and the adoption of different versions of the notion of social rights, with respect to the privatist regime that had prevailed until the late 19<sup>th</sup> century.

However, and precisely in connection with the exercise of citizenship rights, a particular characteristic of administrative rationalism was its **top-down approach**

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<sup>6</sup> Some private companies continued to operate until the 1940s and 1950s.

grounded on the understanding that the management of public services is the **preserve of professional politicians, bureaucrats, and scientific experts**. In the words of John Dryzek, this approach can be summarized as “leave it to the experts” (Dryzek 1997).<sup>7</sup> In this regard, although administrative rationalism must be credited with the great achievement of democratizing the access to essential services, at least in the core capitalist countries and some regions in the countries of the capitalist periphery, its top-down approach provided little if any space for the **effective participation of citizens in the democratic control** of policy making and implementation in the provision of the services. While in the central capitalist countries this pattern of lack of spaces for participation was somewhat offset by the effectiveness of the regime to deliver high quality WSS on a universal basis, in Latin America the top-down, often authoritarian approach of administrative rationalism prompted **resistance and long-lasting confrontations**, largely because, with few exceptional cases, the regime has been unable to deliver sustainable quality WSS on a universal basis (Castro 2006). The reasons for this are very complex and present differences across countries, but the overall pattern is clear, and even today the provision of essential WSS is still substandard in most Latin American countries, including the three countries addressed in DESAFIO.

From a different perspective, the also complex political implications of the prevalence of the administrative rationalist regime for the democratic management of essential public services have been studied in detail long ago, particularly in Western Europe (see for instance the work done in the 1970s by members of the French school of urban sociology: Préteceille 1974, Decaillot, Preteceille et al. 1977, Lojkin 1977, Topalov 1979). Among other aspects of this discussion worth highlighting briefly is that it contributed to expose the **instrumental role** played by the advance and consolidation of administrative rationalism in tackling the **systemic crisis of global capitalism** in the aftermath of the 1929 financial collapse. In this connection, in contemporary debates some intellectual traditions tend to oppose “state” and “market” as if these were entirely antagonistic to each other, not least in relation to the debate about WSS “governance”. However, during much of the twentieth century **the state played a decisive role in guaranteeing private capital accumulation and the survival and reproduction of the capitalist system**. Since the end of WWII, this role of the state was actually sanctioned by the international financial institutions. In fact, even in the framework of the neoprivatist “governance” regime promoted since the 1980s that we consider in the next section, the state has been given the **central role in enforcing and supporting the consolidation** of the regime, although the discourse of prominent sectors in current debates continues to present the state and the market as natural enemies.

Finally, it is also important to examine the fact that administrative rationalism has been **combined with very diverse political systems**, from representative liberal democracy to civic-military dictatorship. Regarding the latter, one of the prime examples at the international level comes from Brazil, the focus country in DESAFIO. One of the enduring legacies of the dictatorship that ruled the country between 1964 and 1985 is related to the revolutionary reforms introduced in 1968 in the running of WSS in the

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<sup>7</sup> This is a necessary generalization given the scope of the report, but certainly an in-depth examination of the pattern of administrative rationalism in different countries would reveal important differences and provide a more nuanced appraisal of different degrees of openness and accountability.

country with the creation of the National Sanitation Plan (PLANASA). PLANASA introduced a **highly centralized and top-down model** of water management, which still constitutes the backbone of the WSS sector in the country despite significant opposition and criticism (Rezende and Heller 2008, Heller 2009). Several of DESAFIO's case studies in Brazil focus on different aspects of this legacy. Nevertheless, disregarding the type of political system, the historical record shows that as a general trend administrative rationalism left little if any room for the **exercise of political rights** in relation to decision-making processes involving the management of public goods and services. As John Dryzek put it in relation to the field of environmental management, the operating principle of administrative rationalism can be described as "leave it to the experts" (Dryzek 1997). That is, substantive citizen participation has been **severely restricted** in the administrative rationalist tradition even in the context of democratic governments, given that the central presupposition of this regime has been that participation in this field is the preserve of scientific experts and professional administrators and politicians.

This dominant approach of the administrative rationalist regime raises a number of questions in relation to the exercise of political rights. For instance, what are the **mechanisms** for the definition of **societal goals** in relation to the provision of WSS in the framework of this regime? What **values** and whose **material interests** underpin these decisions? Who decides what will be the **means** to reach those societal goals? How are these decisions taken? What mechanisms are available to common citizens to exercise **democratic control** over the actors and institutions that take these decisions and go on to implement the resulting plans? The historical evidence suggests that in general administrative rationalism, even when it has succeeded in delivering, for instance, the universalization of WSS in developed countries, has been characterized by top-down approaches, **opaque to public scrutiny**, with very limited citizen participation, when not by straightforwardly **authoritarian or even dictatorial arrangements**. This fact was used with great success by the advocates of the return of the privatist regime since the 1980s, who, among other arguments, have pointed at the low participation that characterizes the administrative rationalist regime **to justify the promotion of neoliberal policies such as de- and re-regulation, liberalization and commodification**. As discussed in the following section, this relatively recent development has significant consequences for the democratic government and management of WSS.

Text box N° 2. Key characteristics of the administrative rationalist regime

The administrative-rationalist regime started to consolidate since the late nineteenth century and eventually replaced the liberal privatist regime during the first half of the twentieth century. The main characteristics of this regime are:

- The notion that the provision of water and sanitation services is affected by “market failures”, including that
  - It is a natural monopoly, there is no competition between service providers
  - It is a public good and therefore it is not possible to exclude users (e.g. who cannot afford to pay for the services)
  - Generates positive and negative “externalities” that cannot be properly accounted for through the market
  - Is a merit good, valued by society and therefore provided universally independently of the preferences of individual consumers or their ability to pay.
- The principle that these services must be regulated to protect the public interest.
- After regulation of private water utilities failed in the nineteenth century, the decision to place water supply services in the hands of public companies; the development of sewerage and urban drainage services was entirely carried out by public utilities.
- The expansion of centralized control of water and sanitation services by public entities with specialized technical and administrative staff.
- The establishment of general quality standards for the services, monitored by centralized public entities.
- Public investment to guarantee the expansion of the networks to provide universal coverage (mostly in developed countries).
- The replacement of social identities generated by the privatist regime (the private water customer) by the identity of the citizen formally entitled by right to have access to essential goods and services considered to be a socially accepted component of civilized life

The neoprivatist regime

The most recent period in the history of WSS, since the 1980s, has been characterized by the attempt to re-establish the privatist regime, hence, neoprivatism. This stage has been marked by the introduction of policy reforms oriented at replacing administrative rationalism by an updated version of the privatist regime that had prevailed until the second part of the nineteenth century. Much has been written about this stage and we will only make reference to some relevant aspects for our discussion here (see, among other: Atherton and Windsor 1987, Commander and Killick 1988, King and Waldron 1988, Ward 1997, Goldman 1998, Hall 2002, Katko, Juuti et al. 2002, Bauer 2004, McDonald and Ruiters 2004, Melosi 2004, Henisz, Zelner et al. 2005, Heynen and Robbins 2005, Swyngedouw 2005, Spronk 2007, Hall 2008, Bakker 2010, Castro 2010).

In relation to the above, it is important to highlight that although the promotion of policy reforms seeking to establish a neoprivatist regime in the WSS sector is often justified as a response to the acute problems facing the WSS sector in many places, in practice the origin of these policy reforms **has little if anything to do with the specific problems affecting water and essential WSS**. In general, the implementation of these

policy reforms has been part of the so-called Washington Consensus, which provided an ideological and political framework for the attempts to establish a neoprivatist regime in almost all spheres of activity, including WSS. Latin America became a chosen territory for the neoprivatist experiment in the WSS sector, first in Chile and since the 1990s in most countries of the region, including the countries addressed in DESAFIO, notoriously Argentina. Despite the dramatic failures of this neoprivatist experiment in the region, the impact of the policy reforms implemented were far reaching and will have **lasting effects** for years to come. Although since the beginning of the twentieth first century some countries like Argentina introduced significant changes to reverse the advance of the neoprivatist regime in the WSS, the neoliberal reforms left in place a tight legal and administrative framework and unleashed forces that retain **substantial inertial power**. These legal and administrative mechanisms and inertial forces have become **structural determinants of public policy** in many respects, and will continue to have an enormous impact for the foreseeable future (Castro 2009, Echaide 2014).

The policies implemented to establish a neoprivatist regime in the WSS sector have a main thrust: to **free the state from responsibility** in the provision of essential services and **transfer that responsibility to “private” actors**. We place “private” between double marks because, as explained below, the concept of private, at least in the early days of these policies in the 1980s encompassed **all actors outside the state**, from private companies to NGOs and citizen groups. This is very relevant to our project, which focuses on the **emergence of socio-technical innovations** to solve the problem of lack of access to WSS by **vulnerable communities**. Effectively, the international debate in the 1980s was characterized by a **combination of economic, political, and technical arguments** that fitted the emergence of socio-technical innovations to deliver basic services to poor, vulnerable communities. The debate was strongly marked by the notion that governments should transfer most if not all responsibilities for the provision of basic services to other actors, **including the poor and vulnerable communities themselves**. Firstly, there were strong **neoconservative arguments** for the **transference of responsibility from the state to its citizens**, placing greater emphasis on the **responsibilities of citizenship** and tending to **restrict, if not even eliminate, pre-existing notions of rights**, particularly social rights to such goods and services like basic health, education, housing, or water and sanitation. Secondly, there was the **neoliberal strand** of argumentation, largely compatible with the neoconservative creed, arguing that the provision of basic services should be transferred from the state to other actors, ideally transforming these services into **commercial goods delivered by private companies**. Where this was not feasible (for example, because of lack of business interest), it was argued that these services should be transferred to **NGOs, religious organisations, end users, or a combination of these**, among other alternatives. Thirdly, there were also powerful arguments for the adoption of **simplified and low-cost technologies** and solutions, especially for the **extension of services infrastructure to the unserved poor**. These three main lines of argumentation converged in a diversity of policy initiatives, among which there are several of the socio-technical innovations addressed in DESAFIO, such as the Condominial Sanitation system or the low-cost rural water services implemented in Brazil and Colombia (see DESAFIO’s case studies). In this case, the **transference of responsibility from the state to the end users** could take a variety of forms, where poor communities would be requested to provide **funding for the**

**infrastructure** (whether in cash or by providing labour and materials), and some form of **involvement in the management and maintenance of the systems**.

In relation to the provision of WSS in wealthier areas, more attractive than poor communities to profit-making water companies, the central aim of these policies was to **transfer control** over, and in the more radical cases even the **ownership of, water resources and WSS to the private sector**. For instance, the World Bank, one of the institutions that has been more involved in promoting the establishment of a neoprivatist regime, created a specific team in the 1990s with an “Action Programme” to facilitate the transfer of WSS to private companies. In one of the leaflets of the programme it was asserted that

Private participation offers enormous potential to improve the efficiency of infrastructure services, extend their delivery to the poor, and relieve pressure on public budgets that have long been the only source of infrastructure finance. Encouraging more private involvement requires that governments change their role—no longer directly providing infrastructure services but mastering the new business of fostering competition among private providers, regulating where competition is weak, and supporting the private sector generally (World Bank 1998).

As the statement clearly suggests, the central strategy was to **remove the state from the role of direct provision** of essential services and **transfer responsibility for these services to private companies**. In addition, the idea was to **reduce control and regulation to a minimum**, effectively transforming the state’s role into that of **facilitator and guarantor of commodified WSS**. The neoprivatist regime aims to re-establish the model of minimalist state characteristic of **individualistic liberalism**, which in its contemporary version dictates that the state should surrender the role played under administrative rationalism to provide universal access to WSS as a public good and a citizenship right. In the new conditions created by the neoprivatist regime, **the status of WSS is reconceptualized as that of a commodity, a private good** that must be traded between private parties with minimal or even **without state intervention**. That is, back to the situation that existed in the nineteenth century before the emergence of the administrative-rationalist regime. For instance, a World Bank document promoting the neoprivatist regime as the solution to extend the access of WSS to the poor, argues that one of the most important obstacles to establish the new regime is that “[t]he public has become used to [the provision of WSS by public companies] and perceives services of these utilities as a ‘public service’ or even a ‘social good’” (WSP and PPIAF 2002: 8). In other words, if the neoprivatist reforms are going to succeed, it is required to **cancel the notion** that access to essential WSS is a **government responsibility and a social right** for everyone. WSS must become private goods and people must **buy them privately, in the market**. This core principle of the neoprivatist regime has been also adopted by influential actors within specialized units of the United Nations, such as UNESCO. As explained earlier, in UNESCO’s Second World Water Report we can read that WSS are “commodity (or private) goods” (UNESCO-WWAP 2006: 409). It is important to differentiate here between this discussion about converting WSS from public or social goods into commodities and the “public vs. private” debate in the management of WSS

of recent years. This distinction is very relevant because the neoprivatist reforms seek to reformulate completely the role of the state and the status of essential public services, **disregarding the type of service provider, even if the provider is a public utility**. I will come back to this point later on.

In practice, the dominant forms of private sector participation promoted by these policies have been **long-term concessions and contracts** covering specific areas of activity, including **public-private partnerships** (PPPs). If we reserve the term “privatization” to the **radical transfer of property rights** over infrastructure or water resources<sup>8</sup> to the private sector, then we have very few cases of privatization, strictly speaking, in the world. Chile, the most extreme example, where the property rights over both water resources and WSS infrastructure have been granted to private individuals or companies, and England, where only the property rights over WSS infrastructure were transferred to the private sector in 1989 (see, among others: Bakker 2004, Bauer 2004). In fact, the term “privatization” has led to some confusion, as recognized even by some of the leading private operators involved in the process. For instance, Mr Gérard Mestrallet, President-Director of Suez, one of the two largest global water corporations, stated that

we believe that the privatization of water infrastructures in developing countries is not necessary. [...] The use of the term privatization made by some authors in their models while referring to situations where the public sector remains the final owner of the infrastructure constitutes an abuse of the language (Mestrallet 2001: 18 [our translation], Suez-Ondeo 2001, see also: Mestrallet 2003).

