

# **Realistic Water Management Policy Recommendations in the Dead Sea Basin**

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This paper examines the predominant perception of sound water management policies. This perception is presently hegemonic within state institutions, donor organisations and most academic circles. A few state of the art research centres are challenging it and this perception will no doubt evolve over the coming years as do all hegemonic concepts.<sup>1</sup> But it is presently fair to say that the predominant perception of sound water management entails a central planning of water at the highest level, if possible at the basin level, with a concurrent decentralization of the execution tasks at the most local level. Thus extraction rates from wells, water pricing and regulation of pollution is supposed to be decided at the basin or at the national level, if possible at the international level via an agreement among riparian states while collecting fees for water use is supposed to be carried out at the most local level. This type of policy has been advocated by the World Bank since 1993. It is embodied in most of the water legislations adopted around the planet in the last ten years.

Several hypotheses underlie the dominant perception of what is sound water management. This article will study three of them. First of all, the state is considered to be the central arbitrator in matters of water, with decision making power that allows it to stipulate the uses of water, the access modalities to water and the transmission of these access modalities as well as the allocation of the resource. Its decisions are supposed to be enforced so that the water management practices observed in the field correspond to the national policy. Second, water is considered to be the object of a public property regime. This principle now appears in all modern water legislations around the planet. This does not preclude private sector participation in water management, but the resource itself is supposed to be a public good. Private property regimes, communal property regimes and open access to the resource are precluded. Partly as a consequence of these first two hypotheses, a third hypothesis is prevalent: the appropriate policy recommendations should include quantitative management tools such as models. They should be based on quantitative data concerning hydrogeology, demography, pollution and other 'scientific' considerations so that the most rational and efficient management can be effected.

This paper suggests to revisit these three hypotheses and to explore both the epistemology that supports them as well as the epistemology they sustain. Epistemology designates the body of knowledge that is considered relevant to pursue a research question. It means the type of data that we think is necessary to answer a question. Epistemological considerations may or may not include environmental degradation, for example, as this may or may not be considered relevant by the researcher who explores water management. A water management problem is a concept that is socially constructed. What is identified as problematic, what is identified as a solution, what is identified as successful will reflect the values of the researcher or manager defining the problem. Gender considerations, for example, are

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<sup>1</sup> See for example:

David Brooks, *L'eau gerer localement, en focus du chercheur au decideur*, Centre de recherches pour le developpement international, Ottawa, Canada, 2002.

widely put forward by ministries and international aid organisations. Yet, they are generally held as irrelevant when the researcher or manager decides which facts need to be taken into account to achieve a water management decision.<sup>2</sup> While not denying the importance of gender sensitive research in general, the manager or researcher will usually state that ‘in the case of my study (or my operation), gender was irrelevant’.

Examining the epistemology that both sustains and is sustained by these three hypotheses may allow us to widen the definition of sound water management somewhat. It may allow us to reconsider several social aspects that are presently perceived as a hindrance to water management. It may allow us to identify them as aspects of social capital that can actually be harnessed to achieve more sustainable water management.

### **The State as the central water planner**

The idea of the state actually deciding the uses made of water, its allocation to various sectors as well as to various actors within these sectors, the legitimate modalities regulating its access as well as the transmission of these modalities from one user to another, is a very new idea. It first flourished in the United States in the 1930s. For the first time, the state devoted significant budgets to water infrastructure for non-navigational use. State intervention and investment in canals, harbours and river maintenance had existed for centuries. But it had been devoted to improving or preventing navigation. The construction of Boulder Dam marked a turning point when state investment in big water infrastructure was defined as furthering the national interest.<sup>3</sup> The creation of jobs at the time of the depression, the production of electricity, the supply of domestic water to municipalities, the supply of irrigation water to farmers and the management of floods were defined as issues of public interest the state was supposed to champion. Many other issues could have been also defined as issues of public interest at the time: the welfare of Native Americans for example, or the fate of salmon. Both were adversely affected by the development of dams as salmon was eliminated from the Colorado River. Such issues were not considered relevant at the time by the decision makers who defined the national interest. They were not considered relevant by those who were given the authority to decide on water management.

