

Market-Based Water Policies and the Search for Environmental Justice and Sustainability

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1. Introduction: The contemporary reform agenda

The search for better standards of life, social justice and environmental conservation necessarily includes difficult decisions about the allocation and use of water resources. To a large extent, this debate has evolved around the need to expand water infrastructure and promote economic growth, and the ecological degradation and selective provision of water services often associated to water projects. If during most of the 20th Century large sums of public money were invested in water engineering schemes, with time it became increasingly evident that traditional interventions were also responsible for water pollution and altered river flows, without necessarily satisfying essential public demands. The realisation of the shortcomings of conventional approaches to water management led, since the end of the 1970s, to a review of water policies and government priorities. Emerging environmental awareness and public mobilisation, particularly in the political north, added pressure on national governments and multilateral agencies to gradually shift from single engineering initiatives to more comprehensive responses. Influenced by concepts such as ‘sustainable development’ and ‘systemic thinking’, new ways of dealing with water problems started to shape the global water agenda. Public policies have particularly focused on the formulation of ‘holistic’ solutions to water management problems, the reconciliation of multiple demands and, crucially, the appreciation of the economic value of water (Mitchell, 2005).

Because of this explicit recognition of the economic value of water, calls for economic efficiency and market exposure have occupied centre stage in the agenda of water reforms. It ultimately represents a move in favour of hybrid mechanisms of environmental governance and beyond the divisions between State-market-society that allegedly caused most of the mistakes in the previous decades (Lemos and Agrawal, 2006). International organisations now claim that adequate solutions to old and new management problems should include not just the direct costs related to project implementation, but also the calculation of the monetary value of water in order to “eliminate inefficiencies and express its full economic potential” (WAAP, 2006). According to this position, “a major weakness of past approaches to the water sector has been the excessive reliance on overextended government agencies to manage water resources” while the new agenda requires a “greater reliance on pricing and incentives” (The World Bank, 1993: 47). Therefore, the application of market-based solutions to environmental problems is now expected to foster economic rationality and promote management efficiency. Interestingly, pressures for the adoption of market-inspired reforms have induced a homogenisation of water policies around the world, despite major social, cultural and economic differences between countries. For that reason, it is worth asking whether the ongoing reforms have actually resulted in meaningful solutions to highly contingent and localised water problems. Considering the environmental and social statistics available in various UN reports and national assessments, it is evident that recent policies have largely failed to secure environmental restoration or implement more equitable basis of water allocation and use. Notwithstanding a change in the discourse, in the countries where the (so-called) ‘new management paradigm’ has been applied, the outcomes of the reforms have been restricted to some bureaucratic improvements and, at best, the removal of isolated, circumstantial problems.

This text will show that, despite obvious geographical differences, the Brazilian, Scottish and Northern Ireland experiences are examples of the inherent limitations of the global water reforms. The contradictory influences of neoclassical economics on the ongoing reorganization of water management in those countries will be discussed. It will be examined that, with the approval of a new water law in 1997 in Brazil, an extensive regulatory apparatus was put in place, but so far it achieved only marginal results in terms of environmental restoration and conflict resolution. Although the

legislation delegated to catchment committees the approval of plans and the reconciliation of spatial differences, the core element of new policies has been the expression of the monetary value of water. It will be argued that, notwithstanding the rhetoric of environmental sustainability, official initiatives continue to subject socio-natural water systems to economic exploitation and unfair distribution of opportunities. The recent approval of irrigation and hydropower projects by the national administration, in spite of strong public opposition, evidences the priority of 'economic growth at any price'. In the same way, newly formed decision-making forums have been dominated by the same oligarchic political groups that always controlled economic and social opportunities related to water use and conservation (Valêncio e Martins, 2004). It means that, instead of promoting a genuine change in public policies, the new approaches have largely preserved the hegemonic interests of landowners, industrialists, construction companies and real estate investors, at the expense of the majority of the population and the recovery of ecological systems.

In Europe, the approval of the Water Framework Directive (WFD) represents the latest step in a sequence of reforms that have attempted to replace traditional approaches – largely based on rigid regulatory controls – with more flexible, adaptive and comprehensive responses to water management problems. Nonetheless, the transition from old to new regulatory approaches in countries such as Scotland is not without tensions and inconsistencies. According to those responsible for the reforms, the implementation of WFD has prompted a far-reaching renovation of policies, use and control of water (Scottish Executive, 2006), because it is the first time that water use is comprehensively covered by a single piece of legislation. Scottish agencies have praised the introduction of WFD in 2003 as a genuine opportunity to deal with the 'totality' of water environmental problems in a country that depends "socially, culturally and economically on the quality of our water environment". In spite of the historical importance of the ongoing water reforms, there are still scarce assessments of overall achievements and future trends. As in Brazil, most authors remain committed to the eulogistic tone of official documents and commissioned reports. The consequence is a gap in the understanding of the effective possibilities and conflicts associated to the new regulatory regime in Scotland and in Northern Ireland. If before WFD's approval there were already enough uncertainties about its objectives, due to ambiguities, questionable enforceability and high compliance costs (Kallis and Butler, 2001), after the euphoria of the initial years, its operational contradictions are now becoming increasingly apparent (Steyaert and Ollivier, 2007). The text will eventually contend that effective responses to old and new water problems require different basis for the use and conservation of water, which should be constructed according to social justice and environmental sustainability requirements, but also free from the pervasive influences of market rationality.