Mr. Mestrallet’s argument to restrict the meaning of “privatization” to the **ownership of infrastructure** has some purchase, even if his main reason to take this position was to counter the heavy attacks received by Suez and other multinationals that became the key global actors in the re-establishment of the neoprivatist regime since the 1980s. Not only he rejected the concept of privatization in relation to the long-term concessions and other forms of participation in WSS provision involving his company, but he also went on to declare that “[w]ater is a common good. We are opposed to the privatization of water resources because, in our eyes, water is not a commodity” (Mestrallet 2001: 18). Leaving aside the motivations and implications of this positioning adopted by one of the leading water multinationals that came to dominate the expansion of private sector participation in WSS, the example helps to cast light on the need for precision in the conceptualization of the processes unleashed by the neoprivatist reforms. Given the significance of the term “privatization” as key symbol in the widespread mobilizations around the world against water commodification it is likely to be unproductive and unfeasible to try persuading people that we should restrict the meaning of the concept. However, this is needed in the production of knowledge about this

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<sup>8</sup> Promoters of the neoprivatist regime in the water sector have argued that “the most significant act of privatisation may be the granting of property rights over water” (Lee, 1999: 93), and Chile has become the prime example of the implementation of this policy.



process, to avoid the risk of overgeneralization and to develop more effective conceptual tools to describe and explain the highly complex **combination of mechanisms and forces set in motion by neoprivatism** (Castro 2013). For this reason, as explained in previous work, in our analyses we use the terms “commodification”, “mercantilization” or “private-sector participation” to refer to the broader processes at work, and reserve “privatization” to the specific cases of transfer (or creation) of property rights over water resources or WSS infrastructure to private actors (Castro 2010: 170). This is very relevant, for instance, to dissect the components of the policy reforms that are the focus of the case studies in our project DESAFIO.

In this connection, it is important to briefly review some aspects of the policy debates that accompanied the push to establish the neoprivatist regime driven by the US and Great Britain since the 1980s. A crucial point is that at that time, “privatization” was used as an **umbrella term** that included almost any policy that consisted in taking out the provision of public services from state hands and transferring the responsibility for these services to other actors. In the prevailing framework of individualistic liberalism that inspired these reforms, **any actor outside the public sector was conceptualized as “private”**, even religious charities or self-help community groups, as illustrated by the following definition emerging from the implementation of neoprivatist policies in the US:

Privatization refers to the transfer of functions previously performed exclusively by government, usually at zero or below full-cost prices, to the private sector at prices that clear the market and reflect the full costs of production. [...] It should not be assumed that privatization will always involve substituting private profit-making firms for government bureaus as service providers. The private sector also encompasses volunteers, self-help groups, and non-profit agencies. The type of private organization that will best provide a particular service depends on many factors, including the type of service, demand for the service, income of those who will receive the service, resources and leadership of existing for-profit and nonprofit organizations, and the regulatory environment (Kent 1987: 4-5).

Similarly, another author addressing the same processes in the US stated:

Privatization serves as a buzzword for the Reagan administration’s policy of shrinking the federal government through sale of assets, policy devolution, and spin-off of activities to the private (business or nonprofit) sector. [...] Privatization has been used correctly to describe the full range of options by which we may increase private participation in the provision of urban services and in the development and maintenance of infrastructure (Atherton and Windsor 1987: 82).

It must be noticed that the first definition illustrates the fact that for individualistic liberalism there are two main players in this game, that state and the market, there is not such a thing as “civil society”, which for other intellectual and political traditions constitutes a sort of cushion between the state and the market. In the prevailing

ideological framework that inspired the return of privatism in the field of public services, everything outside the state is private and, by definition, **the private in whatever form is superior to the public**. The second definition confirms the broad understanding of “privatization” that characterized these policies. As some analysts rightly pointed out at the time, this understanding of the relationship between public and private and the ensuing policies were associated with “a clear rightward shift in political opinion in Europe and North America” (Commander and Killick 1988: 316). This ideological framework and the resulting policy package was exported by different means to developing countries, including Argentina, Brazil, and Colombia, the countries that are the focus of DESAFIO. These events had a significant and lasting influence in some of the processes that are the object of our study.

Text box N° 3. Key characteristics of the neoprivatist regime

The re-introduction of many principles from nineteenth-century privatism through the reform in WSS since the 1980s was the result of the worldwide implementation of neoliberal policies promoted by the so-called Washington Consensus. In practice, many of the reforms introduced in the WSS sector had little relation with the specific problems facing the sector. The reforms were rather the result of the dynamic driven by the governments of central countries and the IFIs and adopted by or even imposed on the rest. The fundamental principles of the neoprivatist regime can be summarized as:

- Wherever feasible, water resources and WSS infrastructure must be converted into private property.
- The state must withdraw from the function of service provider and take up the role of facilitator of market-led, privately run essential services.
- The provision of WSS must be transferred to monopoly private companies, which should be free from regulation or only lightly regulated.
- The notion that access to WSS is a social right or a public good must be abandoned. Instead, re-establish the nineteenth-century principle that these services are a commodity, a private good that individuals and families must get through a contract with private companies, without any mediation from the state.
- Shrink citizenship rights back to the civil and political dimensions. Cancel the identity of the social-rights bearing citizen, characteristic of the social-liberal tradition of citizenship that prevailed in most major capitalist democracies during the twentieth century.
- Re-establish the social identities of the private WSS customer and the water thief, which had been created within the framework of the privatist regime during the nineteenth-century. Rather than citizenship rights, users of WSS must have market-friendly consumer rights.
- Place the emphasis on the responsibilities rather than on the rights of citizenship, especially for the poor, who got used to the idea that there are rights to essential services. People must provide for themselves, either by purchasing good and services in the marketplace or, in the case of the poor and very poor, through charitable organizations or different forms of self-help and self-organization.

Neoprivatism and its impact on the politics of WSS

A fact that remains relatively unknown –for instance, it is not sufficiently debated in the countries covered in our project– is that despite been the main champion of neoprivatism, **the US has kept WSS largely in public hands** (NRC 2002). Despite significant attempts to push the transfer of water utilities to the private sector, the large majority of the US population receives publicly provided WSS. In contrast, **Latin America became an experimental field for neoprivatism**, and Chile and Argentina were the countries where these policies were adopted more radically. In the case of Argentina, the government of President Carlos Menem (1989-1999) implemented a massive transfer of public utilities to the private sector. In the case of WSS, in just six years between 1993 and 1999 the population served by private utilities went from 0% to 70%. In contrast, Brazil, the core country in our project, despite the efforts of President Fernando Henrique Cardoso to introduce neoprivatist reforms in the 1990s, the proportion of the population served by private utilities was less than 10% during that period.

In the last decade a wealth of evidence has been produced showing that **these policies failed to deliver the promised benefits** (e.g.: Drakeford 1997, Bakker 2004, Castro 2004, Goldman 2007, Hall and Lobina 2007, Laurie 2007, Solanes and Jouravlev 2007, Spronk 2007, Brown, Cloke et al. 2008, Castro 2008, Hall 2008, Beveridge 2012). Many of the projects implemented since the 1980s have been cancelled, often acrimoniously and at a **very high cost for the countries that were supposed to benefit** from the reforms. Argentina has cancelled most of the projects implemented during the 1990s and most WSS in the country are now **back in public hands**. Similar processes are taking place worldwide including some notorious cases like Paris, Berlin, Atlanta and other important world cities (e.g.: Pigeon, McDonald et al. 2012, Kishimoto, Lobina et al. 2015). However, the reforms introduced to establish neoprivatism have been far-reaching and highly influential, and **have created a new environment for the provision of WSS**. These policies have been very successful in **weakening, when not altogether eradicating, the notion that the access to WSS is a social right and a public good**. Consequently, in many countries now governments require that **public companies run their services on a similar basis that private utilities**, giving higher priority to “**profit making**” and **economic efficiency** rather than to the principles of **universality, equality, and social efficacy** (Castro 2009). Moreover, while many countries have been reversing the policies implemented in the 1990s, especially the long-term concessions for WSS given to multinational companies, there is a **new wave of neoprivatist policies** being implemented in countries where these policies had been less successful in the 1990s, notoriously Brazil and Mexico.

As discussed earlier, in the 1980s the implementation of neoprivatism was framed by a concept of “privatization” that encompassed all forms of management and delivery of public services carried out by **non-state actors**, from private companies to charities, NGOS, religious entities, self-help groups, or community organizations. The target was to remove the state completely from the function of service provider and limit its role to that of **enabler and guarantor of “privatized” public services**. In areas attractive to private companies, like the profitable sections of large metropolises or wealthy intermediate cities, normally provincial capitals and other important urban centres, “privatization” involved long-term concessions and contracts to deliver WSS granted to

multinational water companies, often in alliance with local companies in each country. To a lesser extent, this process also included national private operators and **even public companies** (e.g. from Europe, the US, and later Israel) that started **to operate like private water businesses** abroad competing for concessions and contracts with the private multinationals (e.g.: Hall 2002, Castro 2004, Swyngedouw 2005, Hall and Lobina 2007). However, **poor urban and rural communities**, where the bulk of the world's unserved population is located, **were not a main target for profit-oriented "privatization"**, unless the state stepped in to foot the bill. In these cases, a number of arrangements were set in place, involving different types of **combinations between "private" actors with state support**. Although these arrangements took different forms, they have key common characteristics derived from the policy framework provided by the neoprivatist regime. Among other forms, there are the so-called **tri-partite partnerships**, involving a private operator, the state –normally providing funding to cover part of the investments in infrastructure; and some not-for-profit organization like an NGO that would provide a link with the user community to organize their contribution towards the funding of the system, which may be in cash, in kind (materials, labour) or both. This form was implemented for instance in the case of the private concession Aguas Argentinas in Buenos Aires, which in the early 1990s became the world's largest private WSS concession. The multinational private operator was not obliged by contract to provide WSS to unserved vulnerable communities in the peripheral areas of Buenos Aires, and **the tripartite arrangement was put in place to abate the increasingly vocal social protests complaining for the lack of service provision**. This case has been the subject of heated debate, ended acrimoniously in 2006 with the cancellation of the concession by the national government, and is still the subject of international litigation today (see articles 1 to 4 in: Castro, 2014; see also Azpiazu and Castro, 2012). There are other forms involving the "participation" of the **end users, normally vulnerable communities**, which in many cases does not involve for-profit private operators. It is the government that transfers directly the responsibility for WSS to the end users through different arrangements. One of the classical forms is that the state provides financial and technical support and the community provides partial funding, materials, and labour both for the construction and then for the maintenance of the systems. The goal is that **these systems must become self-sufficient** at some point, when the communities would take full responsibility for all aspects. DESAFIO examines several cases from Brazil and Colombia that fall within this category and will be addressed in more detail in the case study reports and other relevant project documents.

### The politics of citizenship and participation in WSS<sup>9</sup>

The concept of “participation” is now part of the standard public policy vocabulary in relation to the management of public services, including WSS. There are many reasons that can explain this increasing popularity of the concept in the public policy literature. An important driver has been the impact of **genuine pressures on governments** put by social actors who seek to improve their living conditions and demand **greater transparency and accountability** from the authorities and the service providers. However, another important reason has been the often-opportunistic approach of governments and other powerful actors that see “social participation” as an ideal mechanism for **co-optation and disciplinization to control and diffuse social dissent**. In addition, “participation” is constitutive of a number of key concepts belonging to the modern Western democratic traditions, including “citizenship”, “public sphere”, and “civil society”. In these different traditions, “participation” may be given different meanings, which are often mutually contradictory and sometimes incompatible.

An important factor that helps to explain these variations in the notion of participation derives from the contradictions associated with the concept of liberty, which in turn influences the conceptualization of citizenship rights. For instance, the political tradition of individualistic liberalism emphasises **negative liberty**, which is understood as the absence of limits or barriers to the pursuit of individual goals and satisfaction. In contrast, other democratic traditions place the emphasis on **positive liberty**, referring to the **structural conditions** that may allow all individuals to fulfil their potential, which requires the existence of **norms and boundaries** to stop the monopolization of these structural conditions by powerful social actors. Between these two understandings of liberty there is a range of different combinations, which help to explain the variations in the meaning and scope of concepts such as citizenship or participation and have a significant impact on the **institutional frameworks**, including those involved in the provision of essential public services.

In this connection, the notion of participation as a citizenship right related to the development of the public sphere, can take a diversity of forms in different territories and historical moments (Ferree, Gamson et al. 2002). For example, in the dominant Western political traditions, grounded on the principles of representative democracy, participation in the management of public affairs tends to be **restricted to professional politicians and experts**. In turn, political traditions that seek to widen and deepen the democratic process seek to **break the elitist monopoly** over the management of public affairs and include wider sectors of the citizenry in the process. These contradictions between elitist, restricted understandings of participation in the public sphere and rival traditions that conceive the expansion of social participation as a key element in the consolidation of **substantive democratization** have a determining influence in the institutions and practices associated with the management of essential public services, including WSS.

As discussed in the previous section on the administrative-rationalist regime, the historical evidence suggests that the management of public services in general, with few exceptions that tend to confirm the pattern, has been characterized by **technocratic, top-**

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<sup>9</sup> This section is partly based on Castro (2012).

**down**, even **authoritarian** approaches that conceive that these activities are the preserve of professional politicians and techno-scientific experts, **not open to common citizens**. This hierarchical, **non-participative** and often paternalistic approach, generally **opaque to public scrutiny**, was nevertheless highly successful in the central capitalist democracies, contributing to the universalization of access to quality WSS. In addition, in Europe, for instance, there have been important variations across countries in the level of participation in decision making in the WSS sector (Hall, Katko et al. 2007). In some cases like in the Nordic European countries, administrative rationalism in the field of essential services like WSS was developed within the framework of the strong traditions of local, **municipal democracy**, characterized by a higher degree of **democratic control by common citizens** (Pietilä, Gunnarsdóttir et al. 2009).

