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Nirvana Concepts, Narratives and Policy Models: Insights from the Water Sector

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ABSTRACT: Analysis of water policy shows the importance of cognitive and ideological dimensions in the formulation of policy discourses. Ideas are never neutral and reflect the particular societal settings in which they emerge, the worldviews and interests of those who have the power to set the terms of the debate, to legitimate particular options and discard others, and to include or exclude particular social groups. This article focuses on three types of conceptual objects which permeate policy debates: *nirvana concepts,* which underpin overarching frameworks of analysis, *narratives* – i.e. causal and explanatory beliefs – and *models* of policies or development interventions. It successively reviews how these three types of concepts populate the water sector, investigates how they spread, and then examines the implications of this analysis for applied research on policy making and practice.

KEYWORDS: Water management, water policy, policy making, IWRM, narratives

INTRODUCTION

It is a truism that human mental maps, judgments and decisions are necessarily structured, or at least influenced, by past experiences, formal training, world-views and idiosyncrasies. Likewise, one's inclinations and ideologies are rarely independent from one's individual interests. The emergence and the social life of concepts are therefore tightly linked to the ideas and interests that permeate the milieu in which they evolve. The field of development sciences, just like other fields, is prone to successive, sometimes cyclical, discoveries of ideas and theories that inform or inspire practice for a number of years (Cornwall and Brock, 2005). For some, these are mere fads of the day propped up by "buzzwords"; for others, they reflect the evolution and gradual refining of knowledge and concepts; and for still others, they reflect the power and embody the world-view of those who have the power to disseminate them.

This paper proposes a tentative and preliminary reflection on how one particular sector of development – the development and management of water resources – is influenced by ideas that manifest themselves through ubiquitous and proliferating "success stories", "best practices", "bright spots", or "promising technologies" readily promoted as universal and transferable to other contexts. The paper distinguishes among three different types of concepts that shape policy and decision making in the contemporary water sector: *nirvana concepts* underpin overarching frameworks that promote or strengthen particular *narratives* or *storylines* – i.e. simple, causal, and explanatory beliefs – and legitimize specific blueprints or *models* of both policies and development interventions. Nirvana concepts, narratives and models/icons are all ideational and ideological objects which emerge at some point in time to typify a certain view, approach, or "solution". Over time, such conceptual objects tend to acquire a life of their own; they may be reified, or reworked and re-appropriated. The dissemination and the eventual fate of these concepts depend on many factors, not least their usefulness for

particular actors and constituencies who may re-appropriate, repackage and integrate them into their discourses and strategies.

Influential concepts in policy making are not merely neutral or scientific; they do not emerge by chance but, rather, are the emanation of complex webs of interests, ideologies, and power. In return, they also shape the ways things are framed; options are favoured, disregarded or ignored; and particular social groups are empowered or sidelined (Shore and Wright, 1997; Keeley and Scoones, 1999). This article draws on the literature on the cognitive and ideological dimensions of policy making (see Apthorpe, 1986; Roe, 1994; Shore and Wright, 1997) and sees establishing knowledge as inherently part of the constitution of policy networks itself (Latour, 1989).

The paper does not discuss "how does an idea's time come" (Kingdon, 2002), neither does it address the process of policy-making; it merely looks at how discursive objects are used to design policies and support particular agendas, as "devices that cloak policies with the symbol and trappings of political legitimacy" (Shore and Wright, 1997). It successively reviews how the three types of concepts considered populate the water sector, investigates how they spread, and then examines the implications of this analysis for applied research on policy making and practice.

NIRVANA CONCEPTS

Nirvana concepts are concepts that embody an ideal image of what the world should tend to. They represent a vision of a 'horizon' that individuals and societies should strive to reach. Although, just as with nirvana, the likelihood that we may reach them is admittedly low, the mere possibility of achieving them and the sense of 'progress' attached to any shift in their direction suffice to make them an attractive and useful focal point.

Nirvana concepts usually take the form of a 'photo-negative' of the real world. For example, as the social and environmental costs of conventional industrial development became apparent, the concept of sustainable development proposed a vision whereby contradictions would be dissolved, negative impacts internalized, and antagonisms reconciled. Likewise, the concept of good governance emerged as a model in which inefficient, corrupt, biased and discriminatory governments would – "as a result of" or "through" growing transparency and power-sharing – become accountable to their populations and act for the common good. Participation or empowerment, at some level of generalization, also appear as desirable counterpoints to exploitation and disfranchisement. All these words are "warmly persuasive" (Williams, 1976), nice-sounding, sanitized, and endowed with "almost unimpeachable moral authority" (Cornwall and Brock, 2005), at least in the spheres of development professionals.

In the field of water, the main ubiquitous nirvana concept is Integrated Water Resource Management (IWRM). IWRM evolved from the correct perception that water management has been unintegrated, or fragmented: economic sectors and ministries have managed water independently while interventions in, and development of, water resources in upper catchments have taken place without adequate consideration of impacts on downstream areas; water quality issues have been often either disregarded or disconnected from quantity issues; groundwater has frequently been exploited without concern for its hydrological linkages with surface water (and vice versa), and land-water interactions have been overlooked; and last, ecosystems have been impaired and social equity often disregarded. These and other problems led to a situation of perceived crisis where, in the wake of the 1992 Dublin Conference and the endorsement of the economic dimension of water, IWRM was conceptualized as the opposite of this rather chaotic situation, conveying the vision of a world where the multiplicity of desired goals was reaffirmed and where imbalances were redressed.

According to its most frequently used definition, "IWRM is a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems" (GWP, 2000). An important aspect of the definition is its emphasis on the process dimension of IWRM. This rightly suggests that IWRM is a moving target since new problems

emerge and evolve over time, which requires considerable flexibility and regular attention to these changes; in addition – just as with nirvana – the objective is always just beyond reach and the crux of the matter is to keep inching toward and gradually approaching it.

However, IWRM faces two difficulties inherent in the nirvana concept. By its very nature, it is an attractive yet woolly consensual concept (nobody is against nirvana). Such concepts typically: a) obscure the political nature of natural resources management; and b) are easily hijacked by groups seeking to legitimize their own agendas (Wester and Warner, 2002). The above definition emphasizes the three desired 'E' (Efficiency, Equity and Environmental sustainability) but implies that they can be achieved concomitantly if – as the word 'maximize' suggests – problem-solving can be informed by neutral and rational approaches, good science[1] and expert knowledge, reflecting these three dimensions rather than being informed by one of them only. This particular viewpoint is apparent, for example, in the definition that USAID (2007a) offers for IWRM:

> A participatory planning and implementation process, based on sound science, that brings stakeholders together to determine how to meet society's long-term needs for water and coastal resources while maintaining essential ecological services and economic benefits. IWRM helps to protect the world's environment, foster economic growth and sustainable agricultural development, promote democratic participation in governance, and improve human health.[2]

Little if anything in this definition suggests that the three goals of IWRM are frequently, if not always, antagonistic (hence the conflicts), that trade-offs are necessary and hard to achieve in such situations. This means that all parties must relinquish something and that the outcome of painful political processes in which the different parties rarely wield equal amounts of power will generally fall short of the 'optimal'. Patterns of participation tend to reflect power asymmetries rather than evening them out. In other words, the definition of access to scarce and contested resources is inherently political.

To be fair, participation features as a key component of 'IWRM in practice' but the approach nevertheless draws more on a concept of instrumental rationality informed by good will and good data (hence, the pivotal roles of the state in empowering people and of experts in providing information) than on the politics of resource management (Allan, 2003; Miller and Hirsch, 2003; Biswas, 2004; Merrey et al., 2007; Molle et al., 2007). In the background proper "policies and institutions" must be in place and the governments must be able to exercise "their responsibilities of good water governance", while "ensuring empowerment of the poor". Support to the policies is crucial and "conscious actions to build consensus, also at the highest political level must be built into the process; (…) awareness raising and multi-stakeholder involvement is critical to the success" (Jonch-Clausen, 2004; UNDESA and GWP, 2006).

South Africa (and Zimbabwe) provide good examples of how IWRM was enthusiastically adopted by governments as a common ground for black and white water users, offering the promise – articulated in the South African definition of IWRM – to deliver "equitable access to and sustainable use of water resources by all stakeholders at catchment and regional levels, while maintaining the characteristics and integrity of water resources within agreed limits" (Pollard, 2001). However, after ten years of experience, expected benefits have not materialized (Manzungu, 2002; Merrey and van Koppen, 2007). Although experience varies, and reasons for unfulfilled promises are diverse, powerful users tended to

[1] River Basin Organizations (RBOs), for example, viewed as pillars of the IWRM imperative to manage water resources at the basin level, are said to be "increasingly promoted as a scientific/rational means of administration for water" (UNDESA and GWP, 2006).

