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The São Francisco Interbasin Water Transfer in Brazil: Tribulations of a Megaproject through Constraints and Controversy

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ABSTRACT: This paper describes the complex social, political and economic dynamics that led the Brazilian government to launch one of the biggest hydraulic infrastructure projects in the country's history: the *transposição do São Francisco* (transfer of the waters of the São Francisco River), a large-scale diversion scheme to transfer water from the São Francisco River Basin to semiarid areas of the Northeastern Region.¹ This massive interbasin water transfer, first idealised in the nineteenth century, was turned into reality under Lula's presidency, at a time when the Brazilian economy was booming and a left-leaning neo-developmental coalition had seized power. Such a controversial project has fuelled criticism from a wide social and political spectrum. Between 2005 and 2007, when the conflict was at its highest, large parts of society mobilised against the project, which makes the *transposição* one of the most remarkable socioenvironmental conflicts in the history of Brazil. The project was given the green light at a moment when water governance was undergoing a process of institutional reorganisation officially aiming at the implementation of more democratic procedures and of integrated governance principles. So, it can be viewed as an anachronism of the 'hydraulic mission' with its supply-side technocratic engineering solutions. But it can also be considered as a legitimate and necessary piece of water development, in an emerging country with acute regional water imbalances, that is to benefit a historically underprivileged region (the Northeast). Beyond such simplistic views, we will try to disentangle the complex nexus of political and economic interests and of conflicting discourses related to the extremely diverse set of actors that have played a role in the project, and thereby try to understand why, after more than a century of debate, the *transposição* has finally become a (still heatedly debated) reality.

KEYWORDS: Interbasin water transfer, megaproject, socioenvironmental conflict, neodevelopmentalism, São Francisco River, Brazil

INTRODUCTION

Under the Lula government (PT – *Partido dos Trabalhadores* – workers' party), Brazil has chosen to resort to an interbasin transfer from the São Francisco River to provide water to some of the driest regions of its semiarid Northeastern Region.² While this megaproject³ has been envisaged since the early 19th century, it unleashed a major conflict in the early 2000s that mobilised several States, the Federal Government, civil society, scientists, intellectuals and various actors of the water management

¹ The São Francisco River Basin is itself at 57% semiarid (MMA, 2006b).

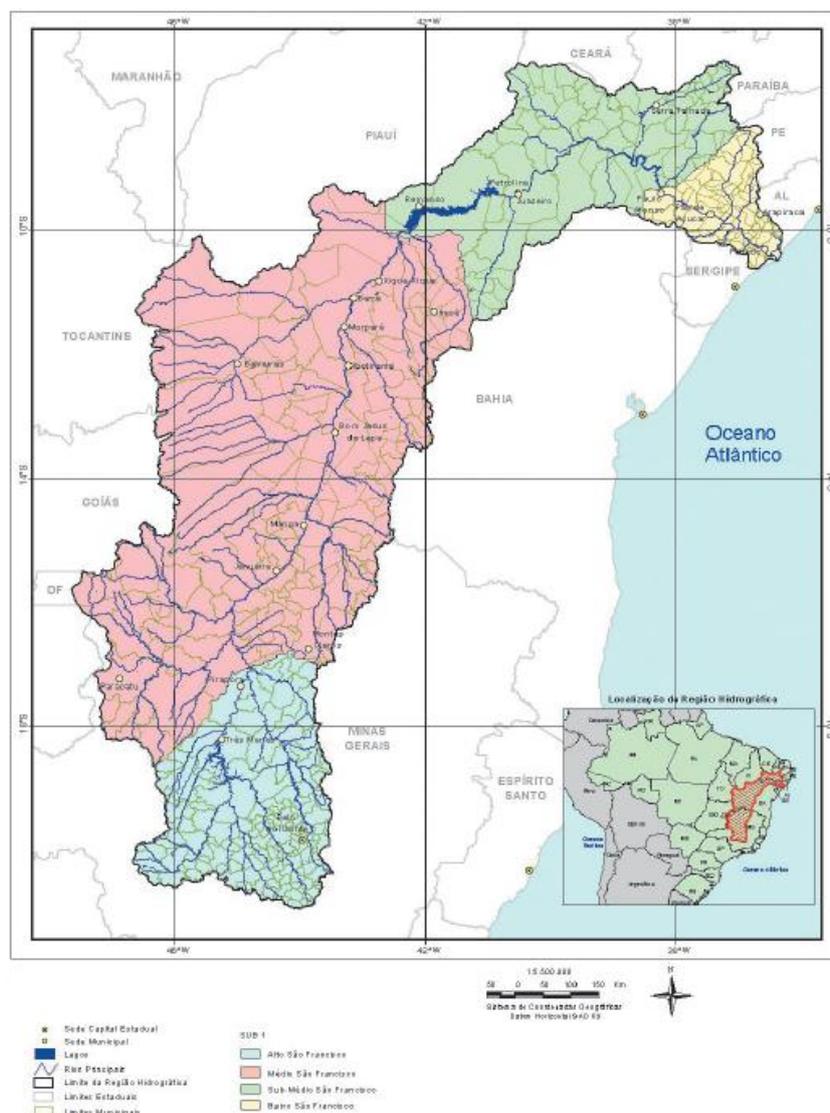
² The author wishes to thank the three peer-reviewers for their useful comments and suggestions. Any remaining errors or shortcomings are the author's responsibility.