The tension between elitist and inclusionary understandings of social participation has been exacerbated since the 1980s with the political and institutional reforms introduced to establish the neoprivatist regime as discussed in the previous section. For instance, breaking public monopolies in charge of WSS and transferring these services to the private sector was often justified as an opportunity to expand “social participation” and democracy (e.g.: Dinavo 1995). In practice, what was implemented was a **substitution of public for private monopolies**, which are now heavily protected from democratic scrutiny in the name of commercial privacy. In many cases not even government regulators can have access to the information necessary to monitor private monopolies operating in their territories (Solanes 2002, Jouravlev 2003), which also happens in the central capitalist democracies (Hall and Lobina 2006, Hall and Lobina 2007). In Latin America, neoprivatist reforms were implemented by governments that left little opportunity for meaningful democratic participation and scrutiny. It is unsurprising that these reforms led to an intensification of social conflicts over WSS in many countries of the region, including the countries addressed in DESAFIO.<sup>10</sup>

### Participation in WSS in Latin America

It is possible to identify some patterns in relation to the forms of social participation in WSS recorded in Latin America. These broad patterns are not mutually exclusive and are often combined in different ways, reflecting the tensions between **rival political traditions** and particularly the social struggles for the **democratization of water politics** in the region. As an analytical exercise, we can identify three broad patterns:

- 1) **Technocratic exclusionary**. Policy decision making and implementation are restricted to politicians and technical experts. Opaque to public scrutiny. People are not allowed to participate in the process, whether as citizens or as users/clients/consumers of public services.
- 2) **Technocratic with restricted social participation**. Allows or even promotes spaces of social participation that are highly restricted and controlled. Participation tends to be circumscribed to the involvement of community

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<sup>10</sup> The best-known example, though far from being an isolated case, were the so-called “water wars” in Cochabamba and La Paz, Bolivia, between 2000 and 2006 Laurie et al. (2015).

members in providing funding, materials or labour for the construction and maintenance of infrastructure, other self-help activities, or the exercise of consumer rights. It often becomes a mechanism for the co-optation of social leaders to allow political control over dissenting groups, diffuse social unrest, etc. Citizen participation in policy-decision making, implementation, and monitoring of public policy is not allowed.

- 3) **Bottom-up social participation.** Driven by diverse social actors including political parties, community groups, NGOs, religious organizations, trade unions, user organizations, etc. Participation can take a diversity of forms, including self-organization to provide services in the absence of government action, lobbying, public mobilization and protests, to direct action resulting in violent outcomes. It can become institutionalized or remain as a diffuse, often intermittent, form of social participation. It can be reactive (protests, complaints, etc.) or propositive, actively engaged in developing alternatives to the status quo.

As stated earlier, these are broad patterns and in practice it is possible to identify diverse combinations, which over time may evolve as a result of the **dynamics of socio-economic and political processes**. For instance, the inducement of restricted and controlled forms of social participation within the framework of highly technocratic management of WSS often triggers unplanned and unexpected outcomes, which may contribute to the **emergence** of more substantive, bottom-up, **autonomous** forms of social participation. In contrast, forms of bottom-up social participation that may emerge with degrees of autonomy from the experience of mobilized community groups may be **co-opted** and eventually **demobilized** or **neutralized** by the authorities or other power holders in the WSS sector. In the following paragraphs we briefly examine some experiences from Latin America that illustrate these prevailing patterns and their interactions.

#### Non-participative, technocratic patterns

As discussed earlier, non-participative, technocratic approaches have been dominant in the organization of essential public services. In the period of expansion and consolidation of WSS during the twentieth century, these services were mostly an activity monopolized by the state, at different levels. This was clearly the case of the development of WSS in most Latin American countries (see, for instance: Castro 2006, Castro and Heller 2006, Rezende and Heller 2008 for the cases of Argentina, Brazil, and Mexico). As mentioned earlier, a notorious case is the role played by the National Sanitation Plan (PLANASA) introduced by the military dictatorship in Brazil in 1964, which largely continues to provide the main framework for the provision of WSS in the country (Heller 2009). Thus, as explained later, although in recent years a range of highly participative mechanisms in the running of essential public services have been introduced in Brazil, the non-participative technocratic approach **remains dominant in practice**. A recent example is provided by the extreme water crisis that affects the state of Sao Paulo, where the provincial water utility SABESP has been able to withdraw essential information about the crisis even from the authorities, arguing that it needs to protect the privacy of its

private customers (Carmo, Anazawa et al. 2014, Carta Capital 2015, Viana 2015). This case is also relevant to illustrate the **impact of neoprivatist reforms** discussed in the previous section, as SABESP is formally a public company but in practice it is required to perform as a for-profit utility more accountable to private shareholders than to the citizenry.

In this connection, the introduction of aggressive neoprivatist reforms since the 1990s, often **justified as a way to promote greater participation** from common citizens in the monitoring of public services has actually contributed to consolidate or even deepen the opaque, non-participative, often authoritarian character of technocratic management. A classical example, already mentioned in the previous section, was the massive transfer of WSS to the private sector in Argentina during the 1990s. In most cases, the Argentinian government took the decisions **without public consultation** or at least debate in the national Congress. The concessions to private companies were approved by the Executive using the fast-track mechanism of Presidential Decrees of Need and Urgency, which allows the government to bypass the Congress. In the case of the Buenos Aires Metropolitan Area, although a regulator was set in place, the Tripartite Entity of Sanitary Works and Services (ETOSS), in practice it lacked independent access to the information needed to monitor the private operator. Eventually, growing population dissent in the aftermath of the country's 2001 political crisis led to the cancellation of the contract in 2006 (Azpiazu and Castro 2012). Other cases in the country followed a similar fate, including the provincial utility of Santa Fe, the region covered by one of DESAFIO's case studies, where the private concession was also cancelled in 2006 for very similar reasons.

Although the case of Argentina is a key example given the extent of neoprivatist reforms in this country, this is not an isolated case. The non-participative technocratic approach to the provision of WSS **remains dominant** in most of Latin America, including those countries that have made substantial progress in democratizing the access to essential services in the last two decades. However, in most cases there has been a **progressive flexibilization**, and governments have been implementing **restricted, controlled mechanisms** to allow some degree of social participation within the framework of centralized, top-down technocratic management of essential services. This type of flexibilized technocratic management has become **more widespread in the region**.

#### Technocratic management with limited participation

For a range of reasons the dominant model of hierarchical technocratic management in occasions promotes, or tolerates, limited, **bounded, controlled forms of social participation**. In some cases, the process may take a paternalistic, clientelist approach, relatively "benign", where social participation induced from above may play a **positive function of limited social and political inclusion**. In other cases though, the main function of bounded participation is at best a concession, often provisional, to mobilized social actors in response to pressures on government to democratize public policy and management and make these activities more transparent and accountable to the population. Frequently too, restricted forms of participation are allowed as **a mechanism**



to **co-opt** social leaders and organizations to **diffuse social dissent and re-establish political control**. I consider below some examples from recent research that cast light on the mechanisms deployed by governments, multinational private companies, and others.

Mexico. At least since the early 1980s the Mexican government started to place emphasis on the need for greater **social participation** in the management of water and WSS with the publication of the 1981 National Hydraulic Plan, which promoted greater participation from users in resolving water-related problems (SARH 1981). In the early 1990s, the government introduced important reforms in the water sector, including WSS. Officially, the reforms were oriented at replacing the clientelist practices that had characterized water management during previous decades and replacing it with a “new water culture” that should be grounded on **citizen involvement, user responsibility**, and the **transfer of WSS from the state to the private sector**. In this period, the government tried to institutionalize certain aspects of user participation, for example creating a Coordination of Participation within the National Water Commission (CNA), a Sub-coordination of Social Participation in the Mexican Institute of Water Technology (IMTA), and even promoting a national Citizen Water Movement. However, this attempt to **formalize and establish from above the participation of users** in water management produced neither the expected increase in effective user involvement nor the development of a new water culture that the government announced. Successive Mexican governments have implemented other attempts on similar lines. A crucial problem with all these attempts has been that the notion of “participation” prevailing in these reforms have limited it to **technical-administrative** aspects **neglecting the significance of the socio-political dimension of participation**. In fact, in these reforms participation has been largely understood as **user acceptance and obedience** to decisions taken by the authorities and technical experts. Too often in practice participation means an **increase in the responsibility** of the users, especially in relation to tariff increases (“willingness to pay”) and similar issues (Castro, Kloster et al. 2004, Castro 2006, Castro, Torregrosa et al. 2006, Torregrosa, Ouellet et al. 2010). In the official approach, participation does not include **public, citizen debates about the principles** that must guide the management of essential WSS or the **type of management system** (public, private, community, etc.) to be adopted, among other crucial issues that are not open for discussion with the citizenry. Even more, the government usually designs who participates in the mechanisms created for that purpose, which severely **limits the autonomous involvement** of users and citizens more generally (Jiménez Cisneros and Torregrosa 2009).

Bolivia. In 1994, Bolivia passed a new Law of Popular Participation to promote **citizen involvement in local government issues**. In addition, a series of reforms were introduced during the period 1993-1997 with the creation of a new regulatory framework for WSS utilities, which included mechanisms for citizen participation. For instance, the regulatory framework made provision for the possibility of **public consultations** to debate specific policy decisions related to WSS. However, in general participation was restricted to the provision of **administrative channels** for the presentation of complaints and appeals by the users in relation to WSS, and the regulatory institution was severely affected from the start by a **crisis of legitimacy**. For instance, in Cochabamba where the municipal WSS were granted in concession to a private operator in 1999, the regulator called a public audience in December that year to discuss an increase in the tariff to be

applied by the new operator. Strong opposition to the neoprivatist reforms and the private concession and public distrust of the government lead to a very low attendance, only 14 people participated in the audience. Evidence produced by research on this case showed that the majority of the population perceived the regulator as a **defender of the interests of the private company**, a perception that was deepened when even the municipal government was excluded from the negotiations related to the tariff increase, which effectively closed the only mechanism left to citizens to exercise **some degree of control** over the process. As it is well known, the whole process had a violent outcome, the so-called first Water War, a widespread social mobilization that produced human casualties and led to the cancellation of the contract in March 2000 (Laurie, Crespo et al. 2015). Similar processes took place simultaneously in the capital La Paz, involving another concession granted to a different private operator, which also ended acrimoniously with the second Water War (Pérez Barriga 2010).

Argentina. Another example comes from the experience of Aguas Argentinas, the private concession in the Buenos Aires Metropolitan Area already mentioned earlier. The increasing unrest among the population owing the lack of service provision affecting millions in the poor areas in the outskirts of the city led to the decision to introduce **some mechanisms of social participation** in the late 1990s. However, participation was **restricted to involving the users as providers of materials and labour** to expand the networks in poor neighbourhoods through a programme developed by the private concessionaire and a group of local and international NGOs (Almansi and Urquiza 2005, see Articles 1-4 by Azpiazu et al, in: Castro 2014). Despite the fact that even this restricted form of participation represented some advance with respect to the previous situation of complete disregard for common people in the running of WSS in the city, crucial aspects such as transparency and accountability in the management of the private concession **continued to be denied to the citizenry**. This concession was also ended in 2006.

Brazil. The introduction of participative mechanisms in the conventional framework of top-down, technocratic water management creates significant tensions, even when these mechanisms are restricted to specific issues and leave out substantial participation in the social and political aspects of the process. An excellent example comes from the Brazilian experience during the elaboration of a project to pass the first National Law of Environmental Sanitation proposed by the government of President Inácio Lula da Silva after taking power in 2003. The law project was elaborated within the framework of a widespread popular mobilization for the democratization of access and management of public services and included important elements of **direct democracy**, which gave a significant role to social organizations and citizen movements at the national, regional, and local levels. The project was an initiative led by important organizations of the Workers Party's electoral base, such as the National Front for Environmental Sanitation (FNSEA), and the National Association of Municipal Water and Sanitation Services (ASSEMAE). It had strong support from social and trade union cadres that came to play important roles in President Lula's government, especially in the National Secretariat of Environmental Sanitation in the Ministry of the Cities, created by the President. However, the law project faced strong opposition articulated by rival political parties and powerful public and private lobbies with important interests in the Brazilian WSS sector. Eventually, the mechanisms of direct democracy included in the

original law project were **severely curtailed or altogether excluded** from the final text of the law, which was passed in 2007. This was an important example of the sustained influence of the mainstream technocratic, top-down model of management of public services, which tends to exclude or at best severely restrict social participation. It was also a clear example of the **political character** of the management of essential public services.

#### Bottom-up social participation

In recent decades there has been a widespread social mobilization in Latin America directed at deepening the democratization of the access and management of essential public services such as WSS and waste collection and recycling (see, among others: Grosse, Thimmel et al. 2004, Medina 2005, Grosse, Santos et al. 2006, Bell, Conant et al. 2009, CEDA 2009, Red Latinoamericana de Recicladores 2010). This mobilization has taken diverse forms, from denunciations and pacific demonstrations to violent confrontations that sometimes result in the loss of human lives and material destruction. Often, the population has decided to **take responsibility for essential services** owing to state inaction, resorting to a diversity of strategies of self-organization involving from community water utilities to services' cooperatives, among others. In some cases, these grassroots movements have showed a great ability for **political action and articulation**, which has allowed them to gain access to important spaces of power and consolidate their capacity for direct intervention in the management of essential services. There are excellent examples of these processes from Argentina, Bolivia, Brazil, Ecuador, Nicaragua, Uruguay, and Venezuela, to mention some of the most salient cases. However, these experiences represent simultaneously successful grassroots, bottom-up forms of social participation, as well as processes of de-mobilization and co-optation, especially when the social actors involved were part of political projects that eventually succeeded in taking power, as has been the case in a number of countries of the region, notably the cases mentioned earlier in this paragraph. Let us consider some examples.

Argentina. In this case, grassroots social actors played a substantial role in **opposing neopriivist reforms** and struggling to **preserve or recover the public character** of essential WSS. Among the main examples it is worth mentioning the widespread citizen involvement in the province of Tucuman, where the population revolted against a private concession granted in 1995 to run the provincial WSS. The process was marred by lack of transparency, alleged corruption, and **absence of public debate or consultation**, as the decision to grant the concession was imposed by decree. A tariff hike of 105%, the first decision taken by the private concessionaire, aggravated by serious deficiencies in the service, led to a massive citizen revolt that involved municipal authorities, provincial legislators, workers that had been laid off by the private company, local businesses, and domestic users. Around 86% of the users started a **campaign of civil disobedience** consisting in non payment of the water bills and public demonstrations that included a "Popular Session of the Congress" to denounce the alleged corruption affecting the process leading to the concession. The concession was eventually cancelled in 1997, and the case is still under litigation before the International Centre for

Settlement of Investment Disputes (ICSID) of the World Bank (Crenzel, chapter 5 in: Castro 2014).