[2] See also, among other examples, the definition given by FIU (2007): "IWRM integrates policies and management activities to ensure sustainable supplies of freshwater for 1) the multiple sectors of human use and development (domestic, agricultural, industrial, etc), 2) in-stream needs for ecosystem processes and biodiversity conservation, and 3) the needs of upstream and downstream human communities and ecosystems, including coastal zones". ADB (2006) states that "IWRM is focused on delivering a triple bottom line of a balance of economic, social, and environmental benefits resulting from an integrated approach that carefully considers each trade-off".

dominate catchment councils and power asymmetries surfaced when hard-nosed issues such as water-sharing agreements were considered. In other words, while IWRM provided a consensual starting point in a context of racial discrimination, politics, initially glossed over, quickly reappeared. In the Olifants river basin, for example, the Kruger Park staff, mine owners and large-scale white farmers producing fruit for export markets soon dominated the process at the expense of rural black communities (Merrey and van Koppen, 2007).

If promoters of IWRM are aware of the crucial importance of these political dimensions, these are often taken into account as prerequisites that are simply assumed as "necessary" or "clearly needed". There is of course little that outsiders can do to ensure that political factors will not derail the process but the result of this discrete wishful thinking is to place emphasis on what government agencies traditionally do (or at least are purported to do): identifying gaps, building capacity, raising awareness, fostering 'rational' cyclical/iterative policy or planning processes, convening stakeholders, monitoring, etc. As a result, the entire process appears to be naturally steered by the state (the 'natural' interlocutor of international development banks and cooperation agencies), with a consequent high likelihood of reproducing paternalistic, technocratic and bureaucratic top-down conventional approaches, modified only by whatever degree of participation is allowed.[3]

Likewise, although IWRM is said to be a "cyclic and long term process" (Jonch-Clausen, 2004), the call of the World Summit on Sustainable Development (WSSD), held in Johannesburg in 2002, for all countries to "develop integrated water resource management and water efficiency plans by 2005, with support [to be extended] to developing countries" paints it as something that is to be established by governments in a 3-year period relying on conventional foreign expertise.

Jonch-Clausen and Fugl (2001) fear that IWRM may have "degenerated into one of these buzzwords that everybody uses but that mean many different things to different people". Just like participation, IWRM appears as something desirable and uncontroversial, and official documents suggest that governments can resort to it abundantly and at 'no cost'. IWRM provides common ground and an initial consensus; it is seemingly sanctioned by the 'water community', and appears to convey legitimacy earned in multiple international forums (Allan, 2003). It thus becomes a coveted discursive currency that is therefore also likely to be hijacked by state, sectoral or private interests seeking to legitimize their agendas. Biswas (2004) remarks that "because of the current popularity of the concept, some people have continued to do what they were doing in the past, but under the currently fashionable label of IWRM in order to attract additional funds, or to obtain greater national and international acceptance and visibility".

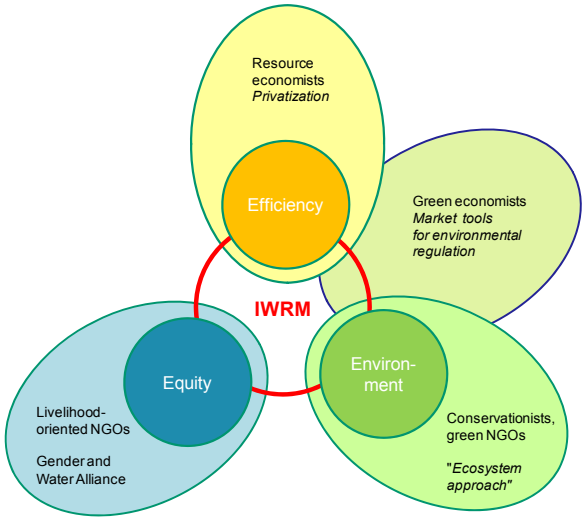
Indeed, the use of IWRM as a political currency is apparent in the way it is appropriated by all players or actors without distinction. Yet, each category of player emphasizes one of the tenets of IWRM that most reflects its own inclination, ideology or interest (see figure 1). For example, supporters of privatization or those who see the maximization of aggregate welfare as a priority objective promote the 'efficiency' pillar of IWRM and its view of water as an economic resource. Livelihood-oriented NGOs or social activists use the concept as a means to further equity concerns and social agendas.[4] The Gender and Water Alliance, for example, got hold of the concept and published a guide titled "Mainstreaming gender in water management" that sees IWRM as "offer[ing] an opportunity to create a paradigm shift in water resources management" (UNDP and The Gender and Water Alliance, 2006). While complaining that participation is used as a fig leaf and that the conventional integrated river basin management approach "ends up as a coordinating platform for technocratic representations" other NGOs still support river basin organizations (RBOs) as a valid concept as long as they are a vehicle

[3] Adoption of IWRM is always referred as something countries should do ("Countries in transition may see IWRM as a rational approach…", "Developed countries may find valuable inspiration…", "how can countries overcome these challenges…?", etc). Since strategies and polices are designed by governments and experts it is clear that 'countries' refers, in practice, to governments.

[4] GWP (2003) is a response to the realization that the "E" of Equity has tended to be forgotten.

for bottom-up planning (NGO Forum, 2005). Likewise, conservationists or green NGOs have used IWRM to promote conservation of nature or environmentalism in general: the 'Ecosystem Approach' incorporated in the Convention on Biological Diversity (CBD, 2000), and promoted by several NGOs and international organisations (e.g. IUCN), is a perfect example of a reading (and translation) of IWRM that makes ecosystem preservation both the starting point and the overarching goal.

Figure 1. IWRM and its three 'E'



More generally, consulting firms, bureaucracies and development banks adapt their discourses and repackage their policies and approaches. Here IWRM is used to uphold and give legitimacy to conventional developmental approaches. The use of the IWRM rhetoric as a depoliticizing act is therefore profoundly political in itself, as it does not critically question – but, rather, reinforces – the traditional role, mandate and worldview of the main actors in water resources management, favouring the status quo and business-as-usual strategies.

Consulting firms, for example, have recycled many structural water resources development projects as part of new 'participatory' and 'integrated' river basin comprehensive plans which, despite evidence to the contrary, claim to differ from the master plans of earlier years (Molle, 2005). Development banks or cooperation agencies have also embarked on rural development projects shrouded in watershed or river basin rhetoric (see Molle and Hoanh, 2007, on Vietnam) and have promoted policy reforms with standard prescriptions allegedly sanctioned by IWRM (establishment of 'apex bodies', RBOs, water rights, services providers, cost-sharing agreements, etc.; see, for example, ADB, 2006). Just as all their actions "contribute to poverty alleviation", similarly, these re-characterized projects have regularly been touted as IWRM achievements.[5] State bureaucracies have suddenly often 'discovered' that they had been doing IWRM all along without knowing it and have later framed their actions accordingly.[6] The tendency is for states to use IWRM as they commonly do with other overriding concepts (food

[5] As USAID's (2007b) webpage on "IWRM success stories" reveals, any story, from villagers gaining access to freshwater in Sudan, to upgrading an Iraqi canal system, to a fish company tapping into global markets in Romania, to purifying water for Haiti's flood victims, seems to qualify as an "IWRM achievement".

[6] In Egypt's Integrated Irrigation Improvement and Management Project (IIIMP), presented as an IWRM undertaking (UNDESA and GWP, 2006), "Water management is best improved by an integrated package of services and technical assistance that responds to the user's demands… [while] many kinds of technology and expertise will be used to optimize the results of [the project] activities". See, also, a document on Laos: "The immediate objective of the Water Sector is to foster and institutionalize the IWRM approach in the mainstream planning process of the Government both at the central as well as at the provincial level" (Anonymous, 2004).

security, national independence, self-sufficiency, poverty alleviation, etc) to manipulate and foreclose debate and impose predetermined agendas.