Careful analysis reveals the ‘pork barrel’ politics that determined the surge of dam construction in the American west. Budgets granted by the federal government served sectoral interests rather than the national interest. State intervention was in flagrant contradiction with traditional American water management.<sup>4</sup> It caused an upheaval in the perception of the state as the legitimate authority to spell the rules concerning water use. The actors who benefited from this policy, the US Army Corps of Engineers, the Bureau of Land Reclamation, the various congressmen who obtained the budgets from Washington for dam construction and the agrobusinesses that benefited from ‘free’ water offered by the tax payer all argued they were furthering national interest, not sectoral interests. The logic of irrigating the desert

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<sup>2</sup> For an excellent description of this general process, see: S.H. Longwe, "The evaporation of gender policies in the patriarchal cooking pot", *Development in practice*, 1997, vol.7, no.2, pp.148-156(9)

<sup>3</sup> Marc Reisner, *Cadillac Desert, The American West and its Disappearing Water*, Penguin Books, 1993.

<sup>4</sup> MacDonnell, Lawrence J. (ed.), *Tradition, Innovation and Conflict: Perspectives on Colorado Water Law*, Natural Resources Law Center, University of Colorado School of Law, 1986.

was not questioned even when farmers in the eastern United States came to be subsidized to keep rainfed fields uncultivated in order to limit overproduction.

The American experience was foundational for the entire planet. Soon, other states were imitating it, undertaking great infrastructure construction devoted to water use. Israel built its National Water Carrier between 1953 and 1964, lifting water from Tiberias Lake and bringing it south to the Negev desert. Jordan started constructing the East Ghor Canal in 1958, bringing water from the Yarmuk River to the Jordan valley in order to develop irrigation. The prevalent perception among water professionals was that the state had full legitimacy to undertake such massive work that interfered so deeply with water management within its borders. Whatever damage was done was carried out in the name of the greater good. Once again, closer analysis of the process yields a more nuanced picture. The USAID project document concerning the East Ghor Canal (now called King Abdullah Canal) clearly states that this project aims to bring peace in the Middle East by solving the refugee problem. According to this USAID document, water was brought to the Jordan Valley so that Palestinian refugees could be allocated irrigated land. Their undertaking agriculture there would allow them to root themselves in Jordan and forget their wish to return to their former homes. They were to develop an identity as Jordanians and effectively cease to be refugees. Whether or not such a goal can be defined as a national interest depends on the values of the researcher. Interestingly enough, an evaluation of the project a few years later observed that it had failed. The canal was functioning, irrigation was taking place, but the Palestinian refugee population had retained its perception of its identity as Palestinian.<sup>5</sup>

Conveniently enough, Wittfogel published a theoretical framework in the 1950s that projected a long history of state management of water on Asia.<sup>6</sup> He conceptualized what he called the Asian mode of production and theorized that an absolutist state necessarily developed from a government that controlled great rivers in order to carry out irrigation. While the Asian mode of production can describe fairly well certain modes of economic production, claiming this led systematically to dictatorship was an unsubstantiated leap of faith.<sup>7</sup> Wittfogel's ideas were very popular in western academic circles in the 1950s and 1960s for several reasons. They provided a convenient reason to label China and Egypt as unrelenting dictatorships at a time when neither regime was especially popular in the United States. Wittfogel had started out as a Marxist but had repented before publishing these ideas, which made him very popular during MacCarthyism. Other academics who, as opposed to Wittfogel, had carried out field work on water management in China and other suspicious states were purged during the MacCarthy era. Academic credence was thus given to the belief of a long history of totalitarian state water management although basic fieldwork could have dispelled such a myth. This belief shaped the theoretical framework adopted by those who tried to define sound water management. This theoretical framework defined their epistemology. Unfortunately, the practice of theorizing beliefs that could easily be proved wrong by simple field work was encouraged by such beliefs. Surprisingly little field work is carried out by most researchers who work on water management, especially in the Jordan Basin.

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<sup>5</sup> Sutcliffe, Claud R., "The East Ghor Canal Project: a case study of refugee resettlement, 1961-1966", *The Middle East Journal*, vol. 27, n°4, Automne 1973, pp.471-482,.

<sup>6</sup> Karl August Wittfogel, *Oriental despotism; a comparative study of total power*, New Haven, Yale University Press, 1957

<sup>7</sup> Antonius, Rachad, *Irrigation et Pouvoir Social en Egypte*, PhD Thesis, UQAM, Mai 1992.

The idea of the state as the legitimate repository of power over all aspects of water use in the name of public interest has become hegemonic in most of the world. India's and China's dam construction programmes are carried out by the state in the name of the greater good. Jordan and Israel are now in the preparatory phases of another huge infrastructure project to construct a canal linking the Red Sea to the Dead Sea. The disappearance of the Dead Sea has been identified as a problem and this canal is perceived as a solution that may cause some damage but may benefit the greater good, so the state is perceived as the only actor legitimately entitled to decide on it and carry it out. The fact that international organizations such as the United Nations are intergovernmental organisations composed of states furthers this legitimization of the role of the state. International donors will only discuss with states when deciding on grants of loans for water infrastructure. They therefore hold the state as responsible for achieving sound water management thanks to this infrastructure.