Other important examples come from the Buenos Aires Metropolitan Area, and the province of Santa Fe, the latter being addressed in one of our project's case studies. In Buenos Aires, the population was progressively changing from a situation of relative apathy regarding the situation of essential WSS to **very active participation** to put pressure on the government and the private concessionaire, which eventually led to the cancellation of the concession contracts and the creation of a public utility to take over WSS in the metropolis. After the re-publicization of WSS and despite much progress made by the new public company in extending coverage, **social participation did not disappear**. Over 300 social organizations have continued to put pressure on the government to improve the living conditions in the city, especially focusing on environmental sanitation aspects (Azpiazu and Castro 2012; Merlinsky 2013; see also chapters 1-4 in: Castro 2014). In Santa Fe, different social organizations including environmentalists, workers organizations, and community movements, supported by local academics and politicians created a Popular Water Assembly that carried out very effective **campaigns for the democratization** of WSS and the cancellation of a private concession granted to the French multinational Suez. The arrival of a left-of-centre political coalition to the municipal government in the provincial capital Rosario contributed to the decision of cancelling the concession in 2006 and **restructuring the provision of WSS in the hands of a public company** (Rovere 2010).

Bolivia. The Water Wars in Cochabamba (1999-2000) and La Paz-El Alto (2005-2006) became global emblems of the **popular participation against neoprivatist water policies**. The case of Cochabamba had particular repercussion in Bolivia, as the entire national cabinet stepped down in March 2000 as a result of the confrontation (only the President, Hugo Banzer, a former dictator, stayed in his post). The case also had great international repercussion, and became a **symbol of popular participation** to deepen the democratization of the management of essential services (Assies 2003, Laurie and Crespo 2007, Spronk and Webber 2007, Pérez Barriga 2010, Laurie, Crespo et al. 2015). In this case, many of the social organizations that participated in the mobilization against the neoprivatist reforms constituted a **core component of the social base** that supported the election of President Evo Morales in 2006. Some of the social leaders and their organizations participated actively in **restructuring the management of WSS** in the country. They also played a significant role in the **international debate** that eventually succeeded in declaring the **access to water to be a human right**, with the UN declaration finally passed in July 2010 (UN 2010). Bolivia was one of the leading countries behind this project, which largely **emerged from grassroots participation**.

Brazil. The country has produced in recent years some of the most celebrated processes of implementation of **mechanisms of direct, participative democracy** in several sectors of activity, notably the health sector, but also in WSS. Similar to the other cases, especially the Bolivian, the social movements that participated actively against the implementation of neoprivatist reforms in the 1990s became central actors in the process that led Luiz Inácio Lula da Silva to the presidency in 2002. Many of the leaders, including technical experts and trade unionists came to occupy central positions in government and took the lead in the implementation of a range of **policies to democratize the access and management of WSS**, including the already mentioned process that led

to the approval of the first National Law of Environmental Sanitation in 2007. Among other key initiatives it must be mentioned the internationally celebrated **participative budgeting**, initially started by the municipal government of Porto Alegre and later replicated around the country (Dutra and Benevides 2001, Fedozzi 2001). It is also worth mentioning the participatory experiences promoted by government institutions since 2003 like the Councils and Conferences of the Cities, which foster discussion at local, regional and national level for the **establishment of policy priorities** with massive participation of common citizens around the country. International institutions like the World Bank have recognized the capacity of these innovations to generate **legitimacy** for decision making and implementation in public policy (World Bank 2003: 42).

There are many other examples that could be mentioned here, including the thousands of rural and peri-urban self-organized Committees for Potable Water and Sanitation in much of Central America (see, for example the case of Nicaragua in: Barrios Jackman and Wheelock Díaz 2005, Kreimann Zambrana 2009), the Technical Water Boards that emerged in peripheral neighbourhoods of Caracas, Venezuela, and became a national public policy years later under the government of President Hugo Chávez (see for example: Arconada Rodríguez 1996, Arconada Rodríguez 2005, Lacabana and Cariola 2005, Arconada Rodríguez 2006, López Maya 2008). There are also important examples from Colombia (Vélez Galeano, Budds et al. 2010, Colmenares 2014), Ecuador (CEDA 2009), Peru (Cabel Noblecilla, Ortiz Sánchez et al. 2004, Cárdenas, Makovski et al. 2005), and Uruguay (Santos and Villarreal 2005), among others, that we do not cover here in more detail for reasons of limited space.

### Summing up

The examples above not only illustrate important aspects of the three broad patterns identified in the management of WSS in relation to the **extent and forms of social participation** adopted, but also cast light on the **obstacles and opportunities** facing the process of **substantive democratization** of the access and management of essential services in the region. The social struggles taking place in Latin America oriented at widening and deepening the democratic process have opened significant opportunities for **structural change**. In fact, it is possible to identify important advances in several aspects, from the introduction of **mechanisms of direct democracy** in the management of public services to the consolidation of **autonomous forms of management** of basic services, especially in rural and peripheral urban areas. There exist abundant examples of successful experiences that include participative mechanisms in the management and even in policymaking, which demonstrates that there is much **potential for the deepening of substantive democratization in WSS**. However, it is clear that there are no panaceas and that participative processes, even when they are bottom-up, genuinely emerging from the grassroots, are prone to all kinds of **distortions and failure**. The empirical evidence shows that **technocratic, non-participative forms of management and policymaking are prevalent**, and very often restricted forms of social participation are allowed in order to **diffuse unrest and maintain** the conventional hierarchical, top-down structures of government and decision making in the field of essential services. In addition, there is evidence that bottom-up participative processes are often **co-opted** by

the state or other powerful actors, including international development and cooperation institutions, and private water monopolies. There is also **corruption** of social leaders and groups and a process of **weakening of grassroots organizations**, especially when these become part of political projects that succeed in taking power at different levels of government. Powerful grassroots movements are weakened when their leaders come to occupy positions in government, even when this leads to **progressive transformations** of the state's structures and policies. Too often, the state machine ends up **disciplining** and converting formerly dissenting, even revolutionary actors into **docile components** of a stubbornly technocratic and largely authoritarian bureaucratic apparatus. Moreover, frequently the state has promoted forms of participation to cover up what can be termed the **politics of irresponsibility**. Largely inspired by the legacy of recent neoprivatist reforms but grounded on the long-term historical patterns of unequal and undemocratic politics characterizing Latin American countries, **states relinquish their responsibility** for guaranteeing the universal access to essential WSS, often transferring this responsibility –including the responsibility to fund and run their own systems– to the users themselves, who tend to be the poorest, marginalized and most vulnerable sectors of the community. It is not without ground that “participation” has been labelled by some a “new tyranny” (Cooke and Kothari 2001).

## **Conclusions**

This report is part of DESAFIO's development of a conceptual and methodological framework for the study of the role of socio-technical innovations in the process of democratization of the access to and management of WSS, with a focus on the impact of this process on vulnerable communities. We have dedicated three sections to discuss two interrelated themes: the debates about "governance", and especially water governance, and citizenship, with a focus on social participation in water politics and management.

There are several elements of this discussion that we want to highlight. Firstly, the prevailing forms of representative democracy, predicated on the principle that public affairs are the preserve of professional politicians and technical experts, continues to be one of the central obstacles for the advance of the democratization process in the water sector, including WSS. This framework is dominant in Latin America, despite significant variations across countries, including the cases of Argentina, Brazil, and Colombia addressed in DESAFIO. It is dominant despite the significant advances made since the beginning of the twentieth-first century in several countries of the region with the arrival of governments supported by a widespread mobilization of grassroots social actors. These include historically marginalized groups such as indigenous communities in Bolivia and Ecuador and large sectors of the impoverished working classes as in Brazil or Venezuela, just to mention notorious examples. The persistence of top-down, non-participative, often authoritarian political institutions and practices in the region has been aggravated by the regressive tendencies that affect contemporary electoral democracy. These regressive tendencies are expressed in the exacerbation of social inequality, even in cases where there has been a decrease in the levels of extreme poverty, as it has been the case in Brazil since 2003. One of the roots of this aggravation has been the convergence of technocratic and top-down, authoritarian representative democracy with the resurgence of privatism, which aims to reduce the role of the state to that of guarantor of private wealth accumulation and free it from responsibility for guaranteeing the universal access to the essential goods and services required by civilized life. This combination is a most serious obstacle for the achievement of the development goals set by the international community (both the Millennium Development Goals that come to an end in 2015 and those being discussed to replace them), including the targets for WSS.

The long-standing traditions that characterize Latin American societies in relation to the social struggles for achieving substantive, material, not merely rhetorical democracy help partly to explain the progressive transformations introduced in the last two decades. These transformations have prompted the opening of limited, controlled, bounded forms of social participation, normally circumscribed to specific topics, to certain territories, and within well-defined time frames, but nevertheless bringing about some spaces for meaningful political engagement. In the case of essential public services, governments have frequently responded to the pressures resulting from these social struggles, for instance the struggles for the expansion of access to WSS, with the promotion of forms of social participation limited to self-help and co-responsibility in specific tasks such as the funding of infrastructure and materials or the provision of labour to extend service networks. However, with few exceptions, substantive aspects such as decisions about the principles, values and material interests that must guide public policy

in the WSS sector are consistently excluded from public debate or at best reduced to electoral discourses with little material substance or political commitment.

This type of non-political, restricted, controlled, bounded social participation is promoted by international cooperation agencies and financial institutions, which have made “participation” a pre-requisite for the granting of financial support for services infrastructure. Regrettably, too often the notion of participation prevailing among these actors could be perhaps translated as “expected obedience” from the population to decisions taken by professional politicians and technical experts, while more substantive understandings of participation such as citizen involvement in water politics and in the democratic monitoring of decision making and implementation are not on offer. In recent decades, this situation has become particularly evident in relation to the politics unleashed by the advance of neoprivatist reforms seeking the commodification of essential goods and services. A main target of these policies has been the eradication of the notions that essential goods and services such as public health or WSS are a public good or a social right of citizenship. The reforms also seek to erase the notion that the state cannot relinquish its responsibility in guaranteeing the universal access to quality services independently of the capacity of individuals and families to pay for them. The main thrust of the privatist reforms is to free the state from responsibility towards its own citizens, transferring the responsibility to private companies, social organizations, or the users themselves, including the poorest and more vulnerable.

Although the most extreme forms of these reforms have taken place through the introduction of different forms of private-sector participation in the government and management of essential services, the commodification of these services is taking place disregarding if the service providers are private or public. This is because in the new policy environment created by these reforms, public companies are required to perform like private companies, giving priority to “profit” making activities rather than providing a universal public service to which all citizens are entitled. Despite the colossal failures of the neo-privatist experiments in Latin America and elsewhere, these reforms have succeeded in eroding the ethics of the public good, the social good that, notwithstanding its well-known shortcomings, had inspired the universalization of quality essential services in developed countries during the twentieth century. In this particular sense, the political project of neoprivatism has been highly successful.

This erosion of the ethics of the public, in the broadest sense, and its replacement by a mercantilist, individualistic ethics, constitutes one of the most significant obstacles confronting the substantive democratization of WSS in Latin America and elsewhere. The defence, recovery, and deepening of the ethics of the public requires the rejection of the notion that essential goods and services such as WSS must be governed by a mercantile logic oriented to guarantee private profit accumulation. It also requires the consolidation of the alternative principle that the access to these goods and services essential for dignified human life is a public and a social good, and a human right, which cannot be subordinated to market interests.



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## Original report cover – Article 2



### Final Report: DESAFIO's Theoretical and Methodological Framework

Work Package 1 Report  
(Deliverable 1.2)

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## **Article 2**

# **DESAFIO's Theoretical and Methodological Framework**

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### **Introduction**

This report forms part of DESAFIO's research work to develop a conceptual and methodological framework to address the project's objectives and research questions. DESAFIO derived its acronym from the namesake term that in Portuguese and Spanish means "challenge". We chose this acronym because the project focused on what constitutes one of the most difficult challenges facing Latin America and the Caribbean (LA&C) and most other developing regions: eradicating structural social inequality in the relation to essential WSS. As its full title states, our project was about the democratization process in the field of essential public services, with an empirical focus on socio-technical innovations that have been designed and implemented to tackle inequality and injustice in the access to WSS affecting vulnerable communities in Brazil, Colombia, and Argentina.