2. The slippery landscape of water reforms

The contemporary water reforms are part of emerging attempts to improve 'environmental governance' through concepts such as integration, adaptation and sustainability. Those goals have broadened the list of criteria to be considered in the decision-making process, requiring that projects and programmes should now include not only physical and biological criteria, but equally consider the social and economic dimensions of water use and conservation. The novel mechanisms of environmental governance essentially revolve around the establishment, reaffirmation or change of 'social institutions' (Paavola, 2007). Institutions, which can be defined as systems of prevalent social rules that structure social interactions (Hodgson, 2006), are complex phenomena, whose reproduction is incomplete, provisional and unstable and that coevolve with a range of other complex emergent phenomena (Jessop, 2001). Like all social institutions, water institutions – such as property rights and management accountability – are also subjective, path dependent, hierarchical and nested both structurally and spatially, and embedded within the cultural, social, economic and political context (Saleth and Dinar, 2005, see also Conca, 2006). It means that the institutional reforms associated to

water governance cannot be seen in isolation, but are part of larger agendas of State reconfiguration and social disputes. The reform of institutional arrangements exposes a marked political dimension, considering that hegemonic values within the society reflect prevailing power structures that are legitimised in and by institutions (Cumbers et al., 2003).

In spite of the contested nature of water governance and institutional reforms, most authors still portray water regulation as politically ‘unproblematic’ or, at least, with only a secondary political dimension. The reluctance to recognise the ‘hydropolitics’ of water management institutions (Sneddon and Fox, 2006) permeates the regulatory agenda in many parts of the world and, as a result, the political dimension of water governance and the disputes around institutional water reforms remain largely ignored or undertheorised. It should be mentioned that the expanding literature on water regulation – including the acronyms MSP (multi-stakeholder platform), ICM (integrated catchment management) and IWRM (integrated water resources management) – has, to some extent, discussed the socio-natural complexity of water problems. However, most of the work under these ‘acronyms’ is restricted to empty exhortations for change in established practices and superficial adjustments in traditional approaches of water management. Although the political dimension of the reforms is sometimes acknowledged, it is still from a very managerial perspective, as if water politics were a kind of deviation from the purist purpose of water management (McCulloch and Ioris, 2007). Apart from a small group of more critical scholars, it is not common to find authors disposed to call into question the responsibility for past environmental impacts, or willing relate the unsustainable use of water with the uneven distribution of opportunities across social groups. It is no surprise, thus, that large part of the academic work on the ongoing water reforms has been dominated by biophysical assessments and neoclassical economics, confining the analysis on integration and efficiency, whereas the examination of the political direction of local and global water reforms attracts only marginal attention.

The systemic failure to acknowledge the historical and political dimension of water problems, whilst prioritising technical and economic elements of the institutional reforms, suggests that mainstream agenda remain focused on a narrow version of water governance. Large part of the current debate is concentrated on false dilemmas between centralisation and subsidiarity, catchment and location, integration and fragmentation, which are nothing else than operational aspects of water management. The result is that most efforts are spent on fanciful computer models and assessment techniques, instead of also dealing with the politico-economic causes of environmental impacts or with social asymmetries that lead to unfair allocation and unsustainable use of water. For instance, it is rare to find a critical assessment of the appropriation of common water resources by strong political and economic groups, at the expense of society at large. The mainstream version of water governance leaves little room for inquiring into distortions in the allocation and use of water, or for assessing the political game behind public funds (many times apportioned for the benefit of small private groups). Without addressing the historico-geographical context of water use and water problems, the contemporary reforms describe a ‘Ptolemaic’ trend, focused on minor adjustments in existing procedures, instead of questioning the wasteful and individualistic basis of contemporary market-based society. Around the globe, it is difficult to identify cases where those groups that historically controlled water allocation and use are not again in control of the implementation of supposedly novel water institutions. The political shortcomings of the conceptualisation of the international water reforms are demonstrated by the failure to notice the biased mechanisms created for involving the public in the decision-making process.

The failure to address the ‘sociology of water reforms’ has constituted a major barrier for understanding of the limitations and possibilities of contemporary water governance. Because of the reluctance to engage with the underlying political disputes, interventions on hydrological systems tend to generate costs, benefits and risks that are distributed unevenly across spatial and temporal scales and across social groups (Molle, 2007). In perpetuating a highly unequal configuration of water management, current answers to water problems exhibit a deep and inherent element of social

injustice, inasmuch as the entire society has now to respond to management problems created by an uneven and discriminatory pattern of water use. The fact that those social and spatial inequalities are seldom considered in the formulation and implementation of new water regulation is already an indication of the geometries of power behind the ongoing institutional reforms. The main gap in most texts is to ignore that contemporary water reforms are profoundly connected, as an integral component, to the neoliberalisation of the economy advanced and championed by the State itself (cf. Potter and Tilzey, 2007). The realisation of the inescapable political dimension of institutional water reforms should be, therefore, the entrance point to understand how differences between social groups and spatial areas have influenced governmental action and the accommodation of conflicting interests, without necessarily achieving the best solution in terms of environmental conservation and satisfaction of social demands. Moving from the generic to the specific, the discussion of some relevant national experiences will illustrate the limitations and intricacies of contemporary water reforms.

