Article

Towards a new paradigm in water management: Cochabamba's Water Agenda from an ethical approach

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Abstract: Through the process of paradigm change (water as a resource towards water as a common), the authors examine, from a theoretic point of view, the water governability proposed by Agenda del Agua Cochabamba (AdA) – Cochabamba Water Agenda – in the Cochabamba Valley (Bolivia), identifying barriers and drivers to the process that could take place. The rise of Evo Morales in Government in 2006 suggested that policy making would somehow take a fundamental turn resulting in more poor environmental-oriented water policies. However, if that was indeed the case, the implementation of these policies remain controversial as strong power asymmetries still exist at a local level that interfere with national policies shaping the political area. The Cochabamba Water Agenda echoes this debate on the political arena and contributes a politically contested water management through a paradigm change envisaging the difficulties through its implementation. The question remains if this "political" solution to paradigm change in water management may reduce water conflicts.

Keywords: water management; water paradigm; water governability; water conflicts; Cochabamba

1. Introduction

In April 2000, the city of Cochabamba was at war. The cause was due to the contracting out of water services to a private company, Aguas del Tunari (a joint venture involving the USA group Bechtel), under the policy of private sector participation (PSP), to provide "improved" water services to the city of Cochabamba. Aguas del Tunari was confronted with a situation of low coverage of the system and poor quality of the services with already high tariffs. The citizens' opposition to Aguas del Tunari was on two fronts. The first and the most well-known reason was the increasing price of drinking water before any investment was made to improve the quality of the service [1]. However, the second and most important reason was the fact that the management contract was perceived by many as the first step to jeopardising community water systems that were managed according to customary law. The main outcome of Cochabamba's Water War was the clear negative from the citizenship to the marketisation and commercialisation of water and the participation of the private sector in water services' management.

The Water War marked a turning point in how water was perceived as an element of sociocultural identity. Years later, the rise of Evo Morales, as president of the Bolivian Pluristate, brought a definitive change in policy and enacted institutional reforms to protect local and customary usage rights. Privatisation of water sources and management services by the private sector was prohibited and priority was accorded to social participation in water management and policy decisions, together with the establishment of a water governance system supported by a constitutional framework and legislation; this was exemplified by [2] and the policy of el Desarrollo Integral para el Vivir Bien [Holistic Development for Well-being].

45   Today, almost 18 years after the Cochabamba Water War, the complexity of the water problems,
46   which is far from being resolved by populist policies, has increased. A clear example of this
47   growing complexity can be seen in the challenges faced by SEMAPA (the public Cochabamba
48   provider). SEMAPA publicly admits 50% losses in its network while the pollution of the Rocha
49   River (the main water source) has been denounced by the National Audit Office [3]. For the
50   irrigation systems, irrigation efficiencies at plot level are estimated at around 50% as declared by the
51   Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), in a personal communication in
52   September 2016). Urban areas boosted by rural immigration make the informal and technically
53   "illegal" water market a lucrative business. Meanwhile, climate change is exacerbating drought and
54   floods, and increasing demand and competition among water-using sectors (domestic, irrigation
55   and energy) within the Cochabamba region, exemplified by strategic national projects, such as
56   Misicuni, have increased the levels of conflict. Where there was water scarcity, this is nowadays
57   accentuated by grabbing the water resource (appropriation) through misinterpretation of customary
58   laws, transforming use rights into property rights in an attempt to secure water.
59   To confront this situation and promoted by the Dirección de Gestión Integral del Agua del
60   Gobierno Autónomo de Cochabamba (Cochabamba Prefecture Water Directorate), la Agenda del
61   Agua Cochabamba (AdA) (Cochabamba Water Agenda) appears as a politically contested water
62   management paradigm.[1] The Cochabamba Water Agenda is presented as an opportunity to address
63   the challenges in water management in the Cochabamba Department, mainly in the Cochabamba
64   Valley. The AdA proposes a paradigm shift changing from water as a resource to water as a common
65   through social agreements. Ultimately, it is about the elaboration of a public social policy
66   articulating the public investment process with citizens' initiatives through the social agreements
67   within the scope of the River Basin Management Plans.
68   In this context, the following question arises: will AdA be able to establish a new water
69   paradigm considering water as a common and not as a resource and, thus, overcome the actual
70   hydraulic paradigm based on the Integrated Water Resources Management (IWRM) concept? Or, in
71   other words, what are the drivers and barriers for AdA to take place? To answer this research
72   question, this paper is organised as follows: Chapter 2 defines the existing conflicting water
73   paradigm in Bolivia in a context of conflicts and power struggle describing the values of AdA.
74   Chapter 3 describes the "water management" arrangements under AdA within a governability
75   framework. Chapter 4 presents an example of how AdA can be implemented through water user
76   agreements in a specific case. Chapter 5 concludes with the question of whether a change of values
77   may trigger a reduction of water related conflicts.