The influence of IWRM on water management practice is a matter of debate. While Jonch-Clausen (2004) posits that it has inspired reforms that aim at more integrated management, Biswas (2004) believes one can successfully argue that the IWRM label has not "made any difference". Monitoring progress, evaluating change or singling out success stories becomes essential in the continued promotion of IWRM. Thailand, for example, is cited by the GWP as a good example of a country implementing IWRM because it has established formal RBOs in its 25 river basins, designed a "policy with full stakeholder participation", while a "framework water law is under preparation through an open and participatory process seeking the views of the stakeholders" (Jonch-Clausen, 2004). This somewhat overly optimistic view emphasizes the formal existence of institutions and tends to equate participation with the conduct of meetings or public hearings.[7]

Despite all these misuses of the concept as a smoke screen to camouflage other agendas and objectives, IWRM can also be conceived of as a 'boundary object' (Cash et al., 2002; Conca, 2006): a concept that all parties will appropriate and use and also remodel by their own discourse and practice. As such, it can be seen as a collective construct offering a common ground to stakeholders willing to engage other parties. Inclusion of environmental sustainability has, for example, enabled easier propagation of the concept of environmental flow (e-flows), an apparently technical word which allows discussion of more sensitive allocation issues. In that sense, IWRM may also have allowed, as have the concepts of good governance and participation (see Mollinga, this issue), reintroduction of politics and acknowledgement of the relations of social power by the back door, even though these issues had earlier been obfuscated.

NARRATIVES AND STORYLINES

A narrative is defined here as a story that gives an interpretation of some physical/social phenomena. Many people organize daily experiences and beliefs gathered from social interactions in logical relationships from which they derive opinions on what is desirable and what is not. Narratives in the field of development first establish causal relationships between two negative aspects of a particular problem. These relationships often draw on common sense and thus appear uncontroversial, obscuring both the complexity of the processes at play and, sometimes, their ideological underpinnings: waste (or pollution) of resources occurs because insufficient pricing fails to reflect real costs (hence the necessity to price water); flood (or droughts) are due to deforestation, itself a result of abusive slash-and-burn practices (conservation and afforestation will counterbalance this state of affairs); poor performance of water user groups reflects lack of human capital or obstructive bureaucracies (training is needed); lack of private investment results from insecure tenure (definition of rights and titling is the solution); limited agricultural diversification follows from the inflexibility of irrigation networks (which need modernization), etc.

The 'naturalness' of narratives, or storylines, seemingly anchored in common sense, makes them very resilient (Roe, 1991). Their appeal flows from the legitimacy they can afford policies and development programs by helping rationalize them in terms of both their intended targets and the means to be deployed to achieve those targets. By nature, they simplify and offer a stable vision and interpretation of reality and are able to rally diverse people around particular story-lines. The combined actions of these people in the promotion of a storyline tend to coalesce into loose networks and what Hajer (1995) defined as discourse coalitions: a set of storylines and the actors who promote these

[7] For an extreme case of simplification of assessing "progress toward IWRM", see JPW (2006) where participation is assessed by yes/no answers to two questions: 1) Do you have a legal framework for participation of stakeholders; 2) Is there government spending for participation of concerned parties?

storylines and the practices that they highlight. When a set of actors tries to establish hegemony and to preempt debate, several coalitions may emerge, united by their respective storylines.

Narratives, just like policies (Mosse, 2004), are often self-validating because they tend to produce evidence rather than the other way around. If they are at fault it is because the prescription has been either inadequately or insufficiently implemented. Higher water prices, more trees, or more training would have done the job but unfortunate circumstances limited the full realization of the intended or expected benefits.[8] So, even non-realization validates the initial causal postulate (Rap, 2006).

For the sake of illustration I will consider here the 'free water' storyline (see more in Molle and Berkoff, 2007a). The causal model of this narrative is based on the banal and straightforward everyday experience that cheap or free goods and services tend to be wasted. If my son does not pay for electricity (which he doesn't) he will probably not bother switching off the light or the heater when he leaves his room (as, indeed, is the case). If my neighbour does not pay enough for water he will be tempted to water his garden the whole night long, or waste water washing his car (which he does). In sum, cheap goods beget waste. This obviousness has affinity with the 'lion's share' narrative: agriculture is responsible for 70% of the world water withdrawals and often "gobbles" up to 90% or more in developing countries. This lion's share is, in turn, associated with the common wisdom that irrigation is a wasteful process, epitomized by the ubiquitous statement that its efficiency is low and that 60% of water deliveries fail to reach the fields (The Economist, 2003). The conclusion naturally follows that raising water prices will force squanderers to save water, which can then be made available to cities or to restore ecosystem health.[9]

A vast literature on the subject developed during the 1990s and early 2000s,[10] largely fuelled by the World Bank and other mainstream institutions. Books, conferences, and journal articles reported on the potential of pricing for demand management and conservation. Although the role of water charges in operation and maintenance and as a basis for the financial and managerial autonomy of water user associations was well recognized in the mid-1980s, the emphasis on economic instruments was greatly inflated during this period. The World Bank Strategy of 1993 stipulated that "setting prices at the right level is not enough; prices need to be paid if they are to enhance the efficient allocation of resources" (World Bank, 1993); for Johansson (2000) "The fundamental role of prices is to help allocate scarce resources among competing uses and users. One way to achieve an efficient allocation of water is to price its consumption correctly". With higher prices that reflect opportunity costs, the reasoning goes, low-value activities are phased out, thus releasing water for high-value uses and raising social welfare. For a number of reasons, the policy bubble formed during this period has been substantially deflated in recent years. Several key lessons about the "lifetime of an idea" (Molle and Berkoff, 2007b) can be extracted from this set of events.

First, this example provides a good illustration of how the epistemic community that gradually formed around irrigation price-based incentives largely extended from mainstream economic departments in universities and international organizations to reach policy-makers in all countries, and eventually percolated down to national water laws. The narrative developed by conflating evidence on the effectiveness of pricing policies in the domestic and industrial sector with those in agriculture,

[8] This is germane to debates in economics where neoliberal policies assertedly fail because deregulation has not been complete and state intervention not fully dispensed with.

[9] The link between water wastage and under-pricing has been repeatedly show-cased by all water related institutions, ranging from the World Bank ("the biggest problem with water is the waste of water through lack of charging: " President James Wolfensohn, 2000), to the World Water Vision ("users do not value water provided free or almost free and so waste it": Cosgrove and Rijsberman, 2000), and to environmentalists who favour "developing a pricing system that prevents excessive use of water" (WWF, 2002). For the EU (2000) "Efficient water pricing policies have a demonstrable impact on the water demand of different uses. As a result of changes in water demand, efficient water pricing reduces the pressure on water resources. This is particularly true for the agricultural sector". See also: "Inefficient pricing and management of irrigation water supply leads to massive wastage" (Hansen and Bhatia, 2004).

[10] The phrase 'water pricing' entered as a Google search yielded 19,500 hits in October 2003 compared to 338,000 in March 2007, a 17-fold increase.

without differentiating between sectors. Many studies referring to agricultural uses were based on econometrics (where correlation and causality are often undistinguished) or on modelling (based on mere farm budgets, which in any case often showed that using prices to regulate use was not economically and politically feasible). Unfortunately, niches where such incentives can be effective are rather narrow, because of several constraints specific to irrigation (for more details see Bosworth et al., 2002; Cornish and Perry, 2003; Hellegers and Perry, 2004; Molle and Berkoff, 2007a).[11]

Despite limited evidence of success, the idea of 'getting the prices right' flourished and the concept took on a hegemonic character at least in the development establishment. It became increasingly difficult to offer unorthodox points of view. For example, a review of experience in one region of the world on the existence of a link between prices and efficiency concluded "to a certain extent, yes", while showing at the same time how little impact there was for a number of reasons. Is not the subtle (and perhaps unconscious) semantic shift from "To a large extent there is no evidence that…" to "To some extent, there is evidence that…" what truly reveals the hegemonic nature of a narrative?

The example of water pricing policies also shows the resilience of narratives. As Roe (1991) observes, narratives tend to acquire a life of their own and are not easily debunked by contradicting empirical evidence, as "they continue to underwrite and stabilize the assumptions" for policy-making "in the face of high uncertainty, complexity, and polarization". For example, although the narrow concept of irrigation efficiency has been shown to be misleading as far as basin management is concerned, decision-makers continue to justify costly canal lining programs in order to "avoid losses" even in closed basins where no water flows out, with little attention to how water is implicitly reallocated through these interventions.

Enduring narratives are perhaps most prominent in economics. Easterly (2001) has shown how various narratives that all underpinned the logic of aid and external capital investment in developing countries have proven incredibly persistent and resilient, continuing to survive in the minds of practitioners long after they had been debunked or proven wrong by scientific work. All these narratives, again, are appealing, simple, and draw on common sense. They are often sound in particular contexts but generalising them across the board takes them into uncharted terrain where key assumptions and their prescriptions no longer hold.