³ Flyvbjerg (2014: 6) defines megaprojects as "large-scale, complex ventures that typically cost US\$1 billion or more, take many years to develop and build, involve multiple public and private stakeholders, are transformational, and impact millions of people".

sphere. The controversy's profound imprint on Brazilian society mirrors the great hopes created by what was presented as Northeast's economic and social 'redemption'. Since the 19th century and the endorsement of the idea by the last Brazilian emperor, Dom Pedro II, the project has been part of the debates on water scarcity and recurrent droughts in the semiarid area of Brazil. It was recurrently modified and debated, though never implemented because of technical hardships (not least the lack of energy to pump water and drive it beyond the hills on the Northern axis).

The São Francisco River, usually known as the *velho chico* ('old chico') or the 'river of national integration' for its role as a route between the Atlantic ocean and the 'interior' (the *sertão*) and between the Centre and Northeast regions of Brazil, is one of the most important rivers in Brazil: 2800 km long, with an average flow of 2800 m³/s, its basin spans approximately 638,466 km² (7.5% of the national territory) and several states (Bahia, Minas Gerais, Pernambuco, Alagoas, Sergipe, Goiás and the Federal District). Multiple uses are made of its waters, among which irrigation (77% of total demand) and hydroelectric power (dams in the São Francisco River Basin supply 12% of the national electricity demand).

Figure 1. The São Francisco River Basin.



Source: MMA (2006b).

Works for the so-called *transposição*,⁴ the costliest current Brazilian hydraulic infrastructure, started in 2007 as part of an important programme of investment for the acceleration of growth (the PAC – *Programa de Aceleração do Crescimento*, Programme for the Acceleration of Growth), and they were initially supposed to be completed by 2011. The *transposição*, composed of approximately 500 km of concrete canals, pipes and aqueducts, is intended to bring freshwater to 12 million people, to benefit 390 municipalities, and to help the Northeastern hydraulic network operate in a more 'synergistic' way (it has thus been renamed an 'integration' rather than 'diversion' project). The project has already faced several delays (as of May 2017, it was not completed yet), substantive cost overruns (from 4.5 to 10+ billion USDR), and some construction firms involved in the *transposição* are currently under scrutiny by the Federal Court of Accounts for contracting irregularities.⁵

What is the point in debating an interbasin water transfer as a symptom of a 'come-back' of big infrastructure? Water is always moving through the hydrosocial cycle (Linton and Budds, 2014), so bodies of water are always being 'transferred'. Artificial interbasin water transfers are in no way new. In many countries, interbasin water transfers help provide cities and agriculture with freshwater, and in some of them long-distance, or 'massive' interbasin transfers (MIBWTs, hereafter) have been built (in China, the United States, Canada and Australia for example). According to Gupta and van der Zaag (2008), in the beginning of the 2000s, 14% of withdrawn water was through interbasin transfers (540 billion m³/y) and big transfers will likely represent around 25% of mobilised water in 2025. More than 200 big water transfer infrastructures are in operation or planned. They are by now essentially concentrated in the Americas (in particular Canada, see Lasserre, 2009), but emerging countries like China, India or Brazil are developing such projects at a fast pace and others like South Africa are already well provided with interbasin transfers (Turton et al., 2008; Blanchon, 2009). Long-distance interbasin water transfers are viewed by some as a necessity for the near future (Ayres, 2006; MIT, 2014) and ambitious if not colossal projects have been debated (see, e.g. Badescu et al., 2010).