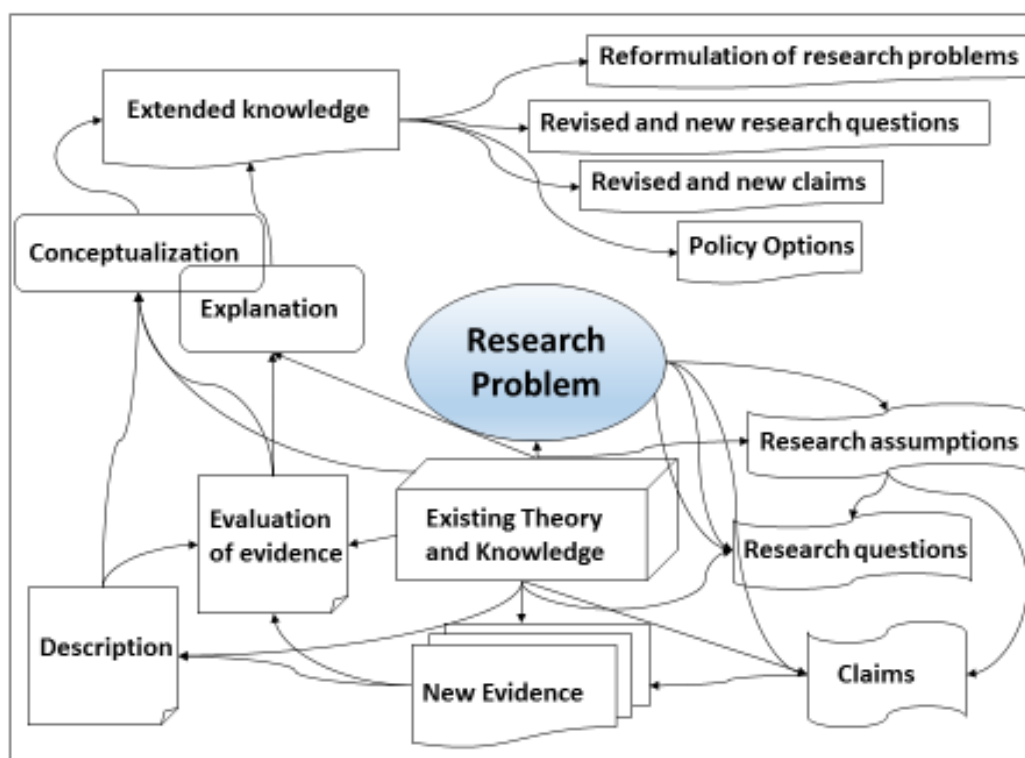
The report is structured in four sections followed by a synthetic Conclusion. The first section discusses the problem-centred research approach adopted in the project, focusing on the identification of the empirical problem, and its construction into a research problem. The second section examines the research problem in some detail. It discusses the main objective of the project work, which was to respond the key research questions aimed at enhancing our understanding of the factors and processes that help to explain the emergence, success, failure, and potential for replication of socio-technical innovations designed to tackle the WSS crisis affecting vulnerable populations. In the third section the document discusses the inter- and transdisciplinary approach that was adopted owing to the nature of the research problem. Finally, the fourth section examines the methodological framework, which was structured around a qualitative longitudinal analysis of ten case studies, using mixed methods. The Conclusions provide a brief summary of the contents.



## Problem-centred research

DESAFIO adopted a problem-centred research approach that starts with the identification of an **empirical problem**. To address the empirical problem we proceed to define it as a **problem of knowledge**, and as such a **research problem**. Empirical problems can be defined in a wide range of ways, often divergent and even contradictory or irreconcilable with each other, which is **dependent on the theoretical framework** adopted by the researchers. The theoretical framework informs the elaboration of **research assumptions, questions, and exploratory or hypothetical claims** that will be deployed to address the empirical problem. It will also lead to the adoption of a methodological framework to produce the **evidence** required to **answer the research questions** and to achieve a higher level of **explanation and conceptualization of the research problem**. The resulting extended knowledge provides the ground for the **confirmation, revision, or discarding of research problems, questions, and claims**, and for the formulation of **practical proposals related to the original empirical problem**, which in our case take the form of **policy options**. Figure N° 1 illustrates the approach.

Figure N° 1. The problem-centred research process



The empirical problem

The empirical problem that we identified for our research was to **ascertain the viability and extent of participative socio-technical innovations to tackle the crisis of WSS affecting vulnerable communities**. This empirical problem was at the time of writing the proposal, and still is in late 2015, of the highest intellectual and political relevance. At the beginning of the Twentieth-first Century, the lack of WSS affecting a large proportion of the human population was termed by the UN “the urban and rural challenge of the decade” (WHO-UNICEF, 2006). We identified a range of socio-technical innovations designed and implemented in Latin America and the Caribbean (LA&C), some of which had been praised internationally for making a contribution towards tackling the WSS crisis in the region. The objective was to study a selection of these innovations to verify their actual impact and potential, given the magnitude of the crisis.

The crisis of WSS and the Millennium Development Goals (MDGs)

The seriousness of the crisis was apparent in the **failure to meet the MDG targets for WSS**, which was predicted by the annual monitoring reports produced by the UN regarding the progress being made towards the 2015 deadline set for the MDGs. At the time when we were elaborating our research proposal, the monitoring reports confirmed the trends already identified in previous years (UN-Habitat, 2003; UNICEF, 2005; WHO, 2005: 27, 71; WHO-UNICEF, 2006: 6) that the global target for sanitation would not be met and that some regions of the world would not even achieve the target for drinking water (WHO, 2010: 6-10; UN, 2011: 53-56). The reports predicted a massive failure:

The world is far from meeting the sanitation target. In fact, at the current rate of progress, it will take until 2049 to provide 77 per cent of the global population with flush toilets and other forms of improved sanitation. Almost half the population of developing regions and some 2.6 billion people globally were not using an improved form of sanitation in 2008. That year, an estimated 1.1 billion people did not use any facility at all and practised open defecation, which poses enormous health risks, particularly for poorer segments of the population who are most exposed to the dangers of inadequate human waste disposal (UN, 2011: 55; UNICEF-WHO, 2008: 8).

Another report added:

At the current rate of progress the world will miss the MDG [sanitation] target by 13 percentage points. Unless huge efforts are made the proportion of people without access to basic sanitation will not be halved by 2015. Even if we meet the MDG target there will still be 1.7 billion people without access to basic sanitation. If the trend remains as currently projected an additional billion people who should have benefited from

MDG progress will miss out and by 2015 there will be 2.7 billion people without access to basic sanitation (WHO, 2010: 8).

As the second report highlighted, even if the targets were met, it would have still mean that half of the world population still unserved by basic WSS would continue to suffer from lack of access to these services beyond 2015, and these were the most vulnerable sectors (UN, 2011, WHO, 2010; WHO-Europe, 2010).

The crisis in the countries addressed by DESAFIO

DESAFIO focused on the case of vulnerable communities in Brazil, and included experiences from Argentina and Colombia to enhance the learning process. In this regard, the situation regarding the progress made towards the achievements of the MDGs in LA&C was paradoxical. A UN report published in 2006 highlighted the cases of Brazil and Mexico as notorious success stories, pointing that both countries had met the MDGs for WSS already in 2004, well ahead of the 2015 deadline (WHO-UNICEF, 2006: 8, 17). The other two countries in our study, Argentina and Colombia had showed a slower progress relative to the 1990 indicators, but both had already higher rates of coverage for WSS (WHO-UNICEF, 2006: 28-39). However, in contrast with the official reports, specific studies on the cases of Brazil and Mexico showed that the reality of WSS was much more problematic. When the quality, not merely the quantitative coverage data, of WSS was taken into account neither country had actually achieved the MDGs in 2004 (see the chapters by Heller, for the case of Brazil, and Torregrosa and Cisneros, for the case of Mexico, in Castro and Heller, 2009). Similar conclusions applied to the region as a whole.

Therefore, the empirical problem addressed by DESAFIO was that despite significant progress made in the region since the 1990s, the remaining challenges to eradicate inequality and injustice in the access to basic WSS were still enormous. Official figures published in 2010 suggested that around 40 million people in LA&C still used “unimproved drinking water sources”, around 7% of the region’s total population. Moreover, an additional 52 million people, around 9% of the region’s population, had access to drinking water through “easy access” facilities (i.e. open dug well, water trucks, superficial streams) which generally imply higher health risks (WHO, 2010). The situation was even worse considering the low quality of the water services received by the population officially covered by conventional networked systems, which are affected by intermittent service, low pressure and high water wastages. Some studies estimated that around 220 million people in Latin America (60% of the population officially covered) did not have continuous access to safe drinking water (Rojas et. al., 2007). There was also substantial evidence suggesting that the **disparities in urban and rural sanitation coverage remained daunting**, while many of the improvements implemented continued to **bypass the poor**. Official reports showed that while 97% of the urban population in LA&C got their drinking water from improved sources, the figure dropped to 80% in rural areas (WHO, 2010). Other studies presented a darker picture, suggesting that the lack of water in rural areas was double the rate in urban areas, and that the rural population without access to safe drinking water had reached 81 million people, over

14% of the total LA&C population in the mid-2000s (Rojas et. al., 2007). In addition, the lack of access to safe drinking water was particularly acute among low-income groups, which accounted for 70% of the unserved population (BID, 2007). The situation was even starker in relation to basic sanitation. There were still 117 million people, around 20% of the LA&C population, without access to “improved sanitation facilities” (WHO, 2010). This was aggravated by the fact that a significant proportion of the population still relied on in situ sanitation systems (around 41% of rural dwellers and 27% of urban residents) and 11% did not have access to any facility and still practiced open defecation. The gap in basic sanitation coverage between urban and rural areas in LA&C was among the highest in the world: 86% of the urban population used improved sanitation facilities against only 55% in rural areas (WHO, 2010).

#### Socio-technical innovations to tackle the crisis

The development of social-innovative strategies to solve the situation affecting vulnerable communities in relation to the access to basic WSS has a long history in LA&C. Many of these experiences are grass-root initiatives such as the organization of local cooperatives and community associations in rural areas, small towns, or poor urban areas left unserved by networked WSS. An example are the thousands of “potable water committees” organized by rural communities in Central America and other regions since the 1960s, which in some cases like Nicaragua, one of the poorest countries in the region, have been adopted as a policy option (Barrios Jackman and Wheelock Díaz, 2005; Kreimann, 2015). Another relevant experience are the “technical water boards” of Venezuela that first emerged from the initiative of community-based Church leaders in the 1980s and were also adopted later as national policy (Arconada Rodríguez, 1996, 2005, 2006; Lacabana, 2013; Lacabana and Cariola, 2005; López Maya, 2008). There is no shortage of such initiatives in LA&C, many of which have provided basic services for decades in areas not reached by the State and that are uninteresting for profit-oriented WSS operators.

Eventually, we chose **six experiences** of socio-technical innovation that had been already implemented and presented a track record with a range of qualities that fitted our research interests. Given that our project’s main focus was Brazil, four of these experiences were from this country and two from Colombia. Two of the Brazilian experiences had been implemented in Recife, the capital of Pernambuco and the fifth largest provincial capital city in the country. Recife is still characterized by striking structural inequalities, with around 50% of the households located in favelas and a poor provision of WSS (Miranda, 2005; Ferreira et al., 2015). The city was home to two socio-technical innovations designed to tackle the crisis of WSS affecting vulnerable communities: **Condominial Sanitation** (Melo, 2005) and **Integrated Sanitation** (SANEAR, 2008). We identified a third socio-technical solution that had been implemented in the municipality of Queimados, in the Rio de Janeiro Metropolitan Area, which is also affected by protracted structural inequalities and very poor or inexistent WSS (Costa and Ioris, 2015). In this case, the local community had developed a solution to the lack of drinking water that can be traced back at least to the 1950s, which uses **spring water sources**, “**minas de água**” in the local jargon. The fourth Brazilian

experience came from the north-eastern state of Ceará, in the country’s semi-arid region. Here we identified a socio-technical innovation developed by the provincial authorities, with international support, to provide drinking water to small rural communities that are often scattered over very long distances and far from urban centres: the **Integrated Rural Sanitation System (SISAR)**. The other two experiences that we chose had been developed in the Cauca region of Colombia and involved the community management of **ecological water and sanitation systems**. These systems had been implemented in two small rural communities, Mondomo and La Vorágine, and the regional public university had played a critical role in the process of development, implementation, and long-term support of the experiences.

Table N° 1. The eight socio-technical innovations

| <b>Socio-technical innovation</b>  | <b>Location</b>   |
|--|---|
| Pre-existing experiences   |   |
| Condominial Sanitation System  | Mustardinha community, Recife, Brazil   |
| Integrated Sanitation System   | Mustardinha community, Recife, Brazil   |
| Community-managed spring water sources ( <i>minas de água</i> )              | Queimados Municipality, Rio de Janeiro Metropolitan Area, Brazil                    |
| Integrated Rural Sanitation System (SISAR)                                   | Several locations, State of Ceará, Brazil   |
| Community-managed integrated WSS system with multi-stage filtration          | La Vorágine community, Cali, Colombia   |
| Community-managed water supply system with ecological multi-stage filtration | Mondomo community, Santander de Quilichao, Cauca, Colombia                          |
| New interventions  |   |
| Participative development of drinking water filtration system                | Lagedo quilombola community, Sao Francisco, Minas Gerais, Brazil                    |
| Participative assessment of water quality                                    | Carcaraña, Coronda, La Chispa & San Francisco, Cañada de Gomez, Santa Fe, Argentina |

**In addition to the six cases of existing initiatives, we decided to introduce two innovations, that we called interventions, one in Brazil and another in Argentina.** The intervention in Brazil focused on developing a **water treatment system** in Lagedo, Minas Gerais, a small Quilombola community in a distant and relatively isolated rural area. Quilombola communities, originally created by slaves who escaped from their owners, are among the most deprived populations in the country. In the case of Argentina, the intervention was to target the western region of Santa Fe province, where a large number of communities, mostly rural but also including some important urban centres, rely on water sources that have **high concentrations of naturally occurring arsenic and fluoride**. In this case, the intervention planned involved working with schoolchildren, their families, and local teachers to **raise awareness and empower the local**

**communities to monitor water quality.** Table N° 1 provides the list of the eight innovations chosen.

### The empirical problem as a construction

As explained earlier, DESAFIO's empirical problem was to ascertain the **viability and extent of participative socio-technical innovations to tackle the crisis of WSS affecting vulnerable communities.** It is important to highlight that the **choice of the empirical problem**, apart from the obviously significant fact that it was partly pre-empted by the call for proposals to which DESAFIO responded, was **an intellectual and political decision.** It was political by definition, as the empirical problem concerns a matter of the **highest political relevance**, which the UN had termed “the urban and rural challenge of the decade” (WHO-UNICEF, 2006). It also involved, whether the individual researchers were conscious or not, **suspending** or even, for some at least, **rejecting the pretensions of value neutrality** characteristic of mainstream scientific approaches, most particularly in the field of techno-scientific disciplines (Proctor, 1991; Martins, 1998; Elias, 2007; Harding, 2015). From the start, even the identification of the empirical problem is the result of a **theoretical operation** that makes the problem **observable** in the first place. That is, the empirical problem itself is not given, is not the mere result of observation. **The empirical problem is already a construction**, a product of knowledge, an observable made possible by the application of existing knowledge and theory, by the prior acquisition of the relevant cognitive structures (Piaget, 1977, 1978). The pursuit of **higher levels of autonomy and detachment** in the production of scientific knowledge **does not imply scientific neutrality**, in the objectivist or positivistic sense, while **intellectual and political involvement in the construction of the empirical problem** does not imply falling into relativistic or subjectivist positions. The transformation of the empirical problem into a research problem, involves **taking the process of knowledge construction into a higher level.** It also involves, again whether or not the participants in the research process are conscious, **new decisions that are intellectual and political in character.**

### The research problem

The empirical problem can be addressed from a range of **different intellectual perspectives**, which will produce different and potentially diverging approaches. Thus, the same empirical problem, the –in appearance– intellectually straightforward problem of designing and implementing interventions to tackle the lack of WSS affecting a given population, can be rendered in a **diversity of even rival or irreconcilable problems of knowledge, research problems.** For example, in principle some would assume **that scientists from any intellectual tradition would have a common position** in relation to the apparently straightforward empirical problem posed by the lack of essential WSS affecting vulnerable populations. At least discursively, it could be assumed that it would

be rare to find scientists arguing against the need to tackle this empirical problem and resolve the global WSS crisis. After all, the existing **stock of theory and knowledge** about essential public services, including WSS, is largely the result of the experience accumulated over the best part of the last two centuries, which is now a common heritage. There have been many WSS crises in the past, most of which were eventually resolved at least in developed countries, and we have ample evidence about how they were resolved, which principles were put in practice and which policies were designed and implemented to tackle those crises, and what were their concrete results. The wheel does not need to be reinvented: we know well what made it possible that in developed countries today tap water is safe to drink, and universally available.