ICONS AND MODELS

A third type of conceptual object is that of models. Models are based on particular instances of policy reforms or development interventions which ostensibly embody a dimension of 'success' and qualify as 'success stories'. They are apparently sanctioned by experience, approved by experts and powerful institutions, and using them seemingly minimizes risk. Although we are chiefly concerned here with water policy, models – and what Chambers (1997) has called the Model-T[12] approach – of course pervade all strands of practice and all disciplines: in the field of hydraulics, for example, they will support either upstream or downstream regulation, simplified or elaborate designs, overshot or undershot gates. Agronomists routinely promote(d) zero tillage models, vetiver grass, or integrated pest management; sociologists, community forestry management or Community Organizers; extensionists, the "Training & Visit" approach, etc. Generic models are often supported by pet projects that are routinely showcased to officials and foreign visitors (Chambers, 2008).[13]

[11] Many factors make irrigation differ from the domestic sector. Farmers are 'water takers' using whatever water is made available to them by irrigation agencies and not (or rarely) customers who can access water at will; in addition, incentives for saving water can only be effective when charges are volumetric, an exception rather than the rule. Even in such cases prices are generally too low to encourage users to save water and scarcity is invariably managed through quotas, with prices only regulating overuse at the margin. See Molle and Berkoff (2007a) for more details.

[12] After H. Ford's remark that Americans could have their Model-T automobile any colour they liked as long as it was black.

[13] The managed visits and the selected and selective perceptions of rural development tourism contribute to generating and sustaining myths and paradigms. Examples in the water sector have been Sukhomajri in Haryana and the Gram Gaurav

In the water sector, three well known models can serve as examples. The first one is the Chilean model of water markets; the second is the Mexican model of Irrigation Management Transfer (IMT); and the third one is the concept of river basin organization with several iconic experiences vying for pre-eminence, including the Australian Murray-Darling Basin Commission model, the French *Agences de l'Eau*, and the US Tennessee Valley Authority (TVA).

The Chilean water markets

In 1981 Chile enacted a Water Code that recognized private property rights in water and allowed transactions through a free market.[14] This reform was part of, and in line with, the deep influence of the *Chicago Boys*[15] in the shaping of Chile's economic policy. The application of the code and the initial experience with water markets were documented in the early 1990s by a few publications that were subsequently taken up by the World Bank which, together with the Inter-American Development Bank, IFPRI, a number of American universities and related institutions, was instrumental in spreading it as a success story (Gazmuri, 1994; Rosegrant and Binswanger, 1994; Rosegrant and Gazmuri, 1994; Hearne 1995; Hearne and Easter, 1995, 1997, 1998; Holden and Thobani, 1996). According to Bauer (2004) "Since the early 1990s, these proponents have used their considerable resources and influence to promote a simplified description of the Chilean model, both elsewhere in Latin America and in the wider international water policy arena". Countries like Mexico, Bolivia and Argentina were influenced by the model and its transposition to Peru has long been advocated (Thobani, 1995; Trawick, 2003).[16]

Although proponents sometimes recognize flaws in the model, the general tendency is to downplay the importance of these flaws and to ascribe them to the haste to get effective markets established (Rogers and Hall, 2002) and to stress, instead, the purported 'adaptiveness' of the system. Problems encountered include "a range of critical water management issues, such as social equity, environmental protection, river basin management, coordination of multiple water uses, and resolution of water conflicts" (Bauer, 2004). A number of studies have documented the limitations inherent in the model (for example: Bauer, 1997; Hendriks, 1998; Dourojeanni and Jouravlev, 1999; Hadjigeorgalis, 1999; Budds, 2002; Zegarra, 2002; Hadjigeorgalis and Lillywhite, 2004; CEPAL, 2004; Boelens and Zwarteveen, 2005). Yet, it is striking to see the pervasiveness of the success associated with this iconic model in today's literature: this observation is not intended to dismiss its merits but to stress how common knowledge is neither updated, modified nor qualified, at least in wider international circles where the model has continued to play its role in the promotion of tradable water rights. Likewise, the iconic South African Water Law, with its 'reserves' for the poor, its provisions for environmental flows, and its Catchment Management Agencies has been (and still is) highly praised and has become a world-wide model. Yet, and without downplaying the positive aspects and the inspirational role of the model for other countries, increasing evidence documenting that its achievements fall short of its promises remains confined to specialized literature (Merrey and van Koppen, 2007).

Pratistan in Gujarat in the early 1980s, the Mohini Cooperative in Gujarat (which generated and sustained a myth of the widespread existence of water cooperatives in Gujarat in the 1970s and 1980s), and the Mwea Irrigation Settlement in Kenya from 1960s through to the 1980s (Chambers, 2008).

[14] I am drawing here mainly on Bauer (2004).

[15] The Chicago Boys (c. 1970s) were a group of about 25 young Chilean economists who trained at the University of Chicago under Milton Friedman and Arnold Harberger. They later worked in Augusto Pinochet's administration to create a free market economy and decentralize control of the economy (en.wikipedia.org/wiki/Chicago_boys).

[16] The power of the Chilean model is also well illustrated in an anecdote reported by an expert who had worked with the government of an unnamed Latin American country to draft a new water law. After many expert reports, consultant visits, etc., the key government minister threw the whole pile of studies and recommendations off his desk and said: "This is a waste of time! What I want is a copy of the Chilean Water Code with the word "Chile" deleted and [our country's name] written instead!" Chile has received countless delegations from other countries and inspired reforms in places like Morocco.

The Mexican IMT

The government of Mexico launched its IMT programme in 1992 with the aim of turning the 3.4 million ha of public irrigation schemes over to groups of farmers (*módulos*) to be organized at the level of secondary canals. The programme was part of the process of structural adjustment under a neoliberal model of economic deregulation, downsizing of the public sector, reductions in public expenditures, and the reconfiguration of public administration responsibilities among the federal, state, and municipal governments (Pérez Prado, 2003; Rap, 2004). Primarily driven by measures of fiscal austerity, the programme was successful in transferring to users the costs of operation and maintenance of infrastructures below the main canals. Less than ten years later the programme was considered to be completed.

The Mexican model of IMT was driven by a strong internal political commitment of senior Mexican engineers and of the government whose viewpoints and interests converged with those of World Bank analysts. Water engineers saw the reform as an opportunity to regain an autonomy that they had lost when the Ministry of Agriculture absorbed the irrigation sector. As such, it became a vehicle to advance the engineers' "autonomy" agenda within a wider context of strategic political realignment and economic restructuring (Rap, 2004; Wester, 2008).

IMT was supposed to deliver other gains in terms of irrigation and economic efficiency (Cummings and Nercessiantz, 1992). Although provisions for temporary trading of water were made such exchanges have been rare. They are limited to *módulos* within a single scheme and require the prior assent of the government (Kloezen, 1998). Further research found that the impact of IMT on irrigation efficiency and productivity had been neutral (Kloezen and Garcés-Restrepo, 1998; Kloezen, 2002; Rap, 2004). Despite later qualifications and the discovery of "second generation problems" (Svendsen et al., 1997; Palacios, 1999) and not withstanding the successes achieved, the Mexican IMT has turned into a worldwide model.

River basin organization models

The United States: Although comprehensive river basin management may have started with British endeavours in the Indus and Nile river basins, and although early instances of river basin management can be found in Spain or Germany (Molle, 2006), the beginning of "unified" river basin development is best associated with the Tennessee Valley Authority. Established by F.D. Roosevelt during the New Deal, the TVA was the first experiment in regional development to be based on full control of the river system through a network of multi-purpose reservoirs. The TVA would not only attempt to "fully" control the river system by a series of dams, thus providing protection from floods and producing hydropower, but would also tackle poverty by an ambitious range of activities, including training, agricultural extension services, soil conservation, afforestation, production of fertilizers, stimulation of local enterprises and welfare-oriented programs focusing on education, health and sanitation.

TVA's initial ideological underpinning rested on the engineering ethos that scientific knowledge and systematic rational planning could radically change society if they could emancipate themselves from vested interests and politics. It was also tinged with the democratic rhetoric distilled by D. Lilienthal (1944), one of the initial three co-chairmen, who stressed the danger of centralized and technocratic authoritarianism and the need for "grassroots democracy". Despite the gap between rhetoric and realities on the ground (Tugwell and Banfield, 1950), the TVA's democratic gloss, marketed in particular by the prophetic tone of Lilienthal's (1944) book "TVA: Democracy on the march", was to prove a major asset of US overseas development and diplomacy, and "a new export commodity" in the era of Cold War politics (Ekbladh, 2002).