Pros and cons of such big infrastructure have been discussed at some length (Biswas, 1981; Biswas et al., 1983; Vaux and Howitt, 1984; Snaddon et al., 2000; Lasserre, 2005; UN WATER/AFRICA, 2006; WWF, 2007; Ghassemi and White, 2007; Gupta and van der Zaag, 2008; Lasserre, 2009) but there is arguably less academic work on this class of hydraulic infrastructure than on others, especially dams. To the best of our knowledge, there are no internationally agreed standards for assessing interbasin water transfer projects, and no reference document exists like the WCD report for dams (WCD, 2000). There exist pieces of work on the 'performance' of diverse types of infrastructure projects,⁶ including dams (WCD, 2000; Ansar et al., 2014), but (as far as we know) not on interbasin water transfers. It is still probable that applying the same analysis to MIBWTs would yield similar results. But at the same time, supposedly well-succeeded infrastructure projects in rich countries offer a showcase for MIBWTs in emerging countries.⁷ It is no surprise that California has been looked at as an example to be followed in the Northeast by Brazilian politicians, engineers and corporate farmers (Broggio and Droulers, 2000).⁸

⁴ We will use both the words '*transposição*', as it is the way the project is widely known and referred to in Brazil, and PISF, the acronym for the project's official name (*Projeto de Integração do Rio São Francisco com Bacias Hidrográficas do Nordeste Setentrional* – Project of Integration of the São Francisco River with River Basins of the northern Nordeste).

⁵ Several other court cases concern construction companies involved in the *transposição*. Executives of a consortium of companies involved in the works of the *transposição* were temporarily jailed in 2015 and the TCU (*Tribunal de Contas da União* – Federal Court of Accounts) estimated that more than 700 million R\$ were irregularly spent between 2005 and 2013.

⁶ For an assessment of different kinds of infrastructure megaprojects from a managerial standpoint (financial costs and delivering schedule), see the work by Bent Flyvbjerg and his co-authors (e.g. Flyvbjerg, 2014).

⁷ For a critical appraisal of the consequences of such massive diversion schemes, see e.g. Reisner (1986), Worster (1985), and Zetland (2014).

⁸ www.fiepb.com.br/noticias/2016/08/30/presidente_da_fiepb_viaja_para_os_eua_para_conhecer_os_resultados_da_transposicao_do_rio_colorado

If MIBWTs are widespread nowadays, they invariably carry huge social and ecological impacts as well as the confrontation of diverging interests between actors of the social, economic and environmental spheres, and between 'donor' and 'receiver' basins and political entities. This explains that such megaprojects come most often with high-intensity socioenvironmental conflicts. The *transposição* project in Brazil is no exception to this rule. Why was a MIBWT project launched in the beginning of the 2000s in Brazil to help solve the problems of water scarcity in the semiarid region of Northeastern Brazil, instead of more local, small-scale, and demand-oriented solutions?

As an attempt to understand the complex economic, political and institutional dynamics that may lead to the adoption, gradual modification and implementation of a highly-contested megaproject of interbasin water diversion, we propose a case study of the São Francisco *transposição*. We intend to show how the 'developmentalist' coalition evolved from scepticism to enthusiasm vis-à-vis the *transposição*. We also propose to map the controversy between pro- and anti-*transposição*, a case of highly complex socioenvironmental conflict (Godard, 1998). By focusing on the controversy that took place from the very beginning of the 2000s to 2007, the period when the project was broadly divulged, debated and contested, we will try to disentangle the complex interplay of economic and political interests, values, arguments and discourses that led to the *transposição* in its latest form. We will thereby show how it has come to be presented as a compromise between supply-side large-scale concrete engineering (the *transposição* itself) and integrated resource management (the *revitalização* part of the project for donor basins and a call for better water management in receiving basins).⁹

NEO-DEVELOPMENTALISM, THE STATE AND NATURAL RESOURCES

Developmental conventions in contemporary Brazil

After a developmentalist phase characterised by growing state intervention that spurred exceptional economic growth during the 1950s to 1970s, Latin America experienced troubled times in the 1980s (debt crises) and 1990s (extension of neoliberal policies). In the 2000s, after macroeconomic stabilisation was achieved and thanks to growing Asian (especially Chinese) demand for its commodities, Latin America grew at a fast pace while reducing economic disparities and poverty levels. Such socioeconomic success was achieved by mostly left-wing political governments that implemented what is now called 'neo-developmental' policies, a turn that was called by some a 'post-neoliberal turn' (Yates and Bakker, 2014). The *transposição* was launched as the 'boom of commodities' in Brazil was at its peak.¹⁰ It took place in the context of a larger set of public (federal) investments in Brazil (the PAC – *Programa de Aceleração do Crescimento*, Programme for the Acceleration of Growth), a wider infrastructure drive in Latin America (the IIRSA – Initiative for the Integration of the Regional Infrastructure of South America) and a renewed impulse for governmental intervention in the economy. The ideological context of the launch of the project is thus one of state capitalism, or 'developmental

According to a New York Times piece, former Ceará State governor and former minister of national integration (Ministério da Integração, in charge of the *transposição*) *Ciro Gomes* "likens the sweep and impact of the plan to the creation of the Tennessee Valley Authority in the United States about 70 years ago".

www.nytimes.com/learning/teachers/featured_articles/20050329tuesday.html

⁹ The argument developed here is based on work made in the context of a doctoral thesis. The material used is composed of: 1) field work in Brazil (four months in 2011-2012); 2) semi-structured interviews with key actors of the *transposição* (among whom are past presidents of the São Francisco River Basin Committee, officers of the *Ministério da Integração* – the Ministry officially in charge of the *transposição*, activists of various NGOs, hydrologists, economists and a former chief of DNOCS); 3) extensive review of technical documents, media pieces and official statements on the *transposição*; and 4) a comprehensive review of secondary literature on the topic (in English, Portuguese, Spanish and French).