2. The Conflicting Water Management Paradigms in Bolivia

79   In a territory, water networks or water landscapes play an unquestionable role relating different
80   socioeconomic, cultural and historical realities, at different scales and levels over time, so there are
81   both temporal and spatial dimensions. However, people perceive water differently according to
82   their relationship with it; especially when there is a physical proximity and a lived experience
83   through channels, ditches, wells, and lagoons. There is a hydro-temporal-spatial network that
84   shapes the hydro-social network of interrelations and coexistence with water from its ecological,
85   sociocultural and productive value based functions. In this way, water concepts, such as "upstream"
86   and "downstream", are abstract and distant elements for most inhabitants of a river basin.[2]

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[1] Paradigm refers to how reality is understood (epistemology) from its objective perception (ontology) and how it can be transformed (axiology) from certain principles [4].

[2] The basin remains an external construction for both rural and urban communities. The concept is closer to a territory in constant dialogue with humans. In this sense the basin must be understood as a space-time reality, a territory as a dynamic-social construction: the natural habitat of water in its interaction with social actors.

87 La Agenda del Agua Cochabamba (AdA) is set in a conflicting water context as part of a reform
88 process from the institutions themselves. The PROMIC was a BTC/COSUDE funded programme
89 that lasted from 1991 to 2012. The PROMIC looked at the integrated watersheds' management in the
90 Cordillera del Tunari in Cochabamba. The main objective was integrated river basin management
91 articulated with a productive rural development, integrating the water resources sector with a focus
92 on user participation and consultation. In 2012, the Swiss cooperation put an end to this programme
93 resulting in the creation of the River Basin Departmental Service – Servicio Departamental de
94 Cuencas (SDC) – with the mission to implement the Plan Nacional de Cuencas (PNC) – River Basin
95 National Plan – in Cochabamba Department, mainly regarding the elaboration of Planes de Cuenca
96 – River Basin Management Plans – under an IWRM approach. However, in the attempt to
97 implement the above mentioned River Basin Management Plans, the SDC faced two apparently
98 conflicting paradigm approaches: one clearly stated by the PNC as Integral Water Resources
99 Management (IWRM) and the other in the irrigation water sector laws and by-laws based on water
100 customary usage rights according to [5].
101 The PNC clearly approaches water management according to the concept of IWRM. However,
102 this paradigm is due to a utilitarian hydro-engineering 'vision' that continues to see water as a
103 resource, the limited participation of social actors still strongly conditioned by state actors, and a
104 focus on the basin as a management unit that does not take into account the hydro-social
105 relationships, thus perpetuating the so-called problems of efficiency and equity in the allocation and
106 distribution of water. An interesting point may be to consider whether the problem is a shortage
107 (deficit), either as a result of the balance between the available physical supply and the demand of
108 the different "consumer" sectors (uses), or an allocation/distribution issue related to the water
109 availability resulting from a specific water management with regard to real water needs.
110 Another paradigm of water management recognised by [6], specifically under [5], has been that
111 based on water customary usage rights. The different levels of management, according to the uses
112 and customs, refer to the allocation of water between water systems and its distribution for a specific
113 or shared use between users within the systems. The customs are habits or tendencies acquired
114 through the frequent practice of an act (uses). Custom, in law, is "the uniform and uninterrupted
115 way of acting that, for a long period of time, adopts the members of a community, with the belief
116 that this way of acting responds to a legal need, and is mandatory"[3] [7]. Uses and customs vary over
117 time: management rules are adapted to external or internal changes as they are eminently practical
118 and operational in nature. They also vary between communities and systems (i.e. spatially). This
119 "adaptation" makes management based on usage and customs especially resilient and robust in face
120 of seasonal variations and institutional changes. Changes that affect the availability make it
121 necessary to renegotiate new rules and adapt to the water needs. From this point of view, the water
122 customary usage is closer to the concept of Adaptive Water Management (AWM) [9].[4] However, the
123 fact that the "rules" are not clearly documented or transcribed allows them to be reinterpreted in

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[3] Rights of access to water are complex. The "right to water" includes different elements: rights of
access, consumption (irrigation, etc), usufruct rights (for activities that allow obtaining benefits from
water without consumption), management rights and exclusion of users, sanctions, etc). This text
uses the term 'uses and customs' to refer to the elements of management of access and distribution
of water and includes the rights mentioned [7]. In Bolivia the distinction between right to water and
right of water is made. The first refers to access to clean water as a human right [8], whilst the second
considers the access to the water source.

[4] The Adaptive Water Management (AWM) seeks to increase the resilience of the water system, and
reduce vulnerability to uncertainty and change. The AWM has two aspects: 1) The AWM supports
the actors involved in water management to understand, adjust and plan water management
projects in situations of uncertainty, and 2) The AWM implies learning as a 'systematic process to
improve the policies and management practices through learning processes based on the results
obtained from previously implemented management strategies' [9].

124 favour of specific actors and communities who see a source of law (acquired right) in their uses and
125 customs.