3. Water reforms in Brazil

In the 20th Century, some of the largest water projects in the world were built in Brazil to generate electricity, regulate river flow and assist irrigation and urban growth. “Exploiting perceived abundance for economic development has been the dominant historical premise of Brazilian policy toward water and rivers” (Conca, 2006: 311). The construction of dams and the expansion of water infrastructure were part of a national programme of industrialisation and economic development that lasted between 1930s-70s (Ioris, 2007). During this period, there was timid enforcement of the environmental legislation, demonstrated by the fact that contentions issues were only superficially considered at the very end of the planning application process. Weak environmental regulation was also used as a deliberate policy to attract foreign investments, particularly directed to intensive and highly polluting industries. The official response to the social and environmental impacts of water projects started to be articulated in the 1980s, when a group of avant-garde civil servants and academics pressed for reforms and for the adoption of the IWRM principles (Conca, 2006). The discussion eventually reached the National Congress and culminated in the approval, in 1997, of a new legislation on water policy (Law 9433). Since then, an extensive structure of policy-making and water regulation has been implemented in the federal and provincial (state) levels of government. The National Water Resources Management System (SINGREH) was established to bring together various public agencies and consultative committees. The structure was completed in 2001 when the National Water Authority (ANA) was installed to be responsible for water use permits and the implementation of technical programmes.

Notwithstanding the new agencies and numerous events and campaigns, a more careful examination of the first ten years of the new legal framework reveals disappointing results in terms of reducing impacts and improving the management of water systems. Such gloomy picture is formally acknowledged by the Ministry of the Environment, in particular the widespread sources of pollution in urban areas and in the countryside, as well as reduced resource availability due to the over-extraction of water and the construction of large dams (MMA, 2006). The failures of the new water policies suggest that the goals of integration have been mechanically pushed through by multilateral agencies to grant functions to a system yet to be constructed (Abers and Keck, 2006). Most authors, nonetheless, continue to praise the quality of the water legislation on the grounds that there has not been enough time yet for the full expression of the ‘sophisticated’ principles ingrained in the law (Machado, 2006) and, despite remaining problems, the ‘governance’ of water has come to be increasingly institutionalised in Brazil (Conca, 2006). However, the overall trends of water degradation and, more importantly, the selective involvement of the public in the decision-making seem to suggest a more fundamental weakness on the ongoing water reforms. Decisions about water use and conservation in Brazil continue to be intrinsically linked to systems of political and economic control long established in colonial times and associated to the old patrimonialistic operation of the

Brazilian State ('patrimonialism', in the Weberian sense, has been a fundamental characteristic of the public sector in Brazil, a phenomenon with roots in organisation of the old Portuguese State, cf. Faoro, 2001). In effect, the legal reforms have privileged the influence of private agents in the formulation of water projects (e.g. hydropower schemes and public water companies), at the same time that raised novel opportunities for capital accumulation via, now, the adoption of ecological conservation measures.

It is certainly not a coincidence that the introduction of new water management happened together with the wider liberalisation of the Brazilian economy, which has consisted of declining public investments, high interest rates, labour market reforms, high unemployment and attraction of foreign capital (cf. Mollo and Saad-Filho, 2006). In this case, the water sector reproduces the same contradictions and conflicts of other public areas subjected to the influence of the neoliberal agenda of development. The recent years have shown politicians always too keen to force the authorisation of new public or private initiatives on the grounds of raising taxes and job creation, even when the actual results are evident and widespread social and ecological disruption. In 2005, the Ministry of the Environment was 'forced' to approve a questionable project of water transference from the São Francisco River to northern catchments in the semi-arid region. This inter-basin project has been vehemently criticised on the grounds that the benefits of water transference are likely to be appropriated by political leaders at the expense of socio-natural impacts on both the source and the receiving catchments. Likewise, in 2007 the same Ministry was compelled to grant licences for the construction of two large hydropower schemes along the Madeira River, in the heart of the Amazon region, regardless of the direct disapproval by its senior staff and technical experts. In other regions of Brazil, hydraulic projects continue to be approved and implemented even if they violate traditional community rights over common resources (Ribeiro et al., 2005).

An important element of the conservative 'modernisation' of the public sector is certainly the programme of public utility privatisation, which is among the largest in the world. The privatisation of electricity and basic sanitation companies represented around a quarter of that total assets transferred into private hands (approximately US\$ 100 billion were transferred into private hands, either through the full divestiture or through operational concessions of public utilities). Because 90% of the electricity generated in Brazil comes from hydropower schemes, the privatisation of energy has in effect been an indirect form of water resources privatisation. So far, most of the electricity distribution companies and around 40% of the generation companies owned by the State were sold-off to private operators. In nominal terms, the transfer of electricity companies to private hands attracted US\$ 23.5 billion (Anuatti-Neto *et al.*, 2003). Around 48% of the payments made by private investors to acquire electricity companies were financed by government-owned banks (particularly via the national development bank BNDES). The involvement of private operators was also facilitated by changes in the legislation that removed the difference between domestic and foreign firms. Privatisation was further encouraged by reducing investments in public utilities prior to the sell-off (i.e. to reduce political opposition due to the deteriorating performance of state-owned utilities), contractual clauses that protected privatised companies against changes in the exchange rate, electricity tariffs rising above inflation and the removal of compensatory subsidies to low income families (Pistonesi, 2005, quoted in Solanes and Jouravlev, 2006). Since 2003, the current federal administration has reduced the emphasis on the full divestiture of public electric utilities, but has maintained other traditional options of private sector involvement by contracting out services and public-private partnerships.