¹⁰ The project was validated by the National Water Agency (ANA – *Agência Nacional da Água*) in 2004 and the construction works began in 2007.

state', partly inspired by the example of successful South East Asian countries (Hall and Branford, 2012), and one of dominance of the 'developmentalist convention' (Erber, 2008). After a period of low investment in infrastructure in the 1990s, Brazil boosted it in the 2000s, especially at the federal level (Souza and Ferraz, 2015). The development of public infrastructure is considered by many developmentalist economists¹¹ as one of the main pillars of economic development and growth in contemporary Brazil (Bielschowsky et al., 2015), and it is backed by an increasingly powerful BNDES (*Banco Nacional de Desenvolvimento Econômico e Social*, National Bank for Economic and Social Development). Facing international criticism and recurrent mobilisations by NGOs on the camp of big and impacting infrastructure investments, the Brazilian government has tried to reassert its sovereignty on its natural resources and its 'right to development' (Dobrusin and Morena, 2014). While structuralist Brazilian economists, in the wake of Furtado (1974), had long been critical of big capitalist development projects like the *transposição* (Tavares, 1998), they were progressively led to view it more positively after Lula became President of Brazil in 2003.

Hogenboom (2012) and Riethof (2016) argue that during the 1980s and 1990s the exploitation of natural resources in Brazil was depoliticised because of the wave of privatisations touching the sector, but as the 2000s displayed a surge of left-wing governments, the period was one of reclaiming and rebuilding of state authority in the economy, particularly in the domain of natural resources (Gudynas, 2009). The economy was then relying on exploitation of both natural resources and exports, called 'neo-extractivism', or 'neo-developmentalism' (Bielschowsky, 2011; Morais and Saad Filho, 2012; Svampa and Durand, 2011). During the neo-developmental period, environmental politics suffered from an increasing disconnection and defiance between the government and civil-society organisations (CSOs) (Zhou and Laschefski, 2010; de Castro and Motta, 2015). Such harsh politicisation is well illustrated by the negotiation process of the controversial new Brazilian Forest Code in the years 2010-2012, and the heated debates around the construction of dams in the Amazon Region (Hall and Branford, 2012; Fearnside, 2013). The developmentalist push in Brazil would be due to a social base of PT-led governments essentially made of urban workers and labour unions sharing the conception of development as economic growth and increasing access to mass-consumption. So, according to some scholars, there has been a growing divorce between the government and poor rural populations and their representatives (especially the Landless Workers' Movement – *Movimento dos Trabalhadores Rurais Sem Terra* – MST) since pro-business (remarkably pro-agribusiness) policies were adopted while only limited land redistribution was advanced.¹²

According to Svampa (2013), the 'commodities consensus' has led to an 'eco-territorial' turn in socioenvironmental struggles, with socioenvironmental movements striving for a 'decommodification' of natural resources and denouncing the agency of the State as an objective ally of capitalist ventures in large-scale resource extraction and trading. Such a divorce between environmentalist CSOs and left-wing developmentalist political parties is evident in the case of the *transposição* controversy: Several

¹¹ A network of international developmentalist economists was created in 2010 in São Paulo, gathering Keynesian, Marxist and structuralist economists of Latin America and beyond. They published a manifesto entitled *Ten Theses on Neo-Developmentalism*. At about the same time, a network was formed in Brazil and a blog was created (www.desenvolvimentistas.com.br). Neo-developmentalists are generally warmly supportive of development projects led by the state, and it has been the case concerning the *transposição*, as revealed by the section title: 'The most important work in our history: Transposição do Rio São Francisco: pros and cons'.

¹² The appointment of Kátia Abreu (in 2015) and Blairo Maggi (in 2016) as Minister of Agriculture (both won the 'Golden Chainsaw' prize, awarded by Greenpeace for Amazon forest destruction), prominent leaders of the rural caucus in Congress (due to legislative alliances with conservative parties – notably PMDB and PP, members of the rural caucus (*bancada ruralista*) accounted for a great part of Lula's parliamentary base (Gómez Bruera, 2013)), would be another proof of the victory of the neo-developmental outlook based on commodity expansion and agribusiness at the expense of the poorest farmers' and environmentalists' views and interests. The limits of the model of agribusiness are well documented in Abramovay (1992) or Delgado (2010, 2012).

grassroots movements, many of which were formerly supportive of Lula's policies, have expressed disagreement with the PT government on the *transposição* issue, for instance the MST (Landless Workers' Movement), the MAB (*Movimento dos Atingidos por Barragens* – Movement of People Affected by Dams) and the ASA (*Articulação do Semi-Árido*).