126   Bolivia has a long and complex sociocultural history. There are strong power asymmetries
127 resulting from territorial fragmentation that have their origins in pre-colonial cultures. The Incas
128 displaced a large number of populations and these displacements were kept during the colonial time
129 through haciendas as a administrate power organisation. In general terms, it is possible to observe
130 the overlapping of sociocultural and economic patterns through different historical periods, where
131 the dominant socioeconomic and cultural organisation took over the previous "status quo",
132 adapting their own ideology, believing in societal concerns in the relationship/management with
133 natural resources and water. In this way, people identity became dissipated with overlapping ethics
134 and sociopolitical and administrative-imposed frameworks and a lack of historical vision.

135   In general, territories cannot be associated to ethnic groups as these groups appear scattered.
136 The result is that the social power exerted by different sociocultural groups is not linked to a specific
137 territory. It is, however, superposed to existing social realities that share the same geographical
138 space and, so, creates imbalances of power of the groups in each of the roles they play in resource
139 management. Power asymmetries are determined at different levels, both in time and space, to be
140 the evolution of a territory. Thus, territorial asymmetries of power define the governability of a
141 socio-ecologic system, and water is a part of it.

142   These asymmetries of power are manifested in the way different groups have access to natural
143 resources for their own interest, how investments are made on infrastructures to make resources
144 available across the territory, and how both aspects interact in allocating the resources under certain
145 rules of priority for their use and benefit.

146   The organisational behavioural norms that define the water political arena, based on territorial
147 asymmetries of power, happen at the intersection of two levels. One level is the community norms
148 and rules that relate to the cosmological vision of water and have an anthropological background.
149 This level is constituted by the inhabitants of the communities and is based on strong links with the
150 Pachamama (Mother Earth), articulated through rituals.

151   The other, ulterior level is that of the leaders ("dirigentes") and representatives of WUA (Water
152 User's Associations – "sindicatos" and "centrales campesinas") that constitute, up to certain degree,
153 the bases of the Movimiento al Socialismo (MAS) government of Evo Morales. At this level, the
154 actors consider the political benefits of their trade off (political and social cost) for themselves and
155 for the community according to their social links (see [10] on community capture). This level is
156 organised around the uses and customs that took over from previous sociocultural traditions, which
157 were adopted and modified conflicting with the institutional rules (normative positive law).

158   This behavioural set up is at the core of the territorial power asymmetries that are mimicked
159 outside the communities and state level. Thus, the Bolivian state can be also seen as a big
160 "community" with the citizens behaving under certain rules, and the leaders behaving in accordance
161 with the political cost of their actions, balancing private gains with the social costs of their actions.

162   Under this political context, in 2014 the Water Directorate – Direccion de Gestion del Agua
163 (DGA) – was established as a political and normative entity for the whole water sector in
164 Cochabamba; in part as a result of the increasing conflict in dealing both with an IWRM and a water
165 custom usage rights approach. From 2014, DGA and SDC elaborated and implemented some River
166 Basin Management plans with the help of international donors, which mainly focused on the
167 development of institutional platforms on the basis of existing communal organisations and the
168 reinforcement of local organisations and actors to make the water governability possible in the
169 Cochabamba Department. The key and most interesting point is that the DGA's institutional set up
170 and way forward is inspired by the Agenda del Agua Cochabamba (AdA) but also there are other
171 avenues, meaning that the AdA receives feedback on the developing institutional processes through
172 social actors, rules about how they relate in terms of water allocation-distribution and the space
173 within which they interact though these thematic and territorial platforms.

174   The AdA itself was drafted by a group of experts and intellectuals related to the water sector in
175 Cochabamba during 2012-2013, as a need to give a sustainable, holistic and comprehensive answer

176 to the water issues in Cochabamba. The AdA proposes a social dialogue to change the vision and
177 relationship with the water: moving from the project-supply view (offer management) to go beyond
178 the demand management, to understand water as a common, not in the economic sense ("good") but
179 in the community sense, and meaning water as a key element in shaping the collective identity in the
180 Andean culture. At its core, the AdA seeks collective action to establish a social agreement to
181 develop a social-public water policy and, thus, create a new paradigm in water management.

182   Thus, the Cochabamba Water Agenda (AdA) is a clear politically contested process, addressing
183 the existing power asymmetries, seeking social agreement through collective action for the
184 elaboration and implementation of a social public water policy. To effect this suggests a radical
185 change of values that goes beyond the statement that access to clean water is a human right [8], and
186 water cannot be treated as a simple commodity (water is a social and economic good). Water
187 cannot be considered a public or private resource or either a common good within the community of
188 users ("res communis omnium" − right of use for each person). The fundamental point is that the
189 AdA recognises water as a common, meaning its right as a living being accepting its diversity in the
190 way water expresses itself through rivers, lakes, and streams [11]. By doing this the AdA recovers
191 traditional Andean values where the Mother Earth Rights are above the Human Rights and where
192 water becomes a key element of territorial identity in rebuilding communities (communities of
193 water). The AdA compiles these ideas into three basic principles for water management:

194 • Autonomy in the territorial management of water (a concept that differs from that of
195   decentralisation, delegation or devolution), understood as the recognition of the relationship
196   between the inhabitants of a territory and the water.
197 • Equity in access. From a management point of view, water can be seen as a resource that may
198   be private, public, or common good according to access and rivalry criteria, or even, as
199   mentioned by [12], different management categories may coexist with in a water system. Water
200   usage customs do not grant property rights but are concerted priorities of allocation and
201   distribution (Paragraph 2, Article 374 of the CPE). According to the AdA, water is a common.
202   This must be also clearly distinguished from water as community managed under the concept
203   of commons [1].
204 • Responsibility in the relationship with the water, not only in terms of efficient and effective use
205   of water based on real needs and availability through the service for multiple uses but with
206   special focus on recognising the different water 'bodies' needs (rivers, lakes, streams…)
207   through ecological yields including landscape concerns.