Different that the hydroelectric sector, the privatisation of water supply and sanitation has been more restricted and controversial. One fundamental obstacle is the hybrid responsibility that characterises water services in Brazil: according to the constitution, municipal authorities are in charge of water services, whereas the great majority delegated the operation to companies owned by the state (provincial) governments. The agreements between municipal and state authorities were formalised in the 1970s, during the military dictatorship, when the national policy was to concentrate resources and

power in the state utilities. Under the influence of the liberal policies of the 1990s, some states dissolved or demobilised their water companies, unilaterally returning the responsibility to the municipal administrators. That gave the opportunity to some municipal administrators to transfer the local water services to private companies (mostly foreigners). Privatisation was further encouraged by the reduction of investments by the central government, which is responsible for managing the main investment fund (i.e. FGTS): between 1995 and 1998, only R\$ 1.8 billion was invested in the sector, while R\$ 7.4 billion of past loans were paid back to the central government (1.00 US\$ is approximately R\$ 1.80). It means that a surplus of R\$ 5.7 billion was retained in the investment fund, regardless of the urgency of social demands (Oliveira Filho, 2006). In parallel, while the central government reduced the access of public utilities to governmental funds, incentives and loans were made available to attract the attention of private operators. In any case, because of lengthy negotiations and legal disputes, only 3% of the water supply and sanitation utilities were privatised, which serve around 5% of the national population (Britto and Silva, 2006).

In addition to the controversy around utility privatisation, it is worth point out that the very first article of the 1997 water law clearly established the primacy of the neoclassical economic theory over water management in Brazil. The article recognises that: “(...) water is a scarce natural resource, which has economic value”. There is here an unambiguous resemblance with the fourth UN Dublin Principle (approved at the 1992 International Conference on Water and the Environment) which stated that “water has an economic value in all its competing uses and should be recognized as an economic good”. This phrase encapsulates the two fundamental tenets of the neoclassical paradigm of environmental management: the idea of a scarce resource and the (economic) value of water. In effect, the expression of the economic value of water has been the main concept supporting the formulation of subsequent policies and initiatives in the last decade in Brazil. As repeatedly mentioned in the official publications, because of quantitative scarcity and declining quality, water is no longer a ‘free good’, but has clear economic value. In other words, because water is (or was made) scarce, it now requires an economic treatment to address existing and future problems. Once the monetary value of water is determined (what requires the application of neoclassical methods of environmental economics), it can be managed as any other economic factor of production that has marketable costs, effects and benefits.

The most relevant expression of the monetised value of water in Brazil has been the imposition of water user charges under the ‘user-pays principle’ (and the related ‘polluter-pays principle’). According to mainstream economic approaches mentioned above, those wanting to extract water or dilute effluents in watercourses should pay a charge proportionate to the negative impacts caused (i.e. environmental externalities). In theoretical terms, the introduction of water user charges in Brazil has aimed to minimise social costs through the determination of the optimum scale of operation and induce rational economic behaviour, but also to generate revenues for environmental restoration and law enforcement (Garrido, 2004). However, since the early days of the new legal regime in the end of the 1990s, the imposition of water charges has grown into controversy on the national and local scales. In many catchments, the political maelstrom related to the controversial introduction of water charges has hijacked the broader debate on environmental restoration and prevention of impacts. The perverse consequence of water user charges is evident in the areas where it has already been adopted, in particular the split of stakeholders into confrontational groups and the widespread suspicion about hidden agendas. The poisoning of stakeholder dialogue is further aggravated by the official policies supporting the introduction of water charges only in catchments where water conflicts exist or are likely to emerge (cf. GEO Brasil, 2007: 54).

What is more, instead of improving the environmental condition of catchments and places, the payment for water charges tacitly validates the operation of activities that cause large environmental impacts. Because industries, electricity operators and irrigators now pay for water use, they can claim to be legally entitled to continue to impact the aquatic environment as before the new legislation was

passed. That has been the case with industrial effluent discharges in the Paraíba do Sul catchment, where the industrial sector has been able to preemptively manipulate the approval of water charges so suit their demands for soft regulation. At the same time, larger industries have opportunistically used their payment for water use to improve their commercial image as corporately responsible (Féres et al., 2005). Since industries are now officially involved in the system of environmental regulation, there is scarce room for calling into question their responsibility for the poor environmental quality of the catchment. In spite of the ‘inclusive negotiation’ that, according to Formiga-Johnsson et al. (2007), characterises the local experience, there is also an acknowledgement that the implementation of water charges in the Paraíba do Sul catchment has not progressed as expected in part because of the absence of participatory consultations with the various stakeholder sectors (UNEP, 2004). The result is that the introduction of bulk water charges has contributed little in terms of environmental restoration in the Paraíba do Sul: the official statistics show that, between 2003 and 2006, the charging scheme was responsible for collecting a total of R\$ 25.4 million, which is considerably less than the estimated need to restore the catchment (i.e. an annual investment of R\$ 360 million or R\$ 4,600 million by 2025, cf. Coppetec, 2006).