Recent evolutions of water governance in Brazil and their limitations

Since the 1990s, in the wake of the democratisation process (the democratic Constitution was adopted in 1988), Brazil has experienced substantial modification of its water governance institutional framework. New ideas such as participation, basin-scale management, or water as an economic good had been infusing among engineers, bureaucrats and water management practitioners since the 1970s,¹³ and early reforms were made in pioneer states like São Paulo, Rio Grande do Sul and Ceará. Norms of 'sound' economical management of water had been promoted by international financial institutions, notably the World Bank (Gutiérrez, 2010) and the idea of economic rationalisation had progressed since the 1980s (Kelman, 2000; Garrido, 2005). But the principles were enshrined in law only with the Federal Water Law of 1997 (*Lei das Águas, Lei 9.433*) that instituted the National Policy of Water Resources (*Política Nacional de Recursos Hídricos*), including the creation of both basin committees and a National Water Agency (*Agência Nacional de Águas, ANA*), and promoting 'modern' principles related to the integrated management of water resources¹⁴ like basin-scale management, decentralisation, participation of stakeholders, water as an economic good and full cost recovery. Official objectives for water management at the federal level are expressed in the PNRH (*Programa Nacional de Recursos Hídricos* – National Plan for Water Resources): "to improve superficial and subterranean water availability, in quality and quantity, reducing real and potential water use conflicts as well as critical hydrological events, considering water conservation as a relevant socioenvironmental value" (MMA, 2006a).¹⁵ Most of the priorities stated in the PNRH 2012-2015 relate to institutional reforms (supporting the creation of basin committees, defining criteria for water licensing, monitoring of water bodies, water charges, development of conflict-solving institutions etc) that are in line with standard integrated water management guidelines and ideas promoted by large international institutions like the World Bank or the OECD. But many critical scholars view these orientations in water governance as a form of neoliberalisation of the State and of natural resources governance which promotes water as an economic asset and basically leaves power relationships untouched (see, e.g. Ioris, 2013 or Castro et al., 2015). Despite dramatic changes in the institutional framework of water governance,¹⁶ governance of water in Brazil has not profoundly changed and water resources are still (if not increasingly) in practice considered as a mainly techno-economic resource.¹⁷

Supply-side solutions to water scarcity have a long history in Brazil. Since the 1930s and the beginning of industrialisation in a politically authoritarian context, water management was linked to nation-wide centralised hydropower development policies, which was reflected in the 1934 *Código das Águas* (Water Code). Several important water transfers were built since then to supply big cities and to foster hydropower development. Such policies accompanied the rise of the developmental state from the early 20th century. From the 1930s, "expansion of infrastructure took place in a new regulatory

¹³ Not least through the creation in 1977 of the Brazilian Association of Water Resources (*Associação Brasileira de Recursos Hídricos* - ABRH).

¹⁴ This was largely inspired by the French model (see Barraqué et al., 2007 or OECD, 2015).

¹⁵ These objectives were maintained in the PNRH for the years 2012-2015.

¹⁶ In 2012, 174 river basin committees had been created, covering 23% of the Brazilian territory in regions particularly prone to water conflicts (OECD, 2015).

¹⁷ This tends to be confirmed in the case of the São Francisco River Basin (see Freitas, 2015). We will come back to this point later.