208 **3. The Management Arrangements under AdA**

209   This section examines how the AdA unfolds in a new paradigm in water management using the
210 concept of governability. According to [13], governability relates to qualities of the object of
211 governance (the system-to-be-governed), its subject (the governing system) and the relationship
212 between the two [13]. The authors propose a governability analytical framework to examine the
213 AdA as a water management paradigm comparing its governability qualities with the other two
214 conflicting paradigms in water management in Bolivia, as exposed in section 2: that of IWRM
215 promoted by the PNC, and the one based on water usage custom rights mainly compiled in [5]. The
216 governability framework considers the relationship between the institutional rules framed by
217 specific policies (system to be governed), the organisational structures grounded in territorial
218 asymmetries of power for water control that delineate the water political process also known as
219 hydro-politics (the governing system), and the resulting management practices that characterise the
220 water paradigm [14]. The authors suggest (see Table 1) that changing of values in how rules are
221 elaborated and implemented has implications for the water management practices. In turn, the
222 management practices may characterise the governability of a system and be expressed through a
223 certain level of conflict.

224

225   **Table 1**. Different water paradigms under the governability qualities suggested by the authors

Paradigm			Governability qualities
Water rights	**Cultural-geography**	**IWRM**	
Territory, hydro-social relations	Landscape evolution, identity	Natural systems, socio-hydraulic solutions	Governing system (rules, governance)
Water rights – pragmatic decisions over demand	Social learning and benefit sharing	Master and volumetric supply control	System-to-be-governed (power/organizations)
Water as a community good	Water as a common	Water as a social and economic good	Governing interaction (management)
Social justice	Environmental moral	Utilitarian view	Understanding values

226
227   The authors consider that the water management paradigm proposed by the AdA may be
228   under the umbrella of cultural geography. Whilst the historic ecology somehow reflects part of the
229   AdA ideas on how the water landscapes reproduce the dialogue between humans and water
230   through time and space, a missing element is that of identity echoed by cultural geography. Cultural
231   geography does not define per se an object of study but a way of how to look at thought processes
232   under an identity-territorial dual logic. In this sense, the dialogue of human and water not only
233   shapes landscapes but defines a specific cultural identity and feelings of belonging, being ancient
234   traditions and knowledge and, finally, water management being an expression of it.
235   The concept of cultural geography brings in two fundamental and complementary aspects in
236   how to articulate the AdA as a "new paradigm" of water management. First is to consider the
237   different overlapping social-economic, administrative, and hydraulic actor layouts on a territory for
238   water management extending the concept of "hydro-social territory"[5] to that of water trajectories,
239   and going beyond that of a water network or paths as it looks at the dialogue of humans and water
240   through time and space creating a specific cultural identity in the sense of communities of water.
241   This dialogue is expressed in hydraulic works that modify the water landscape and extend water
242   communities and identities in the form of customs and norms that coexist in the territorial space and
243   evolve over time being progressively adopted by the positive law.
244   The second point relates to the need to revisit the concept of the existing customs and norms,
245   expressed as water rights looking for a consensus between the individual and collective sphere in
246   water management, considering that the social justice of water and the universal right to water can
247   only be achieved if a new environmental moral is put into practice through two coordinated forms of
248   action: revisiting the existing rights and "redistribution" or "re-legitimation" of those rights
249   (adapted from [7]).

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[5] The concept is similar to that of the "bassin versant et bassin deversant" [12]. There is a vast
literature review on why the river basin, as the basic unit to implement IWRM, faced a number of
problems. Undoubtedly water flows beyond the river basin; besides the IWRM concept applied in a
territory is not holistic since it considers water as the most important resource. Meanwhile, water
management is interconnected with other resources considering the full ecosystem. In this paper, the
authors view river basins as an external construction for both rural and urban communities, where
there is a greater awareness of the reality of the territory they manage rather than that of the basin
alone. In this sense, the basin is understood as a spatial-temporal reality; a territory as a dynamic
social construction (i.e. the natural habitat of water in its interaction with social actors).

Reality in Bolivia has showed that uses and customs are not sufficient to resolve conflicts within and between systems [15]. There are conflicts within systems that cannot be solved by mere uses and customs and require a supra local intermediary (public actor) to facilitate negotiation agreements on water. This conflict also extends between systems because scarcity of water forces the search for new sources of water introducing "new" uses and, thus, new customs for a more effective water management of different systems.