What is important to bear in mind concerning this first hypothesis about the role of the state within the prevalent perception of water management is that it is a very recent social construction. The Roman empire built aqueducts, but never felt the responsibility to manage water centrally at the state level. This concept of the necessary role of the state emerged in the period spanning the 1930s to the 1950s in the United States within a very specific political, economic and social context. Most proponents of the prevalent perception of sound water management argue that the state is the only actor that can possibly achieve sound management, that this is the only rational manner to achieve it. They do not consider other options, including the forms of management that existed in past centuries, often arguing that demographic and economic change has rendered these management techniques antiquated. This is a typical hegemonic belief. It was socially constructed over a period of time, shaped by many factors that are totally independent of rational, scientific arguments, but it is now entrenched in most social actors' perception on the basis that this is the only rational option. The Great Depression of the 30s, the fact that congressmen benefited from funds offered by agrobusinesses that needed dams, MacCarthyism and the creation of a state empowering international scene after the second world war are only some of the elements that contributed to the construction of this hegemonic belief.

### **Water as an object of a public property regime**

The perception of the public property regime as the only one that can be applied to water is part and parcel of the dominant perception of sound water management. If the state is the only actor that can spell out rational and efficient rules to determine the use, the allocation and the access to water, then only a public property regime will allow sound water management.

A property regime includes both the property rights and the property regulations concerning a resource. The property rights include the bundles of entitlements that define the rights and duties of the owners concerning the use of the resource. The property regulations determine the manner in which these rights and responsibilities are exercised.<sup>8</sup> Four types of property regimes exist: public, private, communal and open access. Within a public property regime, the citizens are the owner of the resource in trust to the state. The latter's rights means that it defines the

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<sup>8</sup> Hanna, Susan, "Property Rights, People, and the Environment", Beijer Reprint Series n°74, granted with permission from Getting Down to Earth, 1996, R. Costanza, O. Segura, Juan Martinez-Alier (eds.), Island Press, Washington, DC

regulations concerning all aspects of its management, whether it is its use, its access or its allocation. The state's responsibility is to achieve a socially just and sustainable management of the resource. Within a private property regime, individuals own the resource, either singly or within a group where each is identifiable. They have the right to make any socially acceptable use of the resource and to control access to it. They have the responsibility to avoid socially unacceptable uses. Within a communal property regime, a community owns the resource collectively. It has the right to exclude non-owners and defines itself the rules that determine who is part of the owning community and who isn't. The community's responsibility here is to maintain social objectives. Within open access, no one owns the resource. Capture of the resource can be carried out by the most powerful social actors who have no responsibility towards either the community or the resource itself.

Communal property regimes were long ignored by most western researchers and natural resource managers. Garrett Hardin even confused open access with common property regimes in his famous Tragedy of the Commons article.<sup>9</sup> Increasing recognition of the fundamental role played by communal property regimes throughout the 1980s and 1990s has allowed to reassess their importance in water management around the planet.<sup>10, 11</sup> This research demonstrated that open access occurs very rarely around the globe. Such a property regime was often projected on an area where communal property regimes were quietly at work without official recognition. The need to recognize communal property regimes officially is being increasingly recognized.<sup>12</sup> Such a recognition has not penetrated the prevalent perception of sound water management so far. This is probably partly due to the hegemonic prevalence of the first hypothesis examined above concerning the role the state is supposed to play in water management. Within a communal property regime, the owning community decides on its own the uses, the access modalities, the transmission of the access modalities and the allocation of the resource. It can make decisions that would be disapproved by the state water policy makers. While the persistence of communal property regimes could be perceived as a form of decentralization of water management, it is not the type of decentralization that is foreseen by the dominant perception of sound water management. The latter only foresees decentralization of execution tasks, not of decision making concerning the resource.