However, in practice, there exist competing intellectual traditions that **adopt rival and even irreconcilable positions** in relation to the empirical problem, or to be more precise, in relation to the **root causes of the empirical problem and to the mechanisms that could be used** to tackle and resolve it, which is ultimately what matters. The disagreements are multilevel and multidimensional, and have a crucial influence in the process of **construction of the research problem**. In relation to our empirical problem, specifically the crisis of WSS, a pertinent question would be how is it possible that LA&C, that as a region is not among the poorest in the world, continues to have a very large proportion of the population living in an appalling situation, without access to safe drinking water, basic sanitation and other essential services. The causes of “underdevelopment” in the region have been the object of a vast academic literature and the target of a wide range of political initiatives and their respective public policy options and decisions. Like everywhere else, rival intellectual and political positions have wide ranging and often irreconcilable explanations of the problem and proposals for solutions.

#### Rival explanations of the WSS crisis: on inequality and the role of the State

Summarizing a long-standing debate (we discuss this in more detail elsewhere in DESAFIO: Castro, 2015a,b), for some traditions like the **market-centred liberal-individualistic**, at times almost undistinguishable from neoconservative intellectual and political strands, the extreme poverty and vulnerability affecting large sections of the population are **the result of individual choices, whether conscious or unconscious**. A crucial implication of this position is that there **is no justification to introduce public policies targeted to reduce or eradicate poverty and destitution** such as taxing the wealthy to fund welfare systems. The State must abstain from intervening and must allow private initiatives to provide philanthropic support for the poor and left market forces to operate unrestricted, unregulated in the case of essential public services. For instance, Penelope Brook Cowen, the World Bank specialist on private sector participation in WSS writing in the late 1990s, argued for fully “unregulated privatization” and “unregulated private monopolies” to solve the lack of access to WSS in poor countries (Brook Cowen and Cowen 1998: 22). Brook Cowen’s was a very straightforward and transparent exposition of the fundamental thrust of the neoliberal project informed by the liberal individualistic tradition: “privatization” of WSS transferring public utilities to monopoly private companies, with no regulation and no competition, as the best way to bring these services to the unserved. In the case of LA&C, the influence of this tradition in the

development and implementations of public policies for the WSS has been and remain paramount.

A rival intellectual and political tradition with strong influence in the field of essential public services, is what can be broadly termed the **public goods social-liberal democratic tradition**, closely related to strands of thinking like Welfare Economics and the social democratic school of social citizenship, among other. The basic tenet shared by these strands of thinking is that **poverty and destitution are not the result of individual choices but rather of structural social inequalities**. They borrow this understanding of structural inequality as a root cause from more radical strands of thought, and apply it to explain why capitalist democracy cannot survive if market forces are left unchecked. This broad tradition assumes that extreme inequality, and particularly qualitative inequalities (based on class, gender, ethnic origin, age, etc.), are an **obstacle to the progress of capitalist democracy**. When private capital accumulation is allowed to reign unchecked, capitalist democracy is threatened and **there is a need for the State to intervene**. Although this tradition accepts that quantitative, market-based inequalities are functional to capitalist democracy, it postulates that **capitalism must be saved from its own self-destructive dynamics** expressed in the production of extreme inequality and destitution. Regulation of private companies, State takeover of the responsibility for the provision of essential public services that cannot be left to the market, public investment based on taxation and public debt to mitigate extreme poverty and destitution, all are **classical public policy mechanisms derived from this intellectual and political tradition**. Despite the fact that in low-level political debates, especially connected with electoral politics, this tradition is often accused of being an example of extreme left-wing positions, even of communism, the reality is that **it emerged in the first place as a response to the recurrent capitalist crises** that took place since the late Nineteenth-century, **to preserve capitalism, not to destroy it**. It must be remarked that it was not market-centred policy making that solved earlier WSS crises, as it had been rather the cause of the crises in the first place. It is the influence of the public goods tradition on public policy that must be credited for the fact that, among other crucial issues, **WSS became fully universalized during the Twentieth-century in the most developed countries**.

In the previous paragraphs, we summarily reviewed the two most influential competing traditions that have shaped the organization of modern public services and their implications for WSS policy. Faced with our empirical problem, it becomes clear that these different traditions have rival and potentially irreconcilable explanations and proposals for the solution of the WSS crisis. However, since the 1970s these two broad, highly influential intellectual and political traditions have been the object of much criticism and the field has become much more complex with the **growing influence of alternative strands of thought** that have contributed to diversify our way of thinking about our empirical problem. The increasing **disenchantment with the global development policies** introduced in the aftermath of World War II gave way to innovative intellectual and political criticisms of the status quo, which became influential in the field of WSS. This debate became particularly important in LA&C, with a range of significant contributions that included from the different strands of “dependency and underdevelopment” theories to Paulo Freire’s “pedagogy of the oppressed”, all of which informed subsequent debates. Dimensions of the problem that in the past had not been



identified were made observable by scientific advances, with the help of the worsening of the crisis, as is the case with the **ecological dimension of WSS**. Also, established knowledge about the techno-infrastructure and operational dimension of WSS became increasingly under fire, particularly the **reliance on large, centralized infrastructures** originally developed on the basis of a perceived limitless abundance of cheap energy and water resources. This was the case with the emergence of the “appropriate technology” movement, among others, since the early 1970s. Moreover, the consolidation of **large public bureaucracies** for the management of water resources and WSS, called by some hydrocracies, also became under attack on several fronts. This included from the **revival of liberal individualist arguments in the wake of the successful neoliberal-neoconservative attack on the State** launched in the 1980s to the **struggles for political emancipation against State-centred dictatorship and authoritarianism**, notably in South America, which was the focus of DESAFIO. These encompassed popular struggles over land, water, natural resources, and the “right to the city”, waged by a **wide range of social movements** that included progressive sectors of the Catholic Church and the re-emergence of organized indigenous movements that would eventually come to play a crucial political role in the region since the 1990s. These struggles reinforced calls for the end of dictatorship and authoritarian politics and the opening of new avenues for **citizen participation and the democratization of society**. An important issue that must be highlighted here is that, for all the anti-State rhetoric of the individualistic liberalism that informed the neoliberal-neoconservative takeover of power in much of LA&C since the 1980s, **this happened through an unholy marriage between the representatives of this intellectual-political tradition and the murderous civic-military dictatorships and other authoritarian forms of government** that ruled the region for decades. This had significant consequences for public policy in the field of essential public services including WSS.

The centrality of the socio-political dimension in the construction of the research problem

We drew from these processes and debates in the construction of DESAFIO’s empirical problem into a research problem. Given that this was a project grounded in the social sciences, we gave emphasis to one particular aspect: **the relationship between the challenges to the status quo in WSS and the process of democratization** (Castro, 2015). We approached **the crisis of WSS as an expression of the crisis of democracy**, and placed the focus on socio-technical innovations designed and implemented in the sector of WSS with the objective of democratizing the politics and management of these services. This was in line with previous work on the topic of social struggles over water and the process of democratization, in particular the construction of citizenship in LA&C (Castro, 2006). Therefore, our construction of the empirical problem as a research problem led us to formulate a number of research assumptions and claims reflecting our theoretical approach. In this regard,

We argue[d] that the main challenges facing the international community in [relation to the WSS crisis] are not merely technical or environmental, but are rather grounded on and conditioned by economic, socio-political,

cultural and policy-institutional processes. [...] We argue that these deficiencies [in the access to WSS] are neither caused by unfortunate environmental constraints nor by a shortage of scientific and technical knowledge or by the unavailability of technological solutions, even in the poorest countries. Rather, the main causes for these and other unacceptable conditions -that the current development targets aim to reduce and eventually eradicate- are mainly of a socio-political, cultural, and policy-institutional nature. What we confront are protracted structural social inequalities historically developed and reproduced along the lines of age, class, ethnicity, gender, and other power-based social divisions (DESAFIO, 2013: 3).

This understanding of the WSS crisis as a crisis of democracy informed our construction of the research problem. Without playing down the importance of the techno-infrastructural dimension of WSS, we postulated that finding a solution to the crisis

requires **breaking with the prevailing status quo** dominated by technology-centred, top-down, often paternalistic and even authoritarian solutions. It also requires going beyond the dominant situation whereby international organizations and donors, to mention just some of the key players in the field, pay lip service to such technical innovations as low-scale WSS systems (e.g., Brazil's condominial system, Paraguay's water vendors, etc.) but in practice continue to favour the reproduction of a status quo that privileges short-term interests over the needs of the poor and very poor. There is a need to make policy and technology subservient to the higher goals of **achieving efficacy and effectiveness, not just efficiency**, in the delivery of WSS if we are going to achieve the MDGs, not to say the full universalization of WSS and other essential services (DESAFIO, 2013: 16).

Therefore, in addition to breaking with the technocratic status quo, finding solutions to the WSS crisis

required [...] the development of appropriate and innovative socio-technical interventions, grounded on the principles of substantive democracy and citizenship, to facilitate the involvement of users in the identification of their problems and in the design, implementation and monitoring of socio-technical solutions. This is needed to **enable the relevant actors, and most particularly local communities and governments, to achieve efficacy and effectiveness, as well as efficiency, in the organization of universally available and safe essential WSS** (DESAFIO, 2013: 3).

Summing up, the construction of our empirical problem into a research problem led us to formulate a number of **core assumptions and claims** to frame our research approach:

- The crisis of WSS affecting vulnerable communities is primarily a political crisis, a crisis of democracy, a failure of the democratic system
- The crucial causes of the crisis are neither the lack of technological capacity nor the constraints posed by physical natural factors or processes, such as climatic cycles or a shortage of water resources
- The main causes of the crisis are structural inequalities and injustices sanctioned by a political status quo that has historically marginalized large sectors of the population, excluding them from accessing the most essential conditions of life in a civilised society, like basic WSS
- The solution to this crisis must come from a radical shake up of the status quo, subordinating public policy and techno-scientific knowledge to the higher goal of democratizing the politics and management of WSS, including the democratization of access to these essential services
- The required transformation of the status quo can be achieved through the design and implementation of socio-technical innovations oriented at fostering the democratization process in the WSS. These innovations must break with the techno-centric and authoritarian status quo characterizing the WSS sector, and empower common citizens and users to exercise democratic control over governments, service providers, and other power holders.

These assumptions and claims, in turn, guided the elaboration of our specific research questions.

### The research questions

In this regard, from the perspective of the knowledge process, the socio-technical innovations that we had identified were in principle potential instruments of rupture of the epistemological status quo. Borrowing from Gaston Bachelard's insights, the advancement of scientific knowledge requires epistemological ruptures, sudden mutations, to break through the significant obstacles posed, among other, by the very existing accumulation of previous knowledge (Bachelard, 1934). We did not, however, romanticise these innovations, as we were alert to the fact that there was already emerging evidence that in some cases the innovations may had become functional, intentionally or not, to the reproduction of the established status quo in the WSS. For example, we were aware that some of these innovations had been implemented in ways that reproduced structural inequalities by differentiating between “technologies for the poor”, requiring lower levels of public investment and transferring much of the responsibility for the services to the poor themselves, and “technologies for the wealthier” sectors of the population that continued to benefit from the bulk of public investment destined to deliver quality WSS. Therefore, we crafted our research questions to take into account the different possibilities, the intended and unintended implications and consequences of the

introductions of these innovations to tackle the situation affecting vulnerable communities. Our research questions asked

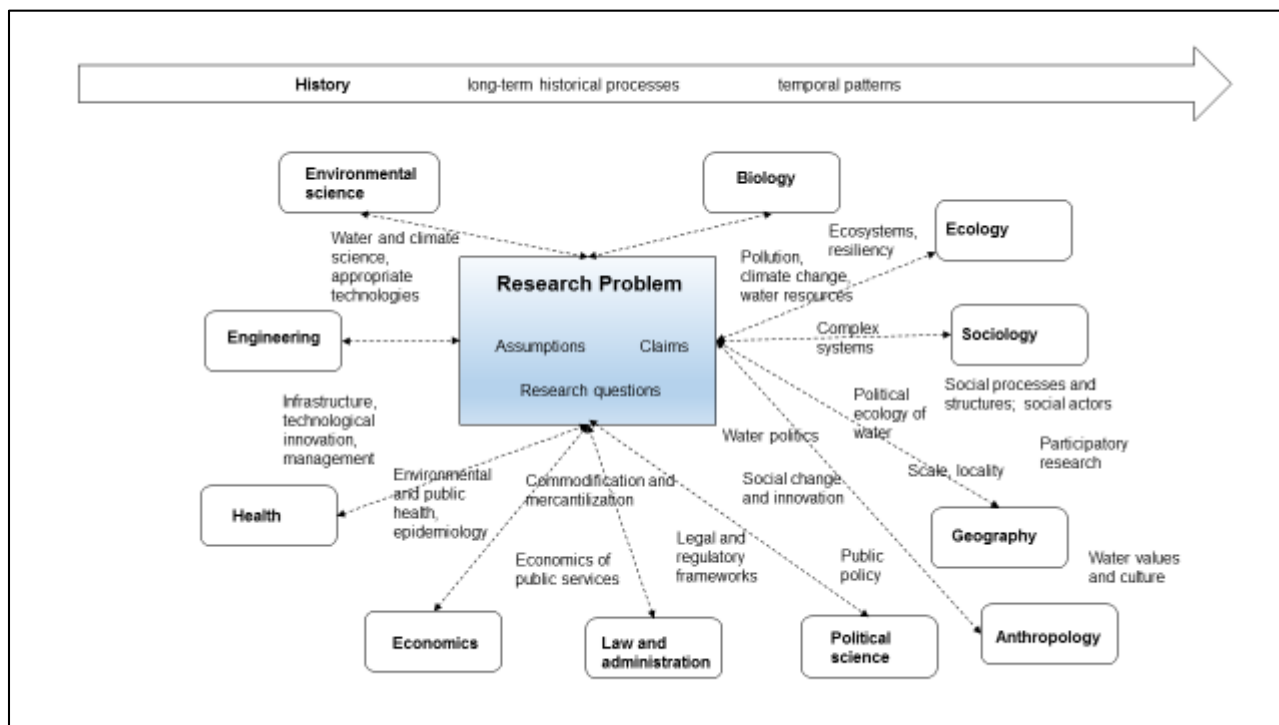
How can we harness existing and develop new socio-technical innovations in order to change policies, to develop strategies and practical interventions, and to enhance policy learning for tackling unacceptable inequalities and injustice in the access to essential WSS? What conditions, factors and processes facilitate the emergence of socio-technical innovations in this sector? What are the critical requirements to make successful socio-technical innovations sustainable and replicable? What are the obstacles to their sustainability and replication? (DESAFIO, 2013: 3)

The construction of our research problem and the consequent assumptions, claims, and research questions derived from it, took us to the text step in the development of our theoretical and methodological research framework.