Within hydro-social systems, the rules and norms that determine the operational management of water lie in the customs and practices, as stated by national policies [5]. These policies conflict with the visions of the PNC under the IWRM paradigm as they should also take into account the notion of socioeconomic justice and provide for a redistribution of water, rights and powers ([2], Article 19).[6] Accept water as a common, as proposed by AdA, means water must serve the general interest and be accessible to all in sufficient quantity and quality, including the Mother Earth of which rivers and streams are an expression of the existence of water (e.g. through an ecological yield). Customary law does not promote equity per se in water allocation and distribution but revisiting water custom usage on hand with positive law can improve water management.

Likewise from a socio-hydraulic perspective, public initiatives defined by development and investment plans intervene in the hydro-social territory and require new consensus and agreements, as new projects overlap and interact with existing water systems, modifying the relationships between and within them. As a result, a new network of "hydro-technocrats", actors at the political and technical level, is added to the existing hydro-social local network.[7]

The AdA suggests both "levels" should articulate and coordinate development projects integrating different visions and perceptions, but also regulate a relationship in order to minimise conflicts. Thus, the Strategic Framework 2015-2020 of the SDC and DGIA establishes that: "The Water Institutions of the Department of Cochabamba is a network of organisations and institutions of the department of Cochabamba, integrated by the political normative and technical instances of the Departmental Autonomous Government (Water Directorate – DGA, and Departmental Service of Watersheds -SDC) and by the social actors who are involved in the water management at a local level".

The DGA recognises two levels of management authority in the river basins[8]: the technical political authority constituted by the DGA and the SDC, and the networks of local actors directly involved in water management at the system level. Looking at the process of implementation of the AdA, there are four elements to take into account:

- Actors at the political and technical level: Water Management Directorate (DGA) and the River Basin Departmental Service (SDC) of Departmental Autonomous Government of Cochabamba (GADCB) involved in strategic planning and policy making.
- Local actors involved in local operational water management and project/initiatives development, such as water communities, municipalities and municipal commonwealth ("mancomunidades").
- Processes of consultation/negotiation and decision-making between the mentioned actors articulated through agreed rules and norms, and regulations that reflect on uses and customs.
- Platforms, networks, forums… to articulate the decisions between the actors, their implementation and follow-up.
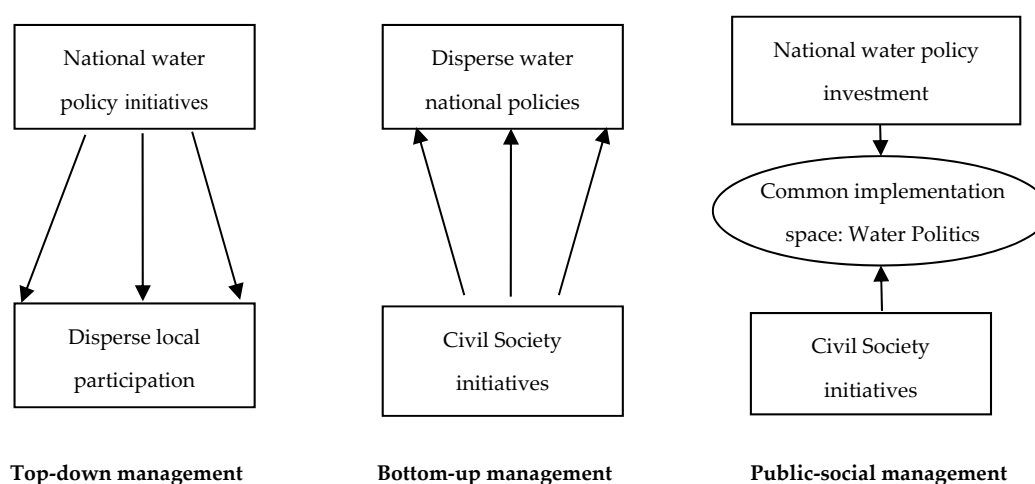
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[6] Rights are social constructs that reflect certain relationships of power and forces [7].

[7] The idea of the network suggests the way in which actors with a common interest connect with one another. The actors in the network exchange resources and negotiate possible solutions to specific problems that also evolve in time.

[8] Here river basin is used in the sense of "the house of the water"; the basin is not a closed space (system) but open.

292   Of special consideration is how water management is enacted through this set of actors and
293   processes. Management involves the exercise of power (water control) in the scope of a set of rules
294   and through an organisational framework in order to converge to a common end result in a
295   negotiated decision-making process.   Hence, the administration of power entails the existence of a
296   management authority considering the AdA's principle of autonomy, for the distribution and
297   allocation of water. As evidence suggests the peasant and irrigation communities, based on the
298   habits and customs, constitute de facto the institutional framework within water systems. The AdA
299   looks into a more co-management model. A co-management model raises the need for consensus
300   levels where the newly created DGA and SDC, the traditional local water management organisations
301   and other stakeholders, such as the private sector, development organisations, and universities, are
302   in a position to meet and have a dialogue.   Furthermore, the AdA suggests a management
303   "interaction" (see Figure 1) where the different actors participate in a process of agreement for
304   decision-making. This is not only a question of increasing local participation levels (which have
305   often failed because of the lack of available information), but rather of putting citizen-users at the
306   level of decision-making that determines distribution and access once the information is available
307   [16].