Based on his belief that the TVA "demonstrated for all time the efficiency and the humanity of comprehensively planned, multi-purpose river basin development", Truman (1949) declared in his presidential inaugural address: "We must embark on a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of

underdeveloped areas". The idea was picked up quite enthusiastically in India (with the establishment in 1948 of the Damodar Valley Corporation: Saha and Barrow, 1981), in Mexico (Barkin and King, 1970), and many other countries, including Iran, Columbia, Brazil, Egypt, Mozambique, Salvador, Sri Lanka, Surinam, Tanzania and Turkey, where schemes were planned or implemented with mixed success (Molle, 2006). Geopolitical considerations also led to the idea being floated for the Danube, the Jordan River, and the "vast Mekong [which] can provide food and water and power on a scale to dwarf even our own TVA" (Johnson, 1965).

Most third-world elites were all too eager to accept a model that promised to spread modernism and progress to their newly independent countries, while strengthening their legitimacy through the provision of iconic and politically rewarding projects. The TVA model well befitted conventional state paternalism and massive state investment in river system infrastructure and technology: river basin development would generate significant amounts of hydroelectricity to power developing economies, help control flood damage, bring prosperity to rural masses, and thus contribute to modernization and state-building.

France: In the late 1960s, France established *Agences Financières de Bassin* (Financial Basin Agencies) in each of the six main river basins, as part of the 1964 water law. The agencies were a response to critical water quality problems as well as a means to ensure the large flows needed to cool the newly-built nuclear plants (Nicolazo, 1997). The central feature of the agencies is the mix of economic incentives to users and polluters to improve their practices complemented by Basin Committees which facilitates representation of the state, local government and users (Barraqué, 1999). In intervening years they have taken over new planning responsibilities and been renamed *Agences de l'Eau* (Water Agencies) but water quality control remains a central goal, especially after the European Union issued more stringent environmental standards in 1992 (Betlem, 1998).

Because of their relative success in mobilizing funds and redistributing them as subsidies to various water sanitation and water quality enhancing projects, the *Agences* were soon also turned into a model which was proposed through different joint cooperative projects with countries such as Indonesia, and later Morocco, Algeria, Venezuela, Mexico, Turkey, and Brazil (MMA, 2001). The model was promoted by the Government of France which surfed the post-Rio IWRM wave and supported, in 1994, the establishment of the International Network of River Basin Organizations (INBO), hosted by the *Office International de l'Eau* (OiEAU), an organization mainly funded by the French water industry and the government (Government of France, 2007).

The strength of the French model is perhaps best illustrated by its decisive influence on the European Water Framework Directive (WFD), which incorporated the principle of river basin management and imposed it on all member countries. Another specific reason for the power of this model, however, lies in its incorporation of the economically orthodox 'user pays' and 'polluter pays' principles, especially after their endorsement by the environmental movement which saw them as a promise of reduced use and increased water flows in European rivers.

Australia: In Australia, the Murray-Darling Basin Initiative and its implementing body, the MDB Commission, have been responsible – in their first 22 years of operation – for implementing the policies negotiated by the Ministerial Council, which represents the federal government, the four state governments of Queensland, New South Wales, Victoria, and South Australia, and the Australian Capital Territory. The MDB initiative is considered to have been very innovative in exploring and implementing processes to increase the efficiency and sustainability of water use. Early efforts included identification of system-wide salinization problems and a comprehensive package of measures to tackle that issue including trading between governments of 'salt credits'. MDBC was also a key player in water sharing agreements, the establishment of a water market, formal agreements to cap the level of water abstractions in sub-basins, and independent public audits of the performance of each sub-basin in adhering to cap agreements (Haisman, 2004). Despite these efforts, the basin health and sustainability of production is still seriously threatened and tensions between the partners continue. Catalysed by a long-lasting serious drought, frustrated by the understandable partisanship of individual members, and

concerned that the existing instances of cooperation – despite many positive aspects – are insufficient, in 2007 the federal government launched a take-over bid. As water has assumed far greater significance on the national agenda, the federal government has 'purchased' new powers to exercise more authority on whole of basin issues considered crucial to the social and economic health of the nation (Connell, 2006).

This experience, with its successes and failures, is of course linked to particular physical and institutional settings. Yet, the Australian federal government widely promoted the Murray-Darling model, especially in Asia, and has been influential in supporting establishment of RBOs in countries such as China, Sri Lanka and Vietnam, and also the creation of transboundary jurisdictions such as the Mekong River Basin (Malano et al., 1999; Birch et al., 1999; Pigram, 2001; Molle, 2005).

Interestingly the concept of RBO as necessary for water management is being promoted despite the huge variation in such organizations: although they come under the same term and they all deal with river basins, the three RBO models reviewed above differ widely. The TVA model represented a stage of state-led massive infrastructural development (which, significantly, was never again replicated in the US, notably because of power conflicts with both federal- and state-level agencies). The French model was designed to respond to water quality degradation and to meet France's need for more nuclear plants, while simultaneously internalizing costs. The Murray-Darling Commission specifically addressed water sharing and, later, management of environmental degradation and increasing water scarcity. Although they have distinct purposes these models sometimes find themselves in competition and are all potential sources of 'lessons learned' for varied contexts.

A World Bank report noted that the TVA "has perhaps the best name recognition in the business of river basin management. It is considered by many outside the United States as the model for river basin development and management" (Miller and Reidinger, 1998)[17] and is still presented by USAID (2007c) as an uncontroversial and resounding success, despite the serious reservations that even a limited review of TVA literature would substantiate. The Murray River Basin Commission has been promoted as a case of "a world's best practice model in basin management, particularly across jurisdictional borders" (Linn and Bailey, 2002). Yet promoters tend to gloss over the respective weaknesses or specific limitations of each of the models. For example, continued environmental degradation (Miller and Hirsch, 2003) or failure to curb abstraction (Connell, 2006) in the Murray Darling basin, or heated debates around the Agences de l'Eau (Flory, 2003), seldom make headlines in international circles.

Models prove to be quite malleable when implemented. This is shown, for example, by the various incarnations of the TVA model which have little in common with their forbear. Likewise the Turkish model of IMT was inspired by the Mexican model but fell short of establishing autonomous water user groups. This is little wonder because models are by nature decontextualized and their application in specific settings can but lead to utter diversity; but this is also testimony of the pre-eminence of political and other motives in the adoption of a given model, especially when the context and modalities of its implementation are quite distinct from the circumstances in which the original model was developed. In some cases, this can also signal the excessive zeal of development banks and cooperation agencies in replicating models.[18] However selective, borrowing from the original IMT or river basin management models can also, more positively, be construed as an initial step on a common trajectory that gradually institutionalizes decentralization in resource management and

[17] As noted by Miller and Hirsch (2002), this publication followed a World Bank-sponsored seminar "River Basin Management: Tennessee Valley Authority and the Murray-Darling Basin" on February 13, 1997 held in Washington, DC, and was written with the aim of summarising "those aspects of TVA – particularly those related to water resources management – that could serve as a useful reference to Bank staff and client countries in evaluating the various institutional arrangements, operating programs, technological bases, and other conditions conducive to comprehensive river basin development" (Miller and Reidinger, 1998).

[18] For example, the experience with participatory management of irrigation in the Philippines was praised as a model and replicated in Thailand, Indonesia, Sri Lanka, and Nepal, where it failed altogether.

democratization of decision-making (Meublat and Lourd, 2001). In Brazil or in Mexico (Wester, 2008), reforms have created political space for the civil society, beyond what state agencies had anticipated.

Models fit easily into the 'practice of development', viewed as the provision of adequate expert knowledge, technology and targeted infrastructure investments that are traditionally associated with the engineering world and state visions of social engineering (Long and van der Ploeg, 1989; Scott, 1998; Arce and Long, 2000; Mollinga and Bolding, 2004). Models can also prop up the social legitimacy of technical expertise[19] as well as of the state. They foster top-down bureaucratic approaches that precludes genuine participation of stakeholders (Miller and Hirsch, 2003); and they allow replication of capital intensive projects that meet the interests of a powerful coalition of construction firms, banks, politicians and bureaucrats (Ostrom et al., 1993; Molle and Renwick, 2005). More fundamentally they keep politics at bay by promoting ahistorical recipes.

THE EPIDEMIOLOGY OF POLICY CONCEPTS

Grasping the dynamic interplay of nirvana concepts, narratives and models is a real challenge: there are validating linkages among these three categories of concepts and self-reinforcing implicit causalities between concepts within the same category. For example IWRM (a nirvana concept) provides justification for river basin management (which will be linked to a specific RBO model) that calls for demand management and pricing policies anchored in several storylines (real prices bring efficiency, etc). Policies, technical assistance (TA) grants, and development projects translate these concepts into concrete actions.