climate which eventually evolved into a highly centralised system of electric energy regulation and large-scale water resources management at federal level", and "water engineers imagined meeting the demand with quantitative supply side solutions, and they remained influenced by the civil engineering paradigm more than in Europe" (Barraqué et al., 2007: 1155). Water transfers have been largely used to supply water and energy to the São Paulo and Rio de Janeiro metropolises, but mobilisations have mounted in the 1990s and 2000s against such solutions. In the meantime, financing issues of tariff and water infrastructure have long remained untouched and water pricing is still scarcely and very unevenly implemented on the Brazilian territory. As far as the Northeast is concerned, there are still great strides to make in terms of water-demand management. Water reuse and recycling have long awaited a legislative framework, but this has been adopted in several States recently (2016 in Ceará). To date, very few achievements have been recorded. Waste of water is still dramatic in the Northeast: according to the *Ministério das Cidades*, in 2015 Ceará wasted more than 41% of distributed water, Rio Grande do Norte above 50% and Pernambuco 51% and no progress is registered over the last years. So, while the Northeastern region is particularly sensitive to water stress, it is also dramatically underperforming in terms of the management of existing resources. Problems of waste and mismanagement of water in the Northeast have been pointed out to for long, by NGOs and hydrologists alike (Rebouças, 1997), but the region still wasted almost 46% of water in distribution in 2015 (Ministério das Cidades, 2017). The ANA issued in 2006 a report which lists the needed investment in the Northeast to cope with water demand (ANA, 2006): their results point to a myriad of local to regional infrastructure investments to be made at a cost well below the cost of the *transposição*. So, resorting to a long-distance transfer from the São Francisco River is not the only solution to water scarcity in the semiarid Northeast (Rebouças, 1997; Cirilo, 2008; Suassuna, 2010). The technical staff of ANA and MMA (*Ministério do Meio Ambiente* – Environment Ministry) have probably been acutely aware of this, since very few of them have publicly manifested support in favour of the *transposição*, even when the project was fiercely contested.¹⁸ Interestingly too, while the World Bank invested heavily in water projects in the Northeast (especially in big infrastructure in Ceará), it denied support to the *transposição*, arguing that it is mostly irrelevant to its alleged objectives (we shall come back to this point in greater detail later).

THE TRANSPOSIÇÃO: HISTORICAL ROOTS AND CHARACTERISATION

The never-ending story of water scarcity in the Brazilian semiarid

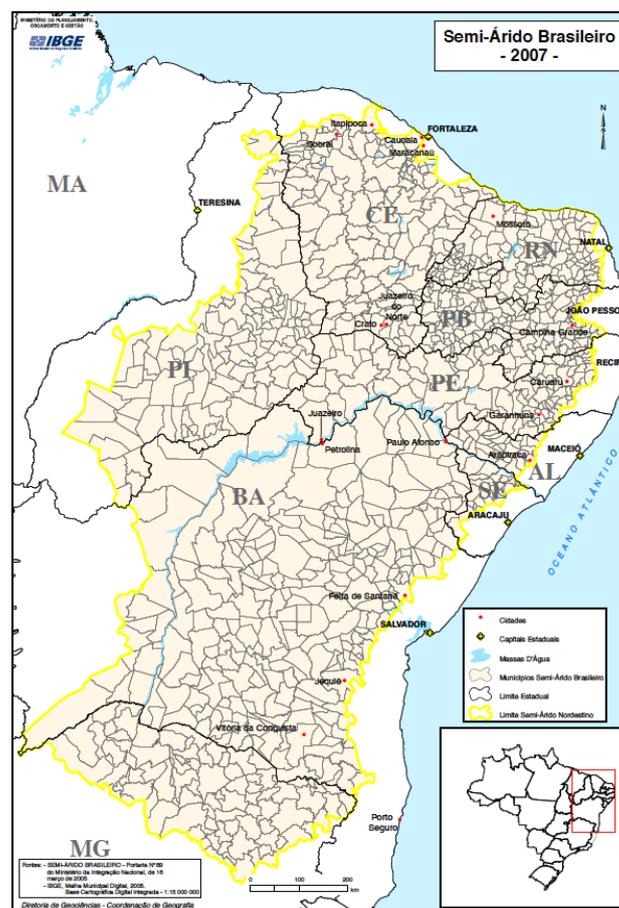
The semiarid region of the Brazilian Northeast, the driest area in Brazil, spans an area of 1,542,000 km² (18% of Brazil's surface), and it is one of the most populated dry regions in the world (53 million people, 34 people per km²). Because of climate change, the region will probably be drier in the future (World Bank, 2012; Marengo et al., 2013) and by the early 21st century, the age-old issue of water scarcity is still a hot topic.¹⁹ Drought does not touch the whole Northeast but is concentrated in what is called the 'drought polygon' (*Polígono das Secas*) involving the semiarid areas of eight Northeastern states (Alagoas, Bahia, Ceará, Paraíba, Pernambuco, Rio Grande do Norte, Piauí and Sergipe) and part of Northern Minas Gerais. Drought (for which we have reports since the 16th century) in the semi-arid has in the past frequently caused severe losses in terms of agricultural output, cattle raising, human lives, hunger, illnesses, forced migrations and economic disruption. Past droughts have caused massive migrations (mainly to southeast urban areas like São Paulo) and deaths (especially during the Great Drought of 1877-1878), but such effects do not occur any longer. Impacts of drought are still deeply felt (in particular in terms of cattle losses), but death by thirst is a tragedy pertaining to the past. Still, the developmental effects of the lack of adequate adaptation to local climate are tremendous, and there is

¹⁸ As institutions, ANA and MMA did nevertheless grant the needed licences for the project.