Top-down management   **Bottom-up management**   **Public-social management**

308

309   **Figure 1**. Different water management interactions

310   *3.1. Drivers and Barriers to implementing AdA*

311   The analysis of drivers and barriers to implement the AdA examines the relationships between
312   institutions, actors/organisations and their power interests in order to visualise the scenario in which
313   the AdA is implemented. The results are presented in Table 2 below to identify dialogue processes
314   and key actors (drivers) that may allow the implementation of the AdA.   Table 2 shows the key to
315   institutional change remains with the Water Management Directorate (DGA).
316   The process of building an institutional and organisational framework in the public-social
317   sphere is the strength. The existence of the Water Management Directorate (DGA) and the
318   Departmental River Basin Service (SDC) of the Departmental Autonomous Government of
319   Cochabamba (GADCB) has allowed the development agencies to have a valid interlocutor for the
320   elaboration of common visions reflected in the Cochabamba Water Agenda (AdA). This favourable
321   environment facilitates the attraction of financial resources. It also has an inter-institutional
322   consultation platform that contributes to the exchange of knowledge.
323   Among the main barriers to the implementation are the political situation and the doubts of the
324   departmental political authorities about the process of the construction of the AdA. In addition,
325   there is low organisational capacity and insufficient intra-institutional coordination, which leads to a
326   delay in the positioning of the AdA in the institutional context.

327   Regarding the external institutional context, the framework of the Bolivian Plurinational State is
328   identified as an opportunity, which prioritises the water theme, creating the Ministry of Water and
329   Environment, which has the River Basin Plans as a water management instrument. These aspects
330   facilitate the elaboration of a portfolio of investments working with the actors involved. Finally,
331   since water is a highly sensitive issue for the Cochabamba people, the AdA is seen as an instrument
332   that can coordinate and facilitate consultation with local practices and knowledge rooted in
333   grassroots social initiatives, creating, as mentioned before, a favourable environment for the
334   channelling of new, concurrent, financial resources.

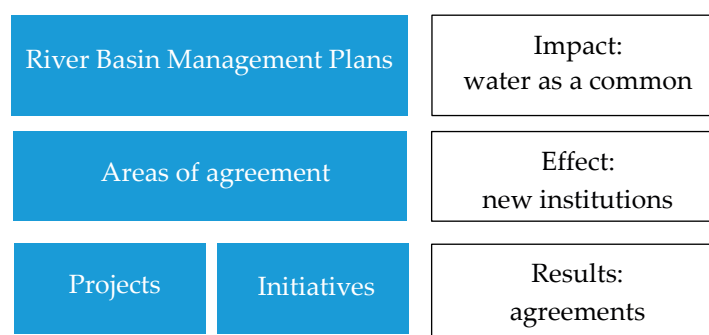Table 2 Drivers and barriers in the AdA implementation

Situation: AdA as an instrument of political orientation of water management that seeks compromises and consensus between the different public-private actors and civil society				
'Status quo' variables			**Factors of change**	
Institutions/rules	**Actors/organisations**	**Power interest**	**Emerging key actors (motivation and abilities)**	**Dialogue processes (triggers)**
- Water law in the process of formulation - Incomplete regulations and legislation - Distortion of the concept "Uses and Customs" as legitimacy - Sector regulation (drinking water) but not on the overall water sector - In general there is an overlap of roles and functions at the institutional level	- National: MMAyA and PNC (development vision "not in tune" with territorial reality), ENDE (geo-economic priority), World Bank and development agencies (not well understood) - Departmental: Cochabamba prefecture directorates, farmer's union, Misicuni municipal water utilities and local managed water utilities, Metropolitan Council (interferences and political opportunism, "changing") - Locals: NGOs (looking for a "niche"), mancomunidad (in "reformulation"), municipalities ("tied" by political commitments"), peasant and irrigating organisations (core of territorial power), civil society (fragmented and disorganised)	- Little devolution of powers in institutional terms - Political influences on major infrastructure and territorial investment projects - "Manipulation" of uses and customs to maintain "status quo of control" and hoarding	- DGIA as a body with normative-regulatory functions in integral water management - Commonwealth / Metropolitan Council / municipalities as managers of change "protagonists of a territorial integrity" with possible funds management	- Creation of river basin organisations in the role of authorities under the PNC - Increasing but still "diffuse" demand for greater transparency accountability and participation in decision-making processes

337   **4. Community Initiatives: the Case of Kusikuna School**

338   The starting point for moving the AdA towards its implementation is the interrelationship
339   between available technical information, grassroots community initiatives, and public investment
340   projects at the local/municipal level. The River Basin Plans are instruments that seek at
341   operationalise the AdA through agreements between the different actors involved in water
342   management, generating social cohesion and commitment leading to a strong sense of identity
343   around rivers, lakes, and streams. Considering that the objective of the AdA is the transit of water as
344   the resource for water as a common, it is necessary to facilitate the construction of the new water
345   management paradigm, through emerging social initiatives, as an "agent of change" in line with
346   public investment.
347   The AdA 2016-2020 strategy proposes social initiatives as the central element for the strategy
348   implementation. Initiatives rely on the volunteering commitment of social actors that facilitates the
349   transit of water as a resource towards water as a common. Accompanying and promoting existing
350   initiatives and facilitating the emergence of new ones is expected to generate a multiplier effect and
351   make visible the need to act together. These converge with ongoing public investment projects
352   within the framework of the River Basin Plans (see Figure 2).