While a public property regime applied to water is a very new idea in world history, the use of private and communal property regimes has been documented over thousands of years. This history shows us that the state was not indifferent to water management. It often intervened in water management matters even though it did so in the context of private and communal property regimes. The Dakhleh stela provides us with a fascinating account of the Egyptian state settling a conflict over water property and water property regimes after a period of civil unrest during the 22<sup>nd</sup> dynasty of Lybian rulers in Antiquity.<sup>13</sup>

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<sup>9</sup> Hardin, Garrett, "The Tragedy of the Commons", in: Science, New Series, Volume 162, Issue 3859 (Dec 13, 1968), 1243-1248

<sup>10</sup> Mabry, Jonathan (ed.), Canals and communities. Small Scale Irrigation Systems, Arizona Studies in Human Ecology, The University of Arizona Press, Tucson, 1996

<sup>11</sup> Ostrom, Elinor; Gardner, Roy, "Coping with Asymmetries in the Commons: Self-Governing Irrigation Systems Can Work", in: Journal of Economic Perspectives, vol.7, no4, Fall 1993, pp.93-112

<sup>12</sup> Benda-Beckmann, Franz and Keebet, Recognizing Water Rights, in: Overcoming Water Scarcity and Quality Constraints, International Food Policy Research Institute, FOCUS 9, October 2001

<sup>13</sup> Parsons, Peter, J., "The Wells of Hibis", The Journal of Egyptian Archaeology, vol. 57, pp. 165-180, 1971.

The Israeli water law established water as public property in 1959. Jordanian law did the same in 1988 and, most recently, the Palestinian Authority's water law signed in 2002 also designated water as public property. Coherently enough, decision making tools elaborated within these states systematically assume that the state makes all the decisions regarding water use, allocation and access. The long experience accumulated within communal and private property regime institutions is not integrated within these decision making tools. The very persistence of these property regimes in spite of the official legislation is even denied. It is perceived as a hindrance, a relic of the past that will soon be corrected.

### **The basis for policy recommendations**

Partly as a consequence of the first two hypotheses identified earlier, the prevalent perception of sound water management perceives decision making tools as necessarily quantitative ones such as models. They should be based on quantitative data concerning hydrogeology, demography, pollution and other 'scientific' or 'hard' considerations so that the most rational and efficient management can be effected. Water researchers thus lock themselves in a context of verification rather than a context of discovery. They assess data according to how well it fills the gaps in a puzzle they have constructed.<sup>14</sup> This epistemology means that acquiring knowledge is considered equivalent to acquiring information.

Were the three hypotheses identified here not hegemonic, a different course would take place. If the research community accepts to question the necessity of a totalitarian state within water management, the exclusive existence of a public property regime and the necessity of quantitative research, it could embark on a process of discovery. Data would not be inserted in a previously defined theoretical framework. While a provisional puzzle may be delineated, and progress made towards solving it, the researchers would monitor this progress and would use judgement to jettison the initial goal and substitute another, particularly after *surprising* information has been acquired. "This mode of progress is consistent with all of those accounts of puzzle-solving which require a reframing or a respecifying of the problem-assumption built into the original problem, transforming or understanding of it."<sup>15</sup>

Many modellers believe this is exactly what a model allows because they can test causal loops and feedback loops so that only those that appear to mirror reality can be retained. Such reasoning relies, however, on necessary or sufficient causal relations that can be quantitatively measured. While such relations occur in the natural world, they hardly exist in the human world. For example, evaporation will increase in relation to temperature and to the surface exposed. This is a sufficient causal relation and it can be measured in a quantitative manner. But how can we assess the evolution of an informal customary institution that has managed water according to a communal property regime and is faced by a state that claims to change the property regime governing water use? A variety of strategies will be adopted by the members of the institution. It may or may not fragment into new forms of social organisation. It may try to infiltrate government decision making processes. It may simply ignore the new legislation and continue business as usual. The realm of possibilities is endless. The probability that it will quietly vanish because a state legislation has ignored its

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<sup>14</sup> For an interesting discussion of such processes, see: Silvia Gherardi and Barry Turner, "Real Men Don't Collect Soft Data", *Qualitative Research*, Vol11, A. Bryman and R.G. Burgess (eds), SAGE Publications, London, 1999, pp. 103-118.

<sup>15</sup> *Ibid.*, p. 115.

existence is extremely low. The reaction of the institution is impossible to measure with numbers. Yet, the reaction will affect fundamentally the end result of the application of a policy recommendation.

When designing a model, scientists tend to stick to the three hypotheses identified here for several reasons. They are rarely aware that these hypotheses were socially constructed. It seems to them that these are merely rational hypotheses that are dictated by a scientific reading of the situation. General disregard for the social sciences prevents many modellers from understanding the mechanisms of qualitative research methods and the benefits they could provide. The back and forth motion between field work and theory that is fundamental to them eludes the natural scientist. Instead, most natural scientists believe they understand social science while social scientists do not understand natural science. They seek to integrate 'social', 'economic' and 'political' considerations in their model in the same manner as they integrate hydrogeological data. They want numbers, because they do not attribute meaning to data that doesn't take this shape. Non-numerical data is useful in a context of discovery. It is merely annoying in a context of verification. They want a list of data at the outset of the project that will need to be acquired for the model to function. This is completely antagonistic with a context of discovery. Qualitative research depends on a back and forth movement between theory and data that allows it to identify the relevant information as it deepens its understanding of existing information. In brief, the epistemology that is entailed by the three hypotheses identified here is one of verification, not one of discovery.