An intriguing issue is the social and political life of these concepts. In other words how do they emerge, spread, and influence policy, practice and intellectual production; how do they become resilient, sometimes hegemonic, adapt/mutate or just vanish? Concepts do not, of course emerge from a vacuum, and can only be understood as social and political constructs shaped by the interplay of institutions, networks, interests, and visions of the future (Mosse, 2004). A few preliminary reflections can be drawn from the examples given above. Although the three types of concepts are influential at different levels, we examine here 1) how they are reproduced and spread, 2) the incentives for actors involved in that process, and 3) the process of 'paradigm maintenance' that is activated when they need to protected.

The snowballing effect

Snowballing is the process through which a concept is gradually adopted by a growing number of dispersed actors, projected in professional events, circulated in academic literature, and gradually established as a consensual and controlling idea. A concept may pursue its course by itself once launched downhill but it does need a big initial push. If the push is not sufficient the concept might not acquire enough momentum to establish itself. If it is too strong, it may well arouse stiff opposition and be discredited. Success means that the model, or the concept, is self sustaining because enough people have been convinced and are ready to utilize it professionally, thus minimizing for all users the personal risk of confronting criticism, and in some cases maximizing users' rewards (see below).

Such informal groups of actors that take up and further propagate a concept come close to what Haas (1992) has termed epistemic communities,[20] that is, "a network of professionals with recognized expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area". An epistemic community may consist of academics, decision-makers and other professionals from different disciplines who share a set of normative and principled beliefs, as well as causal beliefs and cause-and-effect understandings. Epistemic communities

[19] See for example the prestige associated with the *ingeniero* in Latin America or the *mouhandis* in the Arab world.

[20] Rap (2006) uses the concept of policy network to designate the "network of active supporters enrolled in the proliferation of a policy".

typically respond to a demand for expert opinion in the face of increasingly complex societal problems. Members do not need to meet frequently or in a formal manner and are, rather, linked (typically through academic or professional literature) by their consensual beliefs and knowledge references, and by their shared objective of influencing policy.[21]

Epistemic communities often contribute to establishing institutions which will carry the message forward and develop it. Actors around the IMT paradigm and models, for example, proposed creating the INPIM network (Rap, 2006). Those involved with promoting IWRM supported the creation of the Global Water Partnership, while promoters of river basin management supported the establishment of the International Network of Basin Organizations (INBO); the GWP and INBO have also established regional branches. All these themes (IWRM, basin management, IMT) have been supported by many donors, and have paved the way for innumerable MSc programmes, capacity building activities, field trips, international conferences, World Water Forums, and publications (Conca, 2006).

Development agencies like Sida, GTZ, USAID, AusAID or DFID, and UN agencies, have all contributed to these dynamics but none of them comes close to the role and influence of the international development banks, principally the World Bank. The Bank has always maintained a keen interest in the dissemination of ideas and has even recently morphed into a "knowledge bank", claiming to be both a neutral gatekeeper and a major producer of knowledge (Mehta, 2001). Between 1997 and 2002, the Bank spent US$283 million reorganizing itself in line with its intent of becoming a "knowledge institution". Far more was spent on actual activities such as training and reports. The Bank's research is widely disseminated and highly respected among many important audiences.[22] A study commissioned by the Swedish government in 2000 concluded that "the World Bank continues to be dominant as the main purveyor of development ideas" (Bretton Woods Project, 2007).

Bank publication power is unparalleled: beyond its own working papers, reports, briefs and scientific journal (e.g. the World Bank Observer), it also publishes books, frequently in association with other publishers, and supports associated journals (e.g. World Development). Bank researchers and their consultants produced nearly 4,000 papers, books, and reports between 1998 and 2005, or roughly 500 documents annually (Banerjee et al., 2006). This flood of literature is amplified by the World Bank's organization of, or support to, many national and international events. The literature emanating from the Bank is highly self-referential and tends to reproduce the conclusions of (early) key papers which are repeatedly cited, disseminated, and thus passed on to outside academic circles. A recent review of Bank research during the 1998 – 2005 period issued "criticisms of the way that this research was used to proselytize on behalf of Bank policy, often without taking a balanced view of the evidence, and without expressing appropriate scepticism. Internal research that was favourable to Bank positions was given great prominence, and unfavourable research ignored" (Banerjee et al., 2006).

As the snowball grows in size, dissent tends to be mechanically suppressed, 1) through the sheer disproportion between discourse and literature promoting, and discourse and literature opposing, the storyline; 2) because the risk of professional marginalization increases; and, 3) because key actors positively internalized the concept and consider it as a universal 'best practice'. It is then taken for granted and can become truly hegemonic if accepted without being questioned even by people against whom these ideas work (Gramsci, 1971). As a World Bank official replied, when asked why he

[21] According to Haas (1992): "The epistemic communities approach focuses on this process through which consensus is reached within a given domain of expertise and through which the consensual knowledge is diffused to and carried forward by other actors. Its primary concern is the political influence that an epistemic community can have on collective policymaking, rather than the correctness of the advice given".

[22] According to the Bretton Woods Project (2007), 700,000 users a month access the Bank's website. A 1999 World Bank survey of 271 high-level policymakers in 36 developing and transition countries found that of its respondents 84% use Bank-produced analytical reports; the Bank was rated the most important information source of a list of domestic and international organisations; the majority considered the Bank's work "technically sound, relevant and objective". According to a Government official from Brazil responding to a survey on the Bank's knowledge sharing "The Bank is the institution which we address when we need some kind of information or advice. Don't underestimate this fact. If you really need an expert on a certain issue related to development, the World Bank is where you go [to]" (World Bank, 2003).

considered the Mexican case to be a success: "because nobody denies it is a success" (cited in Rap, 2006).

Some models, however, fade away rapidly because they are less convincing or credible and were never supported by a critical mass of publications or a policy network strong enough to generate a snowball effect (Latour, 1989). Turkey's IMT was directly inspired by the Mexican model (decision makers made several trips to Mexico) and for a short time it was believed that it would become a new showcase; so was Andhra Pradesh with its 'big bang reform' (Mooij, 2003; Nikku, 2006). Others travel far and wide but at the cost of a selective presentation of the experience: the NIA (National Irrigation Administration) reform in the Philippines, for example, was praised with regard to transfer of small schemes while the much less successful experience in transferring large-scale public schemes to irrigation associations was never critically examined (Oorthuizen, 2003; Mollinga and Bolding, 2004).

Incentive for involved actors

The concept and adoption of models brings several benefits to the parties involved, including policy-makers and managers in recipient countries, experts and academics, as well as development banks. This is apparent, for example, in the RBO models: beyond the genuine belief that success could be replicated and development fostered, Truman's bid to export the TVA model was also predicated upon the power of the democratic rhetoric embedded in the model that served geopolitical interests in the fight against communism,[23] and the interest of engineering and construction companies that could benefit from implementing high-tech dams in countries which did not have the technical capacity to construct them.[24] Similar interests in both promoting national industrial and consulting firms, and expanding a country's political/symbolic influence, are also salient in the support by France and Australia of their respective models.

For national elites, models offer first of all a possible (at least a partial) solution to significant water management problems. Second, they offer a means to espouse the referential of bilateral and multilateral donors and to attract funds from countries eager to spread their model, or development banks eager to place loans successfully, upon which technical staff members' year-end bonuses are based (Chambers, 1997). Third, because models supposedly bring legitimacy and embody a promise of success (Mollinga and Bolding, 2004), they are often mobilized in bureaucratic struggles in order to justify/impose, for example, a particular reconfiguration of the bureaucracy or decentralization policies. In Indonesia, the French model served to justify the levy of a pollution tax; in Brazil the federal National Water and Energy Agency promoted the French model in anticipation of a 'fiscal drought' as a means to ensure a separate budget, independent of the state (Meublat and Lourd, 2001). Although IWRM has been largely hijacked by state bureaucracies the concept has also internally been appropriated in different ways. In Vietnam and in Thailand the new Ministries of Natural Resources and Environment saw the intermediate scale of the river basin as their legitimate level of action, but also as a window of opportunity for obtaining some power and an expanded role within the pre-existing administrative structure dominated by the Ministry of Agriculture and Rural Development (in Vietnam) or the Royal Irrigation Department (in Thailand). The concept of integrated river basin management and RBO introduced, at the instigation of the ADB, as pillars of IWRM became sites and objects of internal struggle in the context of wider bureaucratic change (Molle and Hoanh, 2007).

National policy-makers also have significant incentives to rely on sanctioned concepts. Straightforward advantages include travel to international conferences, joint publications, and other fringe benefits but also the increased professional reputation and derived career enhancements that may accompany involvement with a success story or a nirvana concept. Many national representatives of GWP were given the opportunity to acquire regional or international status. Rap (2006) showed that

[23] "The TVA was a weapon which, if properly employed, might outbid all the social ruthlessness of the Communists for the support of the peoples of Asia" (Schlesinger, 1949; cited in Ekbladh, 2002).