Apart from the ‘modernisation’ of the public sector and monetary valuation, the market-based solutions that underpin the ongoing institutional reforms have increasingly facilitated the adoption of other indirect mechanisms of water commodification. One of these new forms of converting nature into tradable commodities is the payment for environmental services (PES), which includes ‘services’ related to watershed conservation such as the maintenance of clean water supply and protection against soil erosion (Kosoy et al. 2007). The rationality of PES is directly inspired in the neoclassical concepts that free market operations can guarantee the most efficient solution to environmental externalities. The justification is that those who benefit from ecosystem services should be prepared to make direct payments to the local people more closely associated to the conservation of the ecosystem. For instance, if the protection of an upstream forested area helps to maintain river flows, the environmental service (in this case, the guarantee of water availability by the protection of the forest) should be paid by downstream water users. PES entails a full interchangeability between the market inputs used by the industries and agriculture and the non-market service of maintaining the river flow. The first requirement before PES can be adopted is obviously the calculation of the monetary value of the environmental services. The calculation is normally processed through ecosystem valuation methods, which normally produce significant inconsistencies. For example, Fearnside (1997) estimated that 10% of the Brazilian agriculture depends on rainfall originated from the evapotranspiration in the Amazon, which would correspond to an environmental service (i.e. guarantee of rainfall) that is worth US\$ 7 billions per year for the entire rainforest. On their part, Seidl and Moraes (2000) calculated that water supply and regulation in a single watershed in the Brazilian Pantanal amounts to US\$ 6.3 billions per year.

Regardless of those methodological difficulties, many Brazilian academics and policy makers have embraced the payment for environmental services as an ingenious option for dealing with water management problems. For instance, the National Water Authority (ANA) launched the “Water Producer Programme”, an initiative that offers financial compensation for soil conservation interventions that potentially increase or maintain water availability. Another similar initiative is the Catchment Pollution Removal Programme (PRODES), which ‘buys’ the treatment of sewage by private or public operators (instead of the direct financing of the sewage works). The attractiveness of PES is demonstrated by two ‘private member’s bills’ recently introduced and currently under discussion in the National Congress (bill 142/2007 in the Senate and 792/2007 in the House of Representatives). For many academics and politicians, the win-win promise of PES seems the ultimately proof of the perfection of the market, which is capable of finding inventive solutions to the very problems it causes. In view of that, PES would not only introduce a ‘sophisticated’ response to environmental degradation, but also generates new commercial opportunities related, for example, to

the certification and monitoring of environmental services. On paper, the certification of environmental services has the ability to promote environmental protection, since water users would become more aware of the economic value of ecosystems. In practice, however, the success of PES in terms of protecting and restoring the environment has been close to nothing.

The disappointing outcomes of the PES experience can be explained by various operational and conceptual frauds. First of all, it is extremely difficult to relate the provider of the service with those willing to pay for it. It has been reported the limitations of PES in watershed conservation in India due to high transaction costs and the intensification of poverty problems (Kerr et al., 2007). The adoption of PES has been also prevented by demand-side limitations and a lack of supply-side know-how (Wunder, 2007). Secondly, PES only works in situations where the threat of environmental degradation is extremely high. That is because it requires an irrefutable proof of the environmental risk to persuade beneficiaries to accept the payment for the service. If the PES regime becomes more widely adopted, it can even induce the artificial 'fabrication' of environmental threats in order to justify the payment. In other words, the implementation PES can divert the attention away from environmental protection towards profitable market transactions. Thirdly, in the few cases where it has been adopted, the price of the environmental service payment is not the outcome of free market bargain, but on the contrary it is created by the regulatory demands and opportunistic behaviour of private firms (Robertson, 2007). Fourthly and more important, the market logic behind PES is fundamentally based on a utilitarian relation between people and nature that ignores the capacity of local populations to appreciate the value and spontaneously protect their ecological base. This rationale assumes that human beings are naturally inclined to convert the natural resource into cash and, therefore, people need to be paid to avoid causing environmental harm (this is, for example, the argument of Vosti et al., 2003 for the protection of the Amazon Basin). It overlooks the fact that local populations have a long-term history of skilful interaction with the environment and that the pressures over natural resources are, to a large extent, created by economic globalisation, the same globalisation that now encourages the adoption of artificial schemes like PES.