Models are rarely effectively used in decision making. A cynical modeller once told me that they are only useful to train the modellers. Their lack of applicability can be largely attributed to the fact that they are elaborated according to a theoretical framework that doesn't fit reality very well. We have yet to invent a state that will have total power over water management or will make decisions rationally on the basis of scientific, numerical data. The notion of the 'greater good' or of 'national interest' is socially constructed.<sup>16</sup> It evolves through time and space. It is not so much a goal of water policy as a legitimization for the policy a state chooses to adopt. The policy recommendations achieved through traditional models do not tend to be very realistic, which leads them to remain unimplemented.

### **Achieving realistic water management policy recommendations in the Dead Sea Basin**

Questioning the three hypotheses identified above may help achieve realistic water management policy recommendations in the Dead Sea Basin. This does not mean denying an important role to the state or to public property regime over water. It does not mean denying a role to quantitative research techniques either. Rather, it means that reassessing these hypotheses may help us construct a more appropriate theoretical framework within which quantitative research methods could be articulated.

Qualitative research dispels easily the idea of the state as the sole and rational decision making actor regarding water management. Any decision regarding water will be affected by a constellation of social actors active at many scalar levels. This is an issue of governance rather than government. While government means only one

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<sup>16</sup> For a discussion of national interest as a social construction at the international level, see: Alexander Wendt, *Social Theory of International Politics*, Cambridge University Press, 1999

actor has authority to make and implement a decision, the concept of governance recognizes the existence of multiple centres of power at various scalar levels shaping and reshaping decisions, policies and their implementations. The state is only one actor within this constellation, albeit often a powerful one. The relations among these actors cannot be entered in a model because they do not correspond to necessary causal relations in a mathematical sense. It does not make them any less real. It simply means that they need to be investigated via qualitative research methods instead of quantitative research methods.<sup>17</sup> It also means the results acquired from these qualitative research methods need to be used to reshape our perception of the governance constellation itself instead of locking it into a pre-established set of causal loops and feedback loops.

Policy recommendations are usually made to states for these are usually the clients who order the research and the decision making tools. A policy recommendation that doesn't include considerations of how a new state policy will reshape the existing governance constellation and the sort of reactions it should expect from the other centres of power within its territory is simply useless to a state. It should ask for its money back.

Cases of private property regimes, communal property regimes and open access governing water are not negligible in any of the Dead Sea Basin states. A policy recommendation that ignores a significant aspect of existing water management is automatically useless. Recognizing the existence of these regimes does not mean that they are better than a public property regime. Blindness to existing power relations is a peculiarity of water policies. This prevents them from being reactive to the field reality.

Property regimes applied over natural resources are socially constructed and vary over time and space. Recognizing this does not preclude concluding that a public property regime over water will ensure greatest social justice. But recognizing this allows us to engage with these other regimes and examine how they could be perceived positively as assets in water management. Their very existence is testimony to the social capital that has constructed and maintained them. Their resiliency through time, in many cases, is indicative of a degree of sustainability in their management practices. A realistic and useful policy recommendation should harness these existing regimes in order to allow state policies to benefit from their externalities.

Such reactive policy measures are common in other fields of development. For example, none of the states that ratified the international convention on women's rights can claim realistically that women have equality of rights within their territory. The policies they adopt in order to improve the status of women are reactions to the mechanisms already at work that places the women in that inferior status. For example, a state may choose to maintain single sex schools in order to encourage parents to send their daughters to school. It could have chosen to believe all children would go to school because the law made education compulsory. But it adapted to the reality of parents not wanting their daughters to go to school with boys. Similarly, realistic water policy recommendations should be reactive. They should take in consideration existing mechanisms that determine water use and allocation as well as modalities of access and transmission of these access modalities. They should react to these instead of pretending they don't exist.

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<sup>17</sup> For a discussion of a state's relations with the other institutions that participate at exercising social control within its national territory, see:  
Joel Migdal, *State in Society*, Cambridge University Press, Cambridge, 2001.



Revisiting the hypotheses regarding the role of the state, the exclusive public property regime over water and the need for quantitative research that found the dominant perception of sound water management leads us to question their validity. A new epistemology that will allow us to question such sweeping assumptions will allow us to produce much more realistic policy recommendations in the field of water management.