353   **Figure 2**. The role of the AdA initiatives

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356   An example of the initiatives is that of Kusikuna, which in Quechua means "we will rejoice",
357   assuming the educational fact as an act of permanent joy. The school, Kusikuna, has been carrying
358   out its educational activity since 2000 as an educational and pedagogical project supported by Ajayu,
359   a non-governmental organisation. This organisation is made up of parents and educators who wish
360   to participate and by people interested in carrying out an alternative educational experience. The
361   education principles and the school itself are set as an eco-community that proposes a daily praxis of
362   forms of education and transforming of society in terms of reciprocity and respect for diversity.
363   Kusikuna is eco-active because it is a fusion between ecology and active education, to affirm the
364   processes of life in our world. Thus, the school defends and promotes the practice of ecological
365   principles as a way of life and in full respect of nature and the environment.
366   It is an education from and for life, with an open and flexible curriculum that favours active
367   learning based on situations and significant elements for students, starting from practice, play and
368   creativity to reach the concept. It provides for the use of concrete materials for all ages and subjects.
369   It is respectful of the life processes of the students taking into account their stages of development
370   and learning rhythms. To this end, the different educational activities are developed in a flexible
371   system, according to the needs and interests of the students. It is a multicultural school, respectful of
372   diversity in all its manifestations: cultural, social, gender, and religious or political creed. It reaffirms
373   the practice of reciprocity and complementarity, where dialogue and non-directivity are the main
374   elements that help children and young people to grow in autonomy and responsibility.
375   Economically, the school is maintained by the share of parents, starting from a principle of
376   solidarity economy, in which those who have more contribute more and those who have less

377   contribute less, consequently. With this principle, it is considered that no child will be excluded for
378   any reason, much less for economic reasons, whenever he/she wants to be in the school. For this
379   reason, an Ayni system is developed (in Quechua it means reciprocity). With the Ayni, families
380   participate of volunteer work to ensure that their children can attend school.
381   Under this perspective, the AdA constitutes a pedagogical area among students, educators and
382   families of Kusikuna. The school was granted a small initiative fund in 2016 by COSUDE to
383   implement a number of activities aiming to boost the construction of a new culture of relationship
384   with water. In this sense, Kusikuna became the first school in Cochabamba, and the first educational
385   experience, to develop a systematisation process of their own significant experiences related to the
386   theme of education for water care, generating materials and educational tools transferable to other
387   social and educational contexts, as a decisive contribution in the debate and construction of an
388   alternative culture in relation to water.

5. Conclusions

390   In spite of the change overtaken by Evo Morales' government, the IWRM hydraulic paradigm
391   to address the water scarcity remains focused on augmenting supply. This is, in part, justified by
392   donors pushing for policies to tackle climate change and looking to increase the resilience of
393   vulnerable populations that constitute the broad rural support of Evo Morales' MAS party. The
394   government is engaged in a campaign to increase irrigation areas through both bilateral projects and
395   nationally funded projects, such as "Mi Riego" and "Mi Agua", with a focus on more infrastructures
396   to improve water access services. However technical and financial efficiencies of the irrigation and
397   drinking water systems remain low and inequities amongst the population and farmers are still
398   high. This is expressed by an increase in the number of water conflicts.
399   Besides, there is lack of consensus in the whole project cycle implementation, which increases
400   the tensions between current and potential future users. It is also observed that in the Cochabamba
401   Valley there is an insufficient commitment from actors that manage and who take advantage of the
402   water by competing for different uses, such as farmers, industrial and domestic users, as well as
403   touristic activities. The lack of a water law contributes to the creation of a confused competence
404   framework, including the lack of fulfilment of the roles of some sub-national actors, the dispersion in
405   public and private investments and the limited inter-institutional coordination. As a result, the
406   management paradigm, based on the concept of the Integral Water Resources Management (IWRM)
407   and promoted by the Ministry of Environment and Water, is that of increasing the offer whilst
408   ignoring the management demand.
409   Thus, water scarcity seems to have increased through management practices resulting in certain
410   water policies in line with territorial interests, which are disputed in the political area and where
411   asymmetries of power play an important role. On the opposite side, very little has been done to
412   contain demand and definitely nothing to enhance water management from a holistic point of view.
413   As a paradox, it may seem the water policies changed but the hydraulic paradigm remained the
414   same because the existing water politics maintain the hydrocratic elite in power; a paradigm that is
415   broadly and socially accepted in an unquestioned manner.
416   In this context, the Water Agenda Cochabamba (AdA) appears as an opportunity for social
417   change to move from water as a resource towards water as a common. Recognising water as a
418   common means recognising water as a being with which one lives, accepting the diversity of its
419   expressions in rivers, lakes and streams. The AdA is understood as an on-going politically contested
420   political process that sits as a new water management paradigm based on "new" governability
421   values, where stakeholders come under negotiated agreements allowing reduced conflict levels and
422   looking for sustainable solutions on water related issues. However, in order to reduce levels of
423   conflict, it is necessary to better articulate the institutional framework and actors' coordination in a
424   way that the power asymmetries are smoothed through negotiation and conciliation in the water
425   allocation and distribution decision-making process in the Cochabamba Valley.