4. Water reforms in Scotland

In part of the world, the introduction of new water regulation has a clear political dimension, given that the identification of management problems and prioritisation of possible solutions necessarily involve some form of negotiation and compromise. In Europe, the implementation of the Water Framework Directive (WFD) has been responsible for a growing politicisation of water regulation, associated to increasing controversy about the best way to accommodate conflicting interests on water allocation, use and conservation. Because of the significant costs involved in restoring the ecological condition of water bodies, there was a lengthy negotiation between State, market and civil society for the approval of the new Directive, which added to a prolonged bickering between the European Parliament and the Council of Ministers, intermingled with the pressures of different interest groups and NGOs (Kaika and Page, 2003). In Scotland, this overall context of disputes and politicisation has been further fuelled by the reinstallation in 1999 of a semi-autonomous parliament and executive government (called 'political devolution') simultaneously with the final preparation of WFD. After nearly three centuries, since the Treaty of Union in 1707, a Scottish administration regained control over a range of public matters, including overseeing WFD implementation in 1/3 of the British territory (i.e. the area of Scotland in the UK). The movement for Scottish self-determination is not new, but has evolved over the past three decades in an interlocked process of identity definition and economic recovery (Beveridge and Turnbull, 1997).

The historical coincidence between WFD and the reinvention of the Scottish administration facilitated the convergence of water regulatory reforms with the broader reorganisation of public affairs (it should be noted that political devolution and WFD are obviously independent, but clearly

associated processes, what is normally described by critical realists as a ‘contingent interaction’). The transition from a previously centralised UK government to a ‘devolved’ Scottish administration has had important material and symbolic consequences for dealing with water problems in Scotland. Before devolution, it would have been significantly more difficult to reform Scottish law due to a shortage of parliamentary time (in Westminster) and the restricted importance of Scotland issues in the UK political arena. That changed after 1999, when the new Scottish parliament was able to mobilise time and resources for a comprehensive review of the water legislation. Crucially, the parliament not only managed to produce a thorough legal reform (that in many aspects goes beyond WFD requirements), but it also benefited institutionally from the political relevance of having to translate WFD into national legislation. The fact that Scotland was the first region in Europe to translate WFD into national legislation (sanctioned under the Water Environment and Water Services Act in 2003) reveals the political importance given to the water institutional reforms. The priority given to WFD by the Scottish Parliament was not only a chance to improve water legislation, but it contributed to the affirmation of the ‘devolved’ parliament. In fact, the early approval of WFD was repeatedly praised as a demonstration that Scotland can do things ‘faster and better’ (i.e. than the rest of the UK). It has been affirmed that, different than in England, the “implementation of WFD in Scotland has been both timeous and systematic” and, because of that, “Scotland has been at the forefront of the European process” (Hendry, 2006).

In articulating a sense of national pride around the forthcoming water legislation, the young Scottish administration systematically attempted to ascertain its authority by forging a range of new political alliances. Nonetheless, while the involvement of stakeholder groups played an important role in shaping the new legislation, it not necessarily resulted in stronger democratic representation or better environmental governance. On the contrary, lobbying and bargaining around WFD have exposed a highly controlled process of collective learning and participation (Ison and Watson, 2007). Instead of facilitating the formulation of solutions to old and new water problems, the politicisation of water under WFD in Scotland has often intensified disputes and sometimes raised obstacles for intersectoral dialogue. The association between WFD implementation and the search for politico-economic legitimacy effectively reveals the State as a ‘social relation’, which derives its specificity from the dialectical interplay between the public sector and the strategies of various social groups (cf. Jessop, 1990). Problems related to water management are only one among many areas where devolution still remains an incomplete process (Bradbury and Mitchell, 2005), fraught with overlaps and uncertainties. For instance, in the case of energy generation (e.g. hydropower), public policies are still a prerogative of London, but planning authorisations are decided in Edinburgh or by the local authorities. Likewise, in the catchments shared between Scotland and England water management has become entangled in a not always easy communication between public agencies to the north and south of the English border. Although political devolution is promoted as heralding ‘new politics’ of democratic recovery via a more open and participatory approach to public matters, the actual practices of governing continue to owe more to traditional rationalities of centralised managerialism (Thompson 2006). The sub-national experience of Scotland can be compared with other devolved administrations in Europe, such as in the Lower Saxony, where the implementation of WFD has been directly affected by political forces operating at the regional scale (Kastens and Newig, 2007).

The range of political disputes and the scepticism about the real objectives of the new water regulation have only intensified long-term divisions between social groups and spatial areas. The water institutional reforms have become intertwined with the reaffirmation of the ‘Scottish myth’ (cf. McCrone, 2001) conveyed by the movement for political devolution. According to the ‘myth’, there is an inherent egalitarianism among the Scots, which is in direct contradiction with a highly unequal society that has failed to achieve minimal levels of civilised life to all its members (e.g. one child in three lives in poverty, cf. Dunion and Scandrett, 2003) and has suffered from long-standing schisms (e.g. splits between Highlands and Lowlands, west and east, urban and rural, Protestants and

Catholics, which all conspire to dissipate the Scottish national identity, cf. McCrone, 2001). These broader social divisions have affected the course of the ongoing water reforms, what is demonstrated by the fact that influential groups of water users (hydropower, water industry, large farmers, etc.) and stronger economic regions (industrial areas, whisky production valleys, tourism hotspots, irrigation clusters, etc.) have been able to exert sustained pressure in decisive moments of WFD implementation (see concrete examples from hydropower and water supply in the next section). At the same time, the majority of water stakeholders are left as spectators in an excessively complicated regulatory regime. The influence of these stronger players has fundamentally contained the more innovative prospects of the new regulatory framework, in particular the opportunity to modify the overall pattern of wasteful water use by households and business sectors. The result is that, in practice, rather than restoring the quality of the water environment for the benefit of society at large, the new regime has focused on the rectification of problems in areas with marked political and economic importance, but normally under the decisive influence of only a handful of powerful companies. Failing to formulate effective solutions to long-term impacts, the selective implementation of water reforms resulted mainly in restricted adjustments and circumscribed changes.