[24] Saha and Barrow (1981) refer to the "huge profits made by overseas construction and consultancy firms" in most cases.

several Mexican water officials associated with the IMT reform were able to project themselves as international consultants, virtually 'selling' the model. The Mexican government bureaucracy controlled the release of public information on the progress and success of the transfer and orchestrated mass media campaigns to draw support to the reform and satisfy donors. Over time, the trajectory of the policy model mobilised and united these groups into an epistemic community of transnational policy-makers. Their activities overlapped, paths crossed, and interrelations multiplied through multilateral institutions, conferences, professional associations, and so forth. Through these influences they increasingly shared and disseminated a number of cultural and ideological understandings, values, and practices that underpin the success of the policy model. This self-reinforcing congruence shaped the production of the policy model and its acceptance and fashionability among peer communities and policy elites in relevant political, financial, and hydraulic institutions around the world (Rap, 2006).

Models also epitomize the rational and reductionist process of policy and planning, anchored in expert knowledge and replicability of solutions. Therefore they offer attractive blueprints for development banks or agencies which need to save on administration and transaction costs and to avoid lengthy, costly, and above all confusing in-depth analyses of each specific situation. As stressed by Evans (2004) "the intellectual difficulties of translating the complexities of institutional analysis into concrete suggestions for development policy and practice are sufficiently daunting to make retreat to simpler models a constant temptation". Fathoming the complexity of a particular development context will, in all likelihood, surface confused and conflicting views. This instils doubt, hinders action, and de-legitimizes the application of models that, on the contrary, are based on stable, simplified, and depoliticized narratives. Blueprints and models thus play key roles in preparing and selling projects, in part because they represent 'certified' testimony that 'development can work'. This importance of models explains why the banks are also keen to intervene when financial or other difficulties, in the course of time, threaten to undermine their status as a success story (as shown by the case of Andhra Pradesh in 2001: Mooij, 2003).

Several powerful incentives targeting development agency staff also lead to ideological orthodoxy and elicit adherence to approved narratives and models. Using interviews with several World Bank staff and partners, Broad (2006) singled out several mutually-reinforcing structures, including "a series of incentives: increasing an individual's chances to be hired, to advance one's career, to be published, to be promoted by the Bank's external affairs department, and, in general, to be assessed positively". The association of hefty salaries, lucrative bonuses for successful loan placement, post-retirement schemes and contracts that are temporary in nature acts as 'golden handcuffs' and tends to generate conformity, limiting "dissent by increasing the 'opportunity costs' of any dissidence" (Broad, 2006) or even by direct censorship.[25] This particularly applies to national staff members employed by the Bank, who are understandably not very keen to jeopardize their gains in social status and salary for the sake of a mundane doctrinal disagreement.[26] Just as operations people are rewarded for preparing loans that the Bank approves (Meltzer, 2000; Easterly, 2001), Bank researchers are rewarded for bolstering the economic paradigm and ideological underpinnings of the Bank. Such research efforts may sometimes amount to "paradigm maintenance".

[25] Senior Bank researcher David Ellerman complained of "bureaucratic conformity", with public relations staff acting as "thought police to the black sheep in the organization who are not 'on message'" (Bretton Woods Project, 2007).

[26] As a staff member at headquarters realistically admitted, "I have two sons studying in US universities and that costs a lot; I am not going to rock the boat". For a more stringent critique see Goldman (2005): "A consultant for the [World] Bank in Addis makes the equivalent of thirty times what an equally qualified economist makes. The World Bank successfully cultivated transnational professional-class actors and networks that not only meet the Bank's needs but have their own interests and roles to play, such as serving national political and corporate agendas".

Paradigm maintenance

Just as in the formation of epistemic communities, the promotion of narratives and models is rarely the result of a purposeful strategic or conspiracy but, rather, a byproduct of the web of interests described above. As social constructs, these concepts and models are rarely neutral and embody causal assumptions about how societies work and normative beliefs about how they should work, as well as conceptions about international relations, governance, or how to exercise power. Unsurprisingly, economic and political assumptions are deeply ideological, even if this is not always apparent.

The framing concepts of poverty, economic growth, governance, and markets, which underpin the models and best practices promoted by the Bank inevitably end up being belied by particular events or instances. In such a case the narrative may require active protection so that the snowball does not melt. Broad (2006), for example, documented how the paradigm linking openness to foreign trade and investment and faster growth had to be internally protected by discarding contrary evidence and even massaging executive summaries so that Bank ideological axiomatics (in that case, the Washington Consensus) would remain unsullied. More specifically, Easterly (2001) has vividly described how the narrative of the financing gap, that first links growth to capital investment and then justifies foreign aid by the lack of national savings for achieving necessary investments (hence the need to 'fill the gap'), has survived during 50 years (and is still active), despite renewed academic refutation.[27] A similar example of "the art of paradigm maintenance" related to the interpretation of the East-Asian economic miracle has been analysed by Wade (1996).

The pre-eminence of ideological bias sometimes leads to situations where arguments are at odds with reality. One example is the insistence of international organizations on downsizing water bureaucracies and internalizing costs of activities subsidized by the state, which eventually undermined state action (Chambers, 1997). Others include the myth of efficiency linked to privatization (Letza et al. 2004), and the argument of the 'fiscal drain': establishing water charges, for example, is often predicated on the impossibility for the government to continue shouldering such costs, even in contexts where this argument is unwarranted. While Sur and Umali-Deininger (2003) stress that in 1997/98, canal irrigation subsidies were equivalent to 2.6% of the fiscal deficit in Karnataka and 7% of the fiscal deficit in Andhra Pradesh, this only amounts to 0.1 and 0.3% of respective state expenditures, a rather limited subsidy if redistribution to farming populations is considered a state policy. Likewise, in Thailand Halcrow & Partners and ARCADIS/Euroconsult (2001) proposed irrigation cost-sharing policies because of the "huge drain on the national budget" occasioned by subsidies, but these only represent 0.27% of Thai government expenditures. In Jordan, the present O&M subsidy to the Jordan Valley Authority amounts to less than 0.1% of state expenditures estimated at US$3.7 billion (Venot and Molle, 2007). This does not mean that cost recovery measures are unsound but it is striking to see how they can be fostered by an ideology of 'real costs' propelled by experts who often come from OECD countries, where yearly aggregated subsidies to agriculture exceed 300 billion dollars (World Bank, 2008).

The link between poverty and water resource development is another example of a paradigm infused with ideology and interests that needs regular maintenance because of its major importance for justifying further investments. One sub-question is about the types of investments needed for African agriculture, notably with regard to irrigation. The potential irrigation area established by a report commissioned by the British Commission for Africa was judged too low by political and other interests in want of a higher target (and was subsequently doubled). Another study has been commissioned by several international organizations to draw lessons from agricultural water management investments in sub-Saharan Africa. The drafting of the report was 'hijacked' by one of the partners with a strong

[27] The model is based on a work written in 1946 by Domar (and later repudiated by its own creator) and was given salience in Rostow's theory of economic takeoff. When the dogma was criticized in the 1980s it was modified so as to state that "although physical capital accumulation may be considered a necessary condition of development, it has not proved sufficient". This is probably the clearest example of how a false narrative debunked by economic science can nevertheless endure over half a century when it serves powerful interests by providing ad hoc justifications. See more details in Easterley (2001).

interest in promoting large water investments. It used consultants who wrote the report in a way to support higher investments in conventional irrigation, and deliberately downplayed the potential returns from investing in microagricultural water management technology and upgrading rainfed agriculture, retaining this bias even after a group of senior African peer reviewers expressed strong reservations about it (Merrey, 2007).

In practice the justifications given to support the borrowing of a model, the design of a particular project, or the establishment of a particular policy, often reveal shifting contradictions and flaws that are telling indications of ideological bias and other concealed motivations.

IMPLICATIONS FOR POLICY-MAKING

Regardless of how these global concepts and icons emerge and are disseminated, they have by nature a number of consequences for development interventions and for policy formulation and implementation. Not all these implications are negative. Sanctioned concepts and models outline a rather stable and consensual common ground for water experts or officials worldwide to meet, exchange, discuss and learn from each other by putting their own particular water problems into perspective (Bauer, 2004). For van der Zaag (2005) IWRM concepts have "inspired a new generation of water managers and researchers to think out of the box and act creatively… [and] brought mutual respect, understanding and cooperation among water professionals in Southern Africa". Beyond water professionals, IWRM – as a nirvana concept – has also allowed other constituencies, interest groups and NGOs to use the concept to frame and disseminate their own visions. Sanctioned concepts allow the diffusion of general principles and the identification of common problems and solutions at a generic level; they offer support/expertise and foster national processes of reflection on water policies; they sometimes encourage dialogues between segments of the administration or ministries that share responsibilities on water issues but fail to coordinate their actions.