426   The question remains whether politicians, the public sector, and civil society are determined on
427   a paradigm that gains its biggest strength through its capacity to absorb individuals under a
428   common idea. Pedagogical approaches seem key to do so calling for the construction of an identity
429   in defending a social and historical territory that remains at the core of any civil society initiative. In
430   this way, citizens of any type and without distinction may become really empowered in a
431   transparent, accountable and participatory dialogue with water.

432   **References**

433   1.   Bakker, K. The "commons" versus the "commodity": Alter-globalization, anti-privatization and the human
434   right to water in the Global South Journal compilation. *Antipode* 2007, *39*, 393-570.
435   2.   Ley No. 300 Marco de la Madre Tierra y Desarrollo Integral para Vivir Bien. Available online:
436   https://bolivia.infoleyes.com (accessed on 25 April 2017).
437   3.   Gobierno Autónomo Departamental de Cochabamba. *Plan director cuenca del Rio Rocha,* 2015; Available
438   online: http://bibliotecadelagua.sirh.gob.bo/docs/pdf/210.pdf (accessed on 15 April 2017).
439   4.   Wesselink, A.; Kooy, M.; Warner, J. Socio-hydrology and hydrosocial analysis: toward dialogues across
440   disciplines. *WIREs* 2016, *4*, doi: 10.1002/wat2.1196.
441   5.   Ley No. 2878 de Riego. Available online: https://bolivia.infoleyes.com (accessed on 25 April 2017).
442   6.   Constitución Política del Estado Plurinacional de Bolivia. Available online: https://bolivia.infoleyes.com
443   (accessed on 25 April 2017).
444   7.   Coordination SUD. *Por una justicia social del agua: garantizar el acceso de las agriculturas familiares del Sur al*
445   *Agua;* Comisión de Agricultura y Alimentación de Coordination SUD: France, 2012.
446   8.   United Nations. *United Nations Resolution A/RES/64/292*, July 2010; Available online:
447   http://www.un.org/es/comun/docs/?symbol=A/RES/64/292&lang=E (accessed on 21 February 2017).
448   9.   Pahl-Wostl, C.; Sendzimir, J.; Jeffrey, P.; Aerts, J.; Berkamp, G.; Cross, K. Managing change toward
449   adaptive water management through social learning. *Ecology and Society* 2007, *12*, art 30.
450   10. Bellaubi, F.; Visscher, J.T. Enhancing integrity to improve service delivery in water service supply
451   provision. In Proceedings of the IRC Symposium on Pumps, Pipes and Promises: Costs, Finances and
452   Accountability for Sustainable WASH Services, The Hague, Netherlands, 16-18 November 2010;
453   Butherwood, J., Ed, IRC: The Hague, Netherlands, 2010; 19.
454   11. Agenda del Agua. *Estrategia ADA 2016-2020;* Available online: http://www.aguacochabamba.com
455   (accessed on 15 March 2017).
456   12. Ruf, T. Comprendre le maillage territorial d'un bassin versant, une étape préliminaire pour engager une
457   gestion concertée sur l'eau. In Proceedings of Gestion intégrée de l'eau au sein d'un bassin versant. Actes
458   de l'atelier du PCSI, Montpellier, France, 2-3 décembre 2003; Le Goulven, P.; Bouarfa, S.; Kuper, M., Eds.
459   13. Kooiman, J.; Bavinck, M.; Chuenpagdee, R.; Mahon, R.; Pullin, R. 2008. Interactive governance and
460   governability: an introduction. *Jnl of Transdisciplinary Environmental Studies* 2008, 7, 1-11. Available online:
461   http://dare.uva.nl/document/2/59200 (accessed on 12 January 2017).
462   14. Bellaubi, F.; Boehm, F. *Management practices and corruption risks in water service delivery in Kenya and Ghana,*
463   2016; Available online: http://dx.doi.org/10.2139/ssrn.2844913 (accessed on 01 December 2016).
464   15. Antequera, N. *Inventario de conflictos y acuerdos por el agua en Cochabamba;* Gobierno Autónomo
465   Departamental de Cochabamba: Cochabamba, Bolivia, 2016; pp. 72, Available online:
466   http://observatoriodelagua.net/wp-content/uploads/2016/05/Informe-Final-Conflictos.pdf (accessed on 18
467   December 2016).
468   16. Molle, F. Defining water rights: by prescription or negotiation? *Water Policy* 2004, *6*, 207–227.