One of the key policy instruments of the WFD regime – which is also a cornerstone of the Brazilian legislation, as mentioned above – is the fact that water users are now required to make a payment equivalent to the environmental impact they create. The compensation for the negative impact on the environment (i.e. the negative externalities) takes the format of ‘water charges’ to be paid regularly to the regulatory agency. In addition to compensating the rest of society for the negative impacts of private uses of water, in Scotland the introduction of (bulk) water charges also aimed the recovery of 50% of the costs incurred by the water regulator (the Scottish Environment Protection Agency, SEPA), while the other 50% should come from the government in the form of general taxation (SEPA, 2005). To understand the importance of bulk water charges in the Scottish experience it is important to consider that, instead of facilitating the implementation of water reforms, the principle of cost recovery has entangled SEPA in a hostile environment of lobbying and public criticism that corresponded to the most turbulent period of the WFD regime to date. The introduction of WFD charges was the object of two specific public consultations carried out by the Scottish government in the year 2005. The first dealt with charges to be applied during initial phase of issuing WFD licences (described as the ‘transition period’ of 2005/2006) and only received 17 responses (basically, the NGOs were in favour of expanding water use charges and the main user sectors were against or expressed their apprehension about the new charging mechanism). The second consultation in 2005 dealt with the full-charging scheme (i.e. to be in place after the transition period) and attracted 189 responses. The second consultation took place simultaneously with the beginning of applications for new WFD authorisations, which only added animosity to an already confrontational process. In the mass media, SEPA was seen as a draconian agency that was trying to ‘sell’ the new regulation to secure its financial survival. Under serious criticism, SEPA had to quickly respond via a number of unscheduled meetings and ad hoc negotiations with water user sectors. The hurried amendments to the abstraction charges, during and after the consultation, “demonstrate the value of lobbying” and also the “concern that abstraction charges have caused among farmers and large users” (Hendry, 2006). In effect, SEPA had to promise a lot during the negotiation associated to the charging schemes, which will probably come to haunt the agency in the future (Hendry, 2006).

Because of the fierce controversy around bulk water charges, between 2005 and 2007 the implementation of WFD in Scotland became largely associated with the economic dimension of water, at the expense of other environmental and social aspects of the new regulation. It means that the multiplicity of socionatural values attached to water use and conservation became increasingly subordinated to the exacerbation of the monetary (commoditised) value of water. A crucial demonstration of the controversial exacerbation of the economic dimension of water is related to disputes about the costs of mitigating environmental impacts. To be sure, WFD is, by definition, a

‘framework’ type of legislation, which means that it systematises the direction that European countries should follow, but the details of the regulation are delegated to the national administrations. Within reasonable technical boundaries, member countries can interpret the Directive requirements in order to restore water bodies to ‘good ecological status’. It means that, if the current condition deviates from good status, a series of measures must be put in place to guarantee environmental restoration by 2015. To inform the achievement of ‘good ecological status’ in Scotland, a series of publications have tried to calculate the monetary value of environmental conservation and the cost of restoration (e.g. Hanley et al., 2006). The regime seems supple enough, but the devil here is in the detail: only those measures that are ‘proportionate’ and ‘feasible’ can be legally enforced. According to the ‘spirit of WFD’, regulators can only impose (economically) informed and (politically) defensible mitigation measures. Under Article 4 of the Directive, there exists a lawful route for the avoidance or, at least, minimisation of the financial costs associated to environmental compliance, because activities that cause serious environmental impacts can continue to operate on grounds of disproportionate costs, public interest or sustainable development goals (which is a regulatory mechanism called ‘derogation’). Disputes about derogation and the reasonableness of restoration costs have not only aggravated the commoditisation of water, but have also poisoned the dialogue between many water stakeholders and the environmental regulator. In actual fact, the initial years of the new water legislation were marked by a constant attempt to challenge the new regulatory regime and the legitimacy of SEPA as the leading regulatory agency.

The reforms in Northern Ireland are comparable to the Scottish experience and also vividly reflect the broader process of political ‘devolution’. The controversy on the introduction of water charges started in 2003 with the publication of the Government consultation paper “The Reform of Water and Sewage services in Northern Ireland”. Since then, it has been repeatedly stated by the government that charges were required for the increasing level of investment needed to sustain the Water Service into the future (around 3 billion pounds over 20 years). Nonetheless, the level of investment needed to improve the system has been challenged on the grounds that public money is already available and that charges may deepen social inequalities, whilst broadens the privatisation agenda supported by all the main political parties in the province.