The downside of these positive aspects is the conception of adequate knowledge as a 'best practice' that tends to become normative. Yet value-laden 'truths' are insensitive to context, and typically override endogenous solutions. Knowledge is conceived of as neutral information that can be provided like any other commodity if it is properly organized, archived, and transmitted. There is a strong tension between the World Bank's messages that it wants to avoid blueprint approaches, and its many documents and indicators which claim to measure[28] 'the right policies' (Bretton Woods Project, 2007). Likewise, while on the one hand the ADB formally acknowledges that "there is no standard approach that fits all the needs" (Arriëns, 2004), on the other, it proposes a quite unambiguous model of 'the' appropriate water regime, whereby "modern" water laws are enacted, the state is confined to a regulatory role which it then decentralizes to RBOs, while provision of irrigation and urban water "services" is handled by utilities or private sector providers that are duly paid by their customers in order to ensure full cost recovery (Arriëns, 2004). Changes are evaluated based on the formal existence of particular administrative devices or institutions, without examining their contents and processes in any great depth.[29]

[28] Saleth and Dinar (2000), for example, review water reform processes in 11 countries and extract for each of them what they consider as "best practices", or "healthy practices that can strengthen the institutional basis for better water allocation, financing, and management"; these include IMT, the formation of RBOs, water permit registry, market-based water allocation, privatization of urban water supply, water law, etc. These practices are presented as elements whose achievement is a measure of success and modernism, but neither their relevance (or lack thereof) to a particular context nor how to assess that relevance is discussed.

[29] A graphic example of this is provided by a "progress report" on water sector reforms in Asia (Mosley, 2004), which establishes a list of 41 "policy elements" and estimates to which degree different countries have achieved them. These elements include "legislation adopted", "private sector investments", "cost recovery", "river basins/aquifer organization", "rights and responsibilities of stakeholders", etc.

Irrespective of the merits or limitations of such a water regime, this approach tends to 'freeze' the range of arrangements and site-specific mixes of communities, state and private management that define the governance of water management. Yet these arrangements and site-specific mixes are precisely what must be defined endogenously, i.e. by those involved as actors in a given water regime. An indirect consequence of the snowball effect is to crowd out alternative narratives and any new evidence produced by research. The desire of all the parties involved to show the consistency of interventions with their initial theoretical model also inhibits accurate evaluation and error detection, and reduces the ability of managers to learn from past mistakes (Mosse, 2004; Rondinelli, 1982).

Insensitivity to context is probably a major source of failure (Shah et al., 2001). Boelens and Zwarteveen (2005), for example, show how prevailing conceptions of water rights modelled on neoliberal economics thinking are at odds with the sociohistorical reality of communal water management. The "single-mindedness and selectivity in presenting models and strategies" and the "lack of understanding and adaptation to the needs and concerns of local circumstances" were also repeatedly identified by Bank country partners as the main weaknesses of the Bank's knowledge production (World Bank, 2003). As a Brazilian official had it: "If I'm in Brazil, living with Brazilian reality, implementing projects, and I observe that there's not a correct vision of the situation, then I begin to question this best practice. Is it really true that this 'best practice' is the exact, correct, and real vision?" (World Bank, 2003).[30] Many analysts observe that the water sector appears to be largely littered with well-intentioned and rationalistic reforms that have failed to fully appraise the context of their implementation (Sampath, 1992; Pigram, 2001; Shah et al., 2001; Meinzen-Dick, 2007). "Ignorance of ignorance, uncertainties, and of difficulties" is the prelude to a "long voyage of discovery in the most varied domains, from technology to politics" (Hirschman, 1967).

Another implicit effect of models and best practices mentioned earlier is their ideological outreach. As illustrated by the example above of the 'financial gap', flawed narratives may survive for decades when they serve powerful interests. Discourse analysis is thus an important tool for unpacking the articulation of concepts that underpin practice, not only for the sake of exploring underlying interests or ideologies, or engaging in discursive struggles, but also to identify textual mismatches that may later have strong implications for outcomes (Cornwall and Brock, 2005). Although one's view of the world and reality is admittedly reflected in language, discourse analysis also needs to show how people's discourses effectively shape a particular world (Hajer and Versteeg, 2005) and are as much constitutive of reality as they are reflective of it (Throgmorton, 2003). Internalised hegemonic conceptions of poverty, water scarcity, or regulation through economic tools do give rise to particular types of actions and modes of organizing societies.

Since rhetoric and the creation and use of words and concepts are constitutive of the way individuals and groups interact within societies it can be safely inferred that they are here to stay. This view is corroborated by the analysis given in this article of all the psychological, professional, social, political and ideological incentives that motivate the continuing emergence of such concepts. Some might be tempted to jump to the additional conclusion that since discursive power is related to institutional and political power, these concepts are merely tools or weapons serving particular interests; and that what matters is their legitimacy (and how it is manufactured), irrespective of their content or substance.

Such an argument for total relativity leaves little room for better science, more informed decision-making processes, and for an active reworking and re-appropriation of concepts. One option for practitioners, as exemplified in the first section, is to consider nirvana concepts as boundary objects and to engage with them, reworking and re-appropriating meanings in order to use their rhetorical power to create political space and to implement changes or instil ideas that they want to defend. Despite the impression that hegemonic concepts are pervasive and somehow inescapable it is also apparent that

[30] Robert Chambers (1997) reports a similar reaction of a participant to a World Bank meeting in Chad: "I am telling you that I have a headache, and you keep telling me that I have a footache and you want to force me to take a medicine for that".

some models or narratives fade away because they fail to establish themselves in competition with more 'effective' concepts. Voluntary efforts to strengthen or keep afloat embattled doctrinaire narratives (with some cases of paradigm maintenance) also suggest that they are not immune to critical analysis and that practitioners and applied researchers can, with persistence either root out inappropriate concepts or incrementally refine and improve those that do offer real value to a community of water users and other actors.

If models and nirvana concepts work to mobilize their promoters and tend to reflect dominant interests and the distribution of power in society, they also serve to mobilize protests and to rally those who feel they stand to lose in the conceptual game. Instances of IMT introduced in Sri Lanka or participatory irrigation management (PIM) in Pakistan, attempts to establish irrigation water pricing in Thailand, or privatization and tradable water rights in Sri Lanka, Bolivia, Ecuador and Peru have all confronted stiff resistance. Sometimes counter-hegemonic discourses and concepts may also arise.

CONCLUSIONS

This article examined some of the cognitive dimensions of policy-making in the water sector by focusing on three types of conceptual objects. Nirvana concepts, such as IWRM, are 'photographic negatives' of prevailing chaotic situations and embodiments of a consensual reconciliation of antagonistic worldviews and interests. As they become global political currency, nirvana concepts are invested in, and reappropriated by, various constituencies as a means of forwarding their agendas or as a smokescreen for business-as-usual strategies. Yet, they also offer opportunities for contestation and may serve as boundary objects by providing a common ground for negotiation. IWRM has served to disseminate socially and environmentally-sensitive concepts and, perhaps, inspired a new generation of water professionals.

It has also provided an overarching framework under which various interlinked narratives and models have been accommodated. Narratives structure thinking and decisions by establishing causal beliefs that are tightly connected with particular policy models. Nirvana concepts, narratives and models are disseminated and promoted by a number of mechanisms inscribed in the professional, social and political sets of incentives faced by many decision-makers. They also tend to reflect the ideologies and interests of powerful parties and include more active processes of snowballing and paradigm maintenance by which concepts may become hegemonic and fuel a normative and prescriptive policy-making.

Roe (1991) doubts that narratives or blueprints will ever be debunked by contrary evidence and argues that failed narratives should be replaced by 'better narratives' or 'better truths'. Yet, narratives and models are liable to investigation, can be weakened or invalidated by empirical evidence and are, in other words, falsifiable. Even if debates are never fully exhausted, the principle of constantly reopening debates, exposing shortcomings, discussing concepts, engaging opposed views, deconstructing generalisations, in other words tirelessly promoting openness, scrutiny, and accountability, remain the central recourses available to actors who find their interests undervalued or ignored, as water projects are conceptualized and implemented. These are means to forestall debate closure (or reopen 'settled' debates) and effectively challenge the neutralization or exclusion of particular alternatives, viewpoints, or social groups.

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