¹⁹ A very harsh drought struck the region in 2012-2015 (Marengo et al., 2016).

evidence that infant mortality and morbidity are still significantly accentuated in case of rainfall scarcity (Rocha and Soares, 2015). According to several experts, the region is not adapted to its climate yet (Marengo et al., 2016). The problem of intra-year and inter-year high rainfall variation is compounded by the fact that access to water (notably through access to land) is very unequal. The 2006 Agricultural Census provides evidence that land distribution and land inequality have little changed during the last decades, and land is more unequally distributed in the Northeast than in the rest of Brazil. Moreover, while Brazilian agricultural productivity has made great strides since the 1960s, agriculture in the Northeast is lagging behind (Vieira Filho, 2013), which explains why the Northeast is still a land of poverty.

Figure 2. Map of the Brazilian semiarid region.



Source: IBGE

Beyond the real social and economic issues linked to water scarcity in the semiarid, a whole narrative about drought has solidified for decades, on the part of regional and local political elites, to attract public funding and aid. This has been called the 'drought industry' (Empinotti, 2007), and many opponents to the *transposição* view this megaproject as a last instance of manipulation of the drought phenomenon in favour of private political and economic interests. Water use and management in the semiarid region of Brazil is traditionally characterised by privatisation, centralised decision-making, paternalism in drought periods, and a lack of enthusiasm and participation of users (Pinheiro and Carvalho, 2010). Clientelism, fatalism and fear, as well as the drought discourse, are the tools used to maintain the sociopolitical status quo in the region (Kenny, 2002). The region is also characterised by

historical concentration of water resources through the construction of great reservoirs on private properties, allowing powerful local elites to keep control over water. Thus, private property of water has long been intimately linked with property of land. Although during the 20th century several institutions specifically dedicated to the development of the Northeast were created, like the DNOCS (*Departamento Nacional de Obras Contra a Seca* – National Department of Works Against Drought) in 1919, CODEVASF (*Companhia de Desenvolvimento dos Vales do São Francisco e do Parnaíba* – Development Company of the São Francisco and Parnaíba Valleys) in 1948 and SUDENE (*Superintendência do Desenvolvimento do Nordeste* – Superintendence of Development of the Northeast) in 1959, social (more than purely quantitative) water scarcity remains widespread. Some researchers point out to the fact that changing governance, in the Northeast in particular (decentralisation, participation, basin-scale management etc) have not displaced long-standing domination by the 'traditional elite' (Scardua and Bursztyn, 2003). This is confirmed by anthropological work in the Northeast showing that drought is both a source of vulnerability for poor households and a source of material aid from political elites (Nelson and Finan, 2009), so the 'equilibrium' is one of reciprocal dependence between family farmers and *coronels* (votes are 'traded' against material assistance) which is hard to break. In addition, according to de Freitas (2015), the new institutional context of water governance in Brazil was 'hijacked' to the benefit of traditional *nordestine* elites, a process documented outside the Northeast and in other areas of environmental reform (Scardua and Bursztyn, 2003; Abers and Keck, 2013).

Here a short explanation is in order about the specific role of Ceará in the idea of diverting the São Francisco. As a main benefitting State, Ceará has given birth to some of the most ardent defenders of the *transposição*, not least the former national integration minister Ciro Gomes. But Ceará is also well-known for its allegedly 'good government' (Tendler, 1997) and good water management, especially relative to other *nordestine* States. The adoption of new water management policies in the 1990s made Ceará a pioneer of water resources management in Brazil (Gutiérrez et al., 2014). The problems of water scarcity, erratic rainfall and recurrent drought were addressed "as essentially a supply problem to be resolved through massive construction of reservoirs and related water infrastructure" (ibid: 99). But Ceará also pioneered decentralised and participatory management, water as an economic good, integrated water management at the basin level, water resources plans etc. So, the State has acquired a stance on water issues at the national level that helped back its demands relative to supplementary water flows.

A short history of the project

The idea of diverting part of the waters of the São Francisco River northwards to the semiarid is not new.²⁰ It emerged at the beginning of the 19th century. Discussions and project propositions are documented under Dom João VI (1816-1825). The idea was debated at the parliament in 1845, and it increasingly mobilised the elites of Ceará state (the state potentially most interested in the diversion of water from the São Francisco). The first true project is the one presented by the engineer and Ceará representative Marco Antônio de Macedo to the emperor Dom Pedro II.²¹ The latter was interested by the idea, so he ordered that studies on the São Francisco be made. A report was published but the idea to divert water to the Jaguaribe River was discarded by the parliament. The idea came back to force at the end of the 19th century when drought struck hard. The Great drought of 1877 caused the death of

²⁰ More exhaustive historical accounts of the successive proposals of *transposição* can be found in Andrade (2006), Castro (2011), da Silva (2011), and Viana (2011).