5. The reform gridlock

The reform of water policies has occupied a central stage in the environmental agenda of Brazil, Scotland and other countries in the last decade. The new water regulatory regime supposedly contains some of the ‘advanced’ tools of environmental governance, which includes utility privatisation, water user charges and the payment for ecosystem services. Nonetheless, the social and environmental results of the new water regulation have been, at best, disappointing. The new regime has similarly aggravated stakeholder conflicts while it legitimises the negative impacts of more intensive water users (legitimised via operation licences and bulk water charges). It means that, in practice, little has changed: the stability of water systems and the fundamental rights of deprived social groups continues to be forfeited under the need for more dams or the exploitation of catchment resources. Even in catchments with meaningful public mobilisation and solid structures of public representation, the degrading trends remain unaffected. This apparent paradox of novel legal approaches that reproduce old water problems can only be explained by the bureaucratisation of the relations between society and nature under hegemonic market-based policies (i.e. the dynamics of power and rationalisation described by Foucault). The persistence of water management problems is certainly acknowledged by many scholars, however there is still limited scrutiny of the systematic failures of the new water regulatory regime. However, it is rare to see authors willing to investigate why technological

improvements, public participation and mitigation measures have been systematically sidestepped by the accumulation strategies of contemporary capitalism.

By and large, contemporary water policies have been contained by their technocratic insistence in the internalisation of costs and the optimisation of resources, while social justice and collective responsibilities for the degradation of shared water resources are left out of the agenda. The priority of economic rationality for the solution of water problems only perpetuates a system of environmental exploitation and social exclusion related to water management that historically characterised water management. The new water regulatory regime attempted, but failed to bring straightforward responses to multilayered water questions. The fundamental shortcoming of new approaches is the ideological separation between environmental degradation and social inequalities. Because of this fundamental dichotomy, the policies derived from the new water legislation have neglected the social and political context where decisions are made and projects implemented. For example, in Brazil the process has overlooked the fact that water problems are closely related to rural land tenure, uneven urban development and socioeconomic opportunities, issues that are mostly excluded from the scope of the water reforms. Policy instruments of the new regime were superimposed to a political system based on discriminatory practices on the national and local scales. Almost all the changes are restricted to the top-level of policy-making, with very limited repercussions on the local problems of water use and conservation. The existing improvements in terms of public participation and environmental restoration represent no commitment by politicians or public agencies, but are convenient mechanisms for minimising public opposition against the implementation of the new regulatory regime. Public mobilisation in catchment committees has been systematically neutralised by disputes involving water charges, while economic pressures continued to degrade watercourses and displace local communities. Only the more organised social groups have been able to understand the intricacies of the new system and have cleverly used their position to maintain and expand privileges.

The reliance on the generic assessment of ecological processes and the quick-fix solution to long-term environmental impacts betray the technocratic basis of the new water institutions. As pointed out by Frodeman (2006), today policies embodies positivist and proceduralist biases “in that it seeks to rationalize and make more efficient the expression of our values, while abstaining from the project of making these values themselves more reasonable”. Because of its technocratic nature, the key outcomes of the Brazilian and Scottish experiences have been an artificial (and mostly unnecessary) complexification of water management and the widespread use of the money language. The dominant forms of dealing with water remain bounded by economic assumptions about how nature operates and how natural resources should be used. The ‘cash nexus’ (cf. Foster, 2002) inevitably results in the exacerbation of the economic dimension of managed water systems, at the expense of other social and cultural characteristics, despite the fact that there is no empirical evidence that monetisation improves environmental management (Burkett, 2003). On the whole, the failure to articulate an alternative has left the Scottish water reform exposed the neoliberalisation of public policies that ultimately constitutes the fabric of contemporary approaches to environmental problems. Because of the powerful influence of neoliberalism, the new regulatory regime may be able of acknowledging complexity and sectoral difference, but it is reticent when it comes to allocate responsibilities for environmental impacts. The generalisation of potential impacts included in the recent assessments effectively dilutes the responsibility for the genuinely serious damages. Although some localised and patchy improvements are expected, the introduction of an economic-based regulation will continue to raise conflicts and contradictions.

Overall, the two strongest institutions advanced by contemporary water regulation, namely the ‘the search for economic efficiency’ and ‘the involvement of the public’, have not produced fundamental changes in the mechanisms of allocating, using and conserving water. This is explained both because contemporary approaches have been entangled in multileveled disputes and, more importantly, because the water reforms have perpetuated an uneven and centralised management of water use and

conservation. The failures to reform the water regulation indicate the pressing need for genuinely alternative institutions, which should be grounded on principles of environmental justice and positioned beyond the market imperatives of globalisation. Effective answers to water problems depend on a more inclusive public policies and the construction of a more equitable dialectics between society and the rest of nature. It is not possible to think about institutional reforms divorced from broader issues of commodity consumption and significantly different mechanisms of involving the public in the management of water systems. By the same token, a truly sustainable management of water cannot be associated with a centralised, top-down institutional solution to water problems. The ultimate conclusion is that alternatives to the current management of water reforms require, first and foremost, denouncing the rationality of neoclassical economics and its commanding influence over public water policies. It means that water management problems can only be resolved by bringing together the local (catchment) demands and a national and international resistance to expansion of a market-based society. In other words, improvements in the water sector make no sense without relating it to the totality of the globalised economy and, therefore, the construction of new basis for the relation between nature and society.

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