## **Inter- and transdisciplinary coordination**

Our research could not be conducted from a single disciplinary field and required an interdisciplinary approach, given the complex configuration of elements that characterizes the research problem (García, 1994; Sawyer, 2005). An important obstacle faced by this kind of research is the fact that the production of scientific knowledge in this area is highly fragmented in deep-rooted epistemic cultures that continue to develop largely unconnected from each other. We have the entrenched divisions between “hard” and “soft” sciences, whereby techno-scientific disciplines have the upper hand in terms of prestige and consequently in the control of institutional power and financial resources (Kagan, 2009). However, there are also solid barriers between individual disciplines within the natural, technical, and social sciences that cause them to operate like compartmentalized, almost unrelated disciplinary feuds. Despite recognizing the enormous difficulty facing the attempt, we decided that our research problem could only be addressed by developing a strong level of interdisciplinary coordination. Therefore, we developed a historical-comparative framework grounded on a social-science informed political ecology (Swyngedouw, Kaika, et. al., 2002; Martínez Alier, 2002; Swyngedouw, 2004; Castro, 2006, 2010) but bringing together contributions from water and environmental science, engineering, health, ecology, and related disciplines, as Figure N° 2 illustrates.

**Figure N° 2.** Interdisciplinary coordination do address the research problem

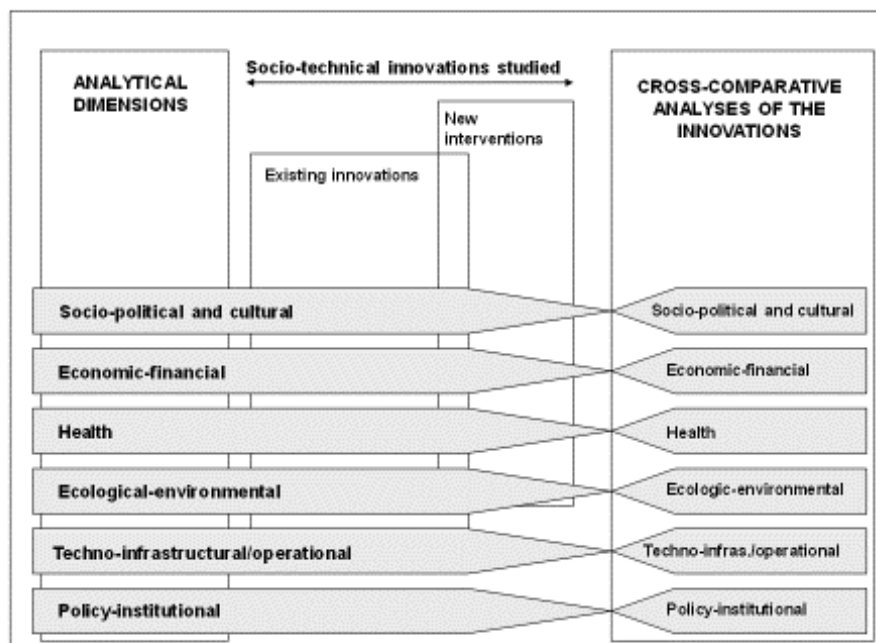


Source: Adapted and extended from Redclift and Benton (1994)

As discussed in the relevant literature, there are several levels of interdisciplinarity, and the most common is the simple borrowing of concepts and tools between disciplines without achieving a synthesis of knowledge that transcends the individual disciplinary boundaries. A second level would be characterized by the production of knowledge that is a synthesis of contributions from different disciplines but that happens only within single disciplines: this would be an enrichment of the knowledge produced within a single discipline through borrowing concepts and tools from others, but without transcending their disciplinary boundaries to produce a higher level synthesis of knowledge. Finally, the third level of interdisciplinarity would be precisely the achievement of a synthesis that goes beyond the mere enrichment of disciplinary knowledge, it is a synthesis of knowledge that transcends the boundaries of individual disciplines and cannot be reduced to any of them (e.g. Grigg, et. al., 2003). Admittedly, this higher level of interdisciplinarity is very difficult to achieve and there are probably few examples of interdisciplinarity thus defined.

Within the limited temporal scope and resources of the project, DESAFIO aimed to transcend disciplinary entrenchments. We designed our research plan with the aim to study the socio-technical innovations covering six analytical dimensions. Most of these dimensions in themselves represented the coordination of contributions from several disciplines: socio-political and cultural, economic-financial, health, ecological-environmental, techno-infrastructurel/operational, and policy-institutional (Figure N° 3).

Figure N° 3. DESAFIO’s interdisciplinary analytical dimensions



The interdisciplinary approach adopted reflected our understanding that the –in appearance– intellectually straightforward empirical problem of implementing socio-technical innovations to solve the WSS crisis affecting vulnerable communities is in fact

embedded in co-evolving and complex systemic processes where bio-physical-chemical, ecological, techno-infrastructurel/operational, economic-financial, socio-political, and cultural processes are inextricably interwoven. These are processes and structures where multiple factors, drivers, thresholds and processes, some of which are not directly related to the daily running of WSS, nevertheless condition, when not directly determine, the emergence, success, failure, and potential for replication of these innovations (Swyngedouw, Page, et. al., 2002; Castro, 2009). A major aim of our project was to contribute to a better understanding of this complexity, in order to enhance our chances of harnessing existing, and developing and implementing new innovative socio-technical solutions to tackle the WSS crisis. Given the modest scope of DESAFIO we did not pretend to cover in full detail all the innovations studied, as it would have been unfeasible to assemble individual interdisciplinary teams addressing all six dimensions in all cases.

### Transdisciplinarity in practice

In addition to the interdisciplinary coordination between natural, social and technical scientists, we adopted a transdisciplinary approach. We understand transdisciplinarity as the coordination between academic and non-academic actors in the production and validation of knowledge, for instance as postulated by “post-normal” science scholars (Funtowicz and Ravetz, 1994; Gallopin et. al., 2001; Guimaraes Pereira and Funtowicz, 2009; see also Jacobs and Frickel, 2009). Adopting a transdisciplinary approach is very challenging because it goes against deeply rooted assumptions and practices in the scientific establishment, which operate as significant epistemological obstacles to the advance of knowledge. In particular, transdisciplinarity requires the acknowledgement that there exist other types of knowledge that are not produced following scientific norms and protocols but that nevertheless have validity and need to be incorporated in the process (Escobar, 2008; Leff, 2006).

However, addressing DESAFIO’s research problem required transdisciplinarity. As discussed earlier, in different degrees and with different purposes, the socio-technical innovations under study gave centrality to the participation of common citizens, users, and communities. Therefore, in our research approach we also placed emphasis on the involvement of these actors and other relevant actors in the production of knowledge in all stages of the project. Firstly, a central tenet of our research approach was that a major obstacle for success in resolving the WSS crisis was the poor or inexistent **inter-sectoral cooperation** across different sectors and levels of government and among the different actors in charge of policy and implementation (Queiroz, et. al., 2012). Therefore, we involved local, regional, and national authorities and other power holders in the research process, as we sought to facilitate dialogue and cooperation between public sectors that continue to work often in isolation (e.g. public sector departments in charge of water resources, WSS, health, planning, etc.), which is one of the main impediments to success in the search for solutions to the WSS crisis. Some of these actors became full-time research partners in the consortium, which included a provincial public utility in charge of WSS and the incorporation of municipal, provincial, and national public officers in charge of certain areas of water resources and WSS as researchers linked to our partner universities or as special research advisors. Secondly, we engaged civil society

organizations and members of the local communities where the socio-technical innovations had been implemented throughout the research project, and in some cases, we incorporated some of them directly in the research activities, providing training and support to facilitate their participation.

## **The production and analysis of evidence**

Based on our inter- and transdisciplinary approach we designed our strategy for the production of evidence to examine our assumptions and claims and respond our research questions. The chosen methodological framework was a mixed methods approach centred on a qualitative longitudinal study (Saldana, 2003) of the eight socio-technical innovations chosen, structured around ten case studies.<sup>11</sup> We were aware that centring our research on case studies would have the consequence of limiting the level of generalization of results, but we adopted this approach for several reasons. Firstly, there was a requirement in the call for proposals to **involve the communities concerned** and to achieve this we decided to adopt a transdisciplinary approach as already discussed in the previous section. To this end, we deployed a range of participative research methods, for which the case-study approach was highly suitable. Secondly, we wanted to achieve an **in-depth understanding of the innovations studied**. This was important to address our research questions, which required a detailed understanding of the factors and processes that help to explain the emergence of the innovations, the causes of success and failure, and their potential for replication. Therefore, we aimed to achieve a **balance between generalization and thick description**, which required a mixed methods approach. We structured this approach within the framework of the ten case studies.

### The case studies

The case studies allowed us to cover a wide range of experiences with the chosen socio-technical innovations over a time span of around three decades. This was aimed at enhancing our chances of gaining insights into the long-term sustainability of the innovations, for which we decided to include a number of experiences that had at least two decades of existence, and an additional group of more recent innovations but that also had a track record that we could try to examine. We also included newly developed interventions with the objective of having the opportunity to examine the functioning of the innovations in their early stages (Figure N° 4). We complemented the temporal dimension of the comparative study with the rich variety of characteristics derived from the six analytical dimensions of the research and the diversity of spatial settings. The experiences under study included from small rural communities to neighbourhoods inserted in large metropolitan areas, while the cases covered a wide range of situations in terms of culture, climate, socio-economic conditions, and other significant aspects. Table

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<sup>11</sup> We dedicated three case studies to cover different dimensions of one of the socio-technical innovations, the Integrated Rural Sanitation System (SISAR), in the state of Ceará, Brazil.



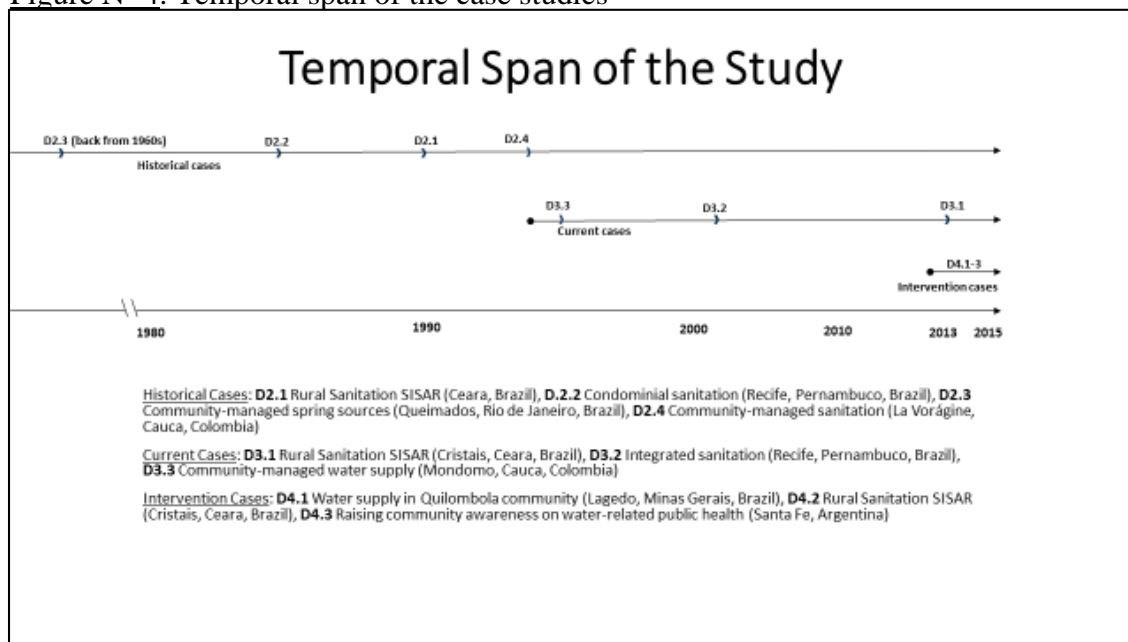
N° 2 provides the list of the ten case studies, including a link to the relevant project webpage that contains more details of each individual case.

Table N° 2. The ten case studies

| <b>Case</b>                                       | <b>Socio-technical innovation</b>  | <b>Location</b>   |
|---|--|---|
| <b>Historical Case Studies – Work Package 2</b>   |  |   |
| <b>WP2<sub>1</sub></b>                            | Integrated Rural Sanitation System (SISAR)                                   | State of Ceara, Brazil  |
| <b>WP2<sub>2</sub></b>                            | Condominial Sanitation System  | Mustardinha community, Recife, Brazil   |
| <b>WP2<sub>3</sub></b>                            | Community-managed spring water sources ( <i>minas de água</i> )              | Queimados Municipality, Rio de Janeiro Metropolitan Area, Brazil                    |
| <b>WP2<sub>4</sub></b>                            | Community-managed integrated WSS system with multi-stage filtration          | La Vorágine community, Cali, Colombia   |
| <b>Current Case Studies – Work Package 3</b>      |  |   |
| <b>WP3<sub>1</sub></b>                            | Integrated Rural Sanitation System (SISAR)                                   | Arataca and Andreza communities, Fortaleza Metropolitan Region, Ceara, Brazil       |
| <b>WP3<sub>2</sub></b>                            | Integrated Sanitation System   | Mustardinha community, Recife, Brazil   |
| <b>WP3<sub>3</sub></b>                            | Community-managed water supply system with ecological multi-stage filtration | Mondomo community, Santander de Quilichao, Cauca, Colombia                          |
| <b>Intervention Case Studies – Work Package 4</b> |  |   |
| <b>WP4<sub>1</sub></b>                            | Participative development of drinking water filtration system                | Lagedo quilombola community, Sao Francisco, Minas Gerais, Brazil                    |
| <b>WP4<sub>2</sub></b>                            | Integrated Rural Sanitation System (SISAR)                                   | Cristais community, Fortaleza Metropolitan Region, Ceara, Brazil                    |
| <b>WP4<sub>3</sub></b>                            | Participative assessment of water quality                                    | Carcaraña, Coronda, La Chispa & San Francisco, Cañada de Gomez, Santa Fe, Argentina |

As explained before, the innovations chosen covered a time span dating back to at least the 1950s, although for the purposes of our study we centred the research on the period starting in the 1980s. Figure N° 4 illustrates the temporal span covered by the ten case studies.

Figure N° 4. Temporal span of the case studies



Source: Castro (2015b), p. 4.

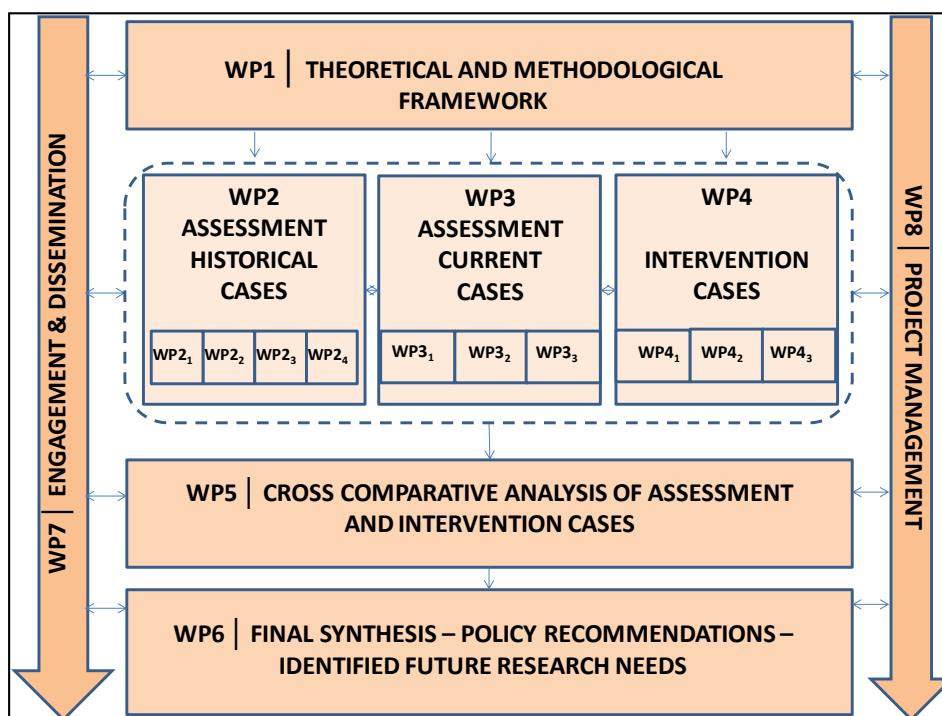
We designed the ten case studies to be the core of the project work, and to provide the empirical evidence for addressing the research questions. This was reflected in the structure agreed for the case study reports:

- Chapter 1 – Introduction
- Chapter 2 – Context
- Chapter 3 – The socio-technical innovation
- Chapter 4 – Methodology
- Chapter 5 – Analysis
- Chapter 6 – Discussion
- Chapter 7 – Conclusions
- References
- Appendices

In this structure, the fundamental sections were Chapter 2, the **Context**, which addressed the conditions, factors, and processes explaining the **emergence of the innovations**; Chapter 3, that describing the **innovations**, including the causes of success or failure and their potential for replication; Chapter 5, presenting an **analysis of the findings**, and Chapter 6, providing a **discussion of the findings in the light of the research questions**. Thus, in our research plan, the analysis and discussion of the evidence to complete the steps of evaluation, description, explanation, and conceptualization of the problem-centred research process was planned to start during the case study work (Chapters 2-3, 5-6), and be completed in the final stages of the project,

through the cross-comparative analyses (WP5) and the final synthesis of project results (WP6). Figure N° 5 represents the structure of the research plan.

Figure N° 5. The structure of the research plan



The main objective of adopting a qualitative comparative approach complemented with other methods for the analysis of the case studies was **to answer the research questions**. Therefore, the analytical dimensions and the areas of comparison were designed as **means to achieve the end** of ascertaining the **processes and factors that help to explain the emergence, success, failure and potential for replication of the innovations**. With a single exception,<sup>12</sup> the comparative analysis was not focused on comparing the innovations against each other or against alternative systems. Rather, in most cases the focus was on the **development of the innovations over time through qualitative longitudinal analysis**, complemented with quantitative methods to address specific aspects such as the quality of water sources and of the drinking water available to the communities, epidemiological data, or opinion surveys. Table N° 3 summarizes the different methods applied in the research.

<sup>12</sup> Case WP4<sub>2</sub> adopted an experimental design consisting in comparing a new case of implementation of the SISAR system with a control case. This study also included a systematic quantitative epidemiological analysis.

Table N° 3. Summary of mixed methods applied

| <b>Qualitative</b>   |
|--|
| <p><u>All case studies</u></p> <ul style="list-style-type: none"><li>• Bibliographic research.</li><li>• Compilation and analysis of documentary material from official public archives, including photographic material, press reports, documents, etc.</li><li>• Compilation and analysis of documentary material from local community and private archives, including photographic material, press reports, documents, etc.</li><li>• Individual and collective semi-structured interviews carried out with technical experts, politicians, public officers from local, provincial, and national authorities, public utilities, representatives of community organizations, workers' unions, consultants, Non-Governmental Organizations, and fellow academics.</li><li>• Participant observation in community meetings and other relevant events.</li><li>• Organization and facilitation of workshops with community members.</li><li>• Organization and facilitation of workshops with technical experts involved in the implementation and management of the innovations.</li><li>• Organization and facilitation of public events to promote debate among key actors (e.g. between public authorities, community members, and representatives of civil society organizations).</li><li>• Photographic record<ul style="list-style-type: none"><li>○ of interviews, workshops, public events, participating observation visits, and other activities. Edition and publication of selected photographs in the DESAFIO Project album.</li></ul></li></ul> <p><u>Specific case studies</u></p> <ul style="list-style-type: none"><li>• Participatory Rural Appraisal (WP2<sub>4</sub>; WP3<sub>3</sub>; WP4<sub>1</sub>) including<ul style="list-style-type: none"><li>○ Direct observation</li><li>○ Participatory mapping and modelling</li><li>○ Transect walks and guided field walks</li><li>○ Seasonal calendars</li><li>○ Time lines</li><li>○ Venn diagrams.</li></ul></li><li>• Ecosystem analysis (WP3<sub>3</sub>)<ul style="list-style-type: none"><li>○ Based on secondary data.</li></ul></li><li>• Multiple Correspondence Analysis (MCA) (WP2<sub>3</sub>)<ul style="list-style-type: none"><li>○ for the content of interviews.</li></ul></li><li>• Video record (WP2<sub>2</sub>; WP2<sub>3</sub>; WP3<sub>2</sub>; WP3<sub>3</sub>; WP4<sub>1</sub>)<ul style="list-style-type: none"><li>○ of interviews, workshops, public events, participating observation visits, and other activities. Edition, verification of content, and publication in YouTube channel's playlist for interviews.</li></ul></li></ul> |

## **Quantitative**

### All case studies

- Secondary data from statistical sources (national censuses, special surveys by local, regional, and national authorities, etc.).

### Specific case studies

- Application of questionnaires to probabilistic and non-probabilistic population samples and censuses (in the case of small communities) (WP2<sub>3</sub>; WP2<sub>4</sub>; WP3<sub>2</sub>; WP3<sub>3</sub>; WP4<sub>2</sub>; WP4<sub>3</sub>).
- Geographic Information Systems (WP2<sub>3</sub>; WP4<sub>3</sub>).
- Laboratory analysis of water samples (WP4<sub>1</sub>; WP4<sub>2</sub>; WP4<sub>3</sub>).
- Laboratory analysis of child faeces (WP4<sub>2</sub>).
- Anthropometric measurements (WP4<sub>2</sub>).
- Calendars to gauge intermittence of water sources used (WP4<sub>2</sub>).
- Census of bottled water consumption (WP4<sub>3</sub>)
  - Water source, brand, price, etc.

Centring our research work on qualitative longitudinal analysis required a definition of the **starting point of the analysis**, which in most cases was based on a **historical reconstruction** given the time elapsed since the implementation of the experiences. This applied to the seven “historical” and “current” case studies. In these cases, the reconstruction of the starting point for the longitudinal analysis was based on secondary data, official documents, press reports, audio-visual archives, and semi-structured interviews with relevant actors, among other sources. In two of the “intervention cases”, WP4<sub>1</sub> and WP4<sub>2</sub> it was possible to define some aspects of the starting point through quantitative studies involving laboratory analysis (water quality, epidemiological status, etc.). However, we knew from the start that the short period available for the research work since the implementation of the three interventions would severely limit our chances to evaluate their performance within the timeframe of the project.

We applied similar methods for the evaluation of the performance of the innovations over time. We assessed the innovations using a range of indicators, for instance changes verified over time (e.g. improvements or worsening as a result of the introduction of the innovations or the lack of maintenance, poor management, or changes in government priorities), in

- provision of basic WSS infrastructure (coverage, amount of safe water available per capita per day, etc.)
- techno-infrastructurel/operational performance (e.g. quality of maintenance services)
- economic-financial impact of WSS on vulnerable communities (e.g. burden of WSS bills on family income)

- prevalence of diseases connected with the provision of WSS
- quality of living conditions of vulnerable households
- environmental conditions affecting vulnerable communities
- democratic character of the politics and management of WSS (accountability, accessibility to demands from vulnerable communities, etc.)
- awareness and knowledge about WSS among vulnerable communities (e.g. about the quality of the water available to them, their rights to safe WSS and the mechanisms available for exercising these rights, etc.).

For example, in the work for historical case study WP2<sub>2</sub>, we benefitted from **thorough evaluations carried out at a given point in time by the local authority**, which provided substantial evidence of the performance of the innovation over a period of roughly 15 years (1985-2001). We then **updated the evidence during our fieldwork** to complete a fuller picture, using secondary data, official and community archives, and in-depth semi-structured interviews. We finally **checked our findings and our analysis of the results with teams of experts** that had participated in the design and implementation of the innovation, which included its inventor who had also been in charge of the political decision to introduce the intervention in the 1980s. We also **consulted community members** who had a living memory of the experience, as they had actively participated in the process of implementation and maintenance of the system. To this end, we organized several **workshops** and carried out **in-depth semi-structured interviews**, most of which are publicly available in video format in DESAFIO's YouTube playlist for interviews.

## **Conclusions**

This document presents a synthesis of the theoretical-methodological framework applied to the research, and is complementary to Deliverable D1.1 (Castro, 2015a). We designed our project as a problem-centred research process, starting from the identification of an empirical problem, the assessment of socio-technical innovations designed to tackle the WSS crisis affecting vulnerable communities, and constructing it into a research problem. The empirical focus of the research were eight socio-technical innovations implemented in Brazil (5), Colombia (2), and Argentina (1). Owing to the nature of the research problem, we adopted an interdisciplinary approach grounded on the social sciences, particularly political ecology, and complemented with contributions from relevant techno-scientific, natural, and humanistic disciplines. We also adopted a transdisciplinary approach, involving non-academic actors in all stages of the research process, particularly representatives of vulnerable communities that experienced the implementation of the innovations under study.

We structured the research plan with the objective of responding a set of key research questions aimed at enhancing our understanding of the factors and processes that help to explain the emergence, success, failure, and potential for replication of the socio-technical innovations studied. The research was based on a qualitative longitudinal analysis of ten case studies, using a range of mixed methods including quantitative

techniques. The ten case studies were chosen to provide a variety of different experiences with socio-technical innovations, covering a period of roughly 30 years dating back to the 1980s. The cases included a range of situations, from small rural communities to neighbourhoods in large metropolitan areas, and from experiences with a long track record expanding over several decades to interventions implemented during the period of the research (2013-2015).

The theoretical-methodological framework provided the general structure for the research work, but owing to the limited scope and resources available and because of the diverse characteristics of the innovations, it was not applied in full in all ten case studies. The findings and the analysis of results are presented in the final sections of the case study reports (Britto, et. al., 2015; Brown, 2015; Castro and Ferreira, 2015a,b; Freitas et. al., 2015; Peña et. al., 2015a,b; de Pádua et. al., 2015; Passos et. al., 2015; Portapila et. al., 2015), in the comparative reports (Pinto et. al., 2015; Castro, 2015b), and in the final synthesis reports (Castro, 2015c,d).

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### DESAFIO Project



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