²¹ The idea was to bring water from Cabrobó (Pernambuco State) to the Jaguaribe River, in the state of Ceará. This idea came into force in the currently implemented version of the project, through its Northern axis. But it is only a (small) part of the current *transposição* project.

half a million people and the displacement of 3 million. But by the time, relief interventions consisted in the building of reservoirs (*açudes*) and technical hardships were considered insurmountable (massive pumping was required to make water flow uphill). During the beginning of the 20th century, propositions were made by engineers of the then recently created IFOCS (*Inspetoria Federal de Obras contra a Seca* – Federal Inspection of Works against Drought) and later by experts of the DNOCS, but under Vargas policies, migration from the Northeastern *sertões* to neighbouring states (Piauí and Maranhão) was privileged. Progressively though, irrigation districts were settled in the Northeast under the supervision of DNOCS and SUDENE, so the need for increasing substantial and reliable water flows in the region kept alive the idea to import water from other river basins. The famous and influential economist (and once chief of SUDENE) Celso Furtado was no enthusiastic supporter of a *transposição*, but he happened to consider it a means to bring land redistribution to the semiarid region as a kind of 'byproduct' (Guerreiro, 2005). In the 1980s, the DNOS (National Department of Sanitation Works – *Departamento Nacional de Obras de Saneamento*) presented a project including the diversion of 800 m³/s during the four months of flooding in the São Francisco Basin. As plainly expressed by former DNOS engineer José Reinaldo Carneiro Tavares, the project was conceived "to irrigate the Northeast".²² The volume to be diverted was indeed high, so discussion with engineers of SUDENE led to downsizing in subsequent proposals (it is finally a long-term average of 63 m³/s that was agreed upon for the current PISF).²³ At that time, feasibility studies received technical aid and funding from the World Bank and the United States. The project was then proposed and discussed several times during the last decades of the 20th century, under Itamar Franco (1992-1995) and then Fernando Henrique Cardoso, with successive downsizings (from approximately 10% of São Francisco's average flow to approximately 1-2% only). The project was not definitely designed and adopted until Lula personally endorsed the realisation of the *transposição*. The conjunction of a developmentalist coalition around the PT Federal Government with a Nordeste President and Nordeste people at key positions (notably at the Ministry of Integration – *Ministério da Integração Nacional*²⁴) concentrated forces in favour of the *transposição* at the highest levels of Brazilian political system, so that a new Environmental Impact Survey (EIA/RIMA – *Estudos de Impacto Ambiental/Relatório de Impacto Ambiental*) was released in 2004 and defended against opposition by the then Minister of Integration Ciro Gomes, and the construction was launched (by the army) in 2007.

Compared with the versions proposed decades ago, the adopted project is less ambitious (in terms of volumes transferred), and it was substantially 'ecologised' (a whole revitalisation project and several environmental conservation programmes were added). After being named *Projeto de Derivação das Águas do Rio São Francisco para Regiões Semi-Áridas dos Estados de Pernambuco, Ceará, Paraíba e Rio Grande do Norte* (Project of Diversion of the São Francisco River Waters to the Semiarid Regions of the Pernambuco, Ceará, Paraíba and Rio Grande do Norte States), the project was officially called *Projeto de Transposição do Rio São Francisco com as Bacias Hidrográficas do Nordeste Setentrional* (Project of Transfer of the São Francisco River with River Basins of the Northern Northeast) and later finally *Projeto de Integração do Rio São Francisco com Bacias Hidrográficas do Nordeste Setentrional* (PISF) (Project of Integration of the São Francisco River with River Basins of the Northern Northeast). It is now (2016) called *Projeto de Integração do Rio São Francisco* (Project of Integration of the São Francisco River) or *Projeto São Francisco* (São Francisco River Project). The revitalisation part of the project (restoring the flora and fauna of the São Francisco, improving sewage and sanitation in the basin etc) is now put on an equal footing with the *transposição*.

²² José Reinaldo Carneiro Tavares, 'Energia Eólica, uma Grande Solução', Blog of the author, February 1, 2008.

²³ Cássio Borges, 'Sobre a transposição do São Francisco', ASSECAS, October 23, 2008.

²⁴ The *Ministério da Integração Nacional* is responsible for (among other things) the implementation of the National Policy for Regional Development (PNDR), the formulation and implementation of regional development programmes and the construction of water infrastructure against drought.

The adopted project is the following (*Resolução Federal Nº 411/2005*): a guaranteed (minimum) withdrawal of 26.4 m³/s (10 m³/s for the Eastern axis and 16.4 m³/s for the Northern axis), which corresponds to the forecasted demand in 2025 for human and animal consumption, and a maximum diversion of 127 m³/s, when the Sobradinho Reservoir is in favourable conditions. The infrastructure is made of 477 km of aqueducts and tunnels along two axes (East and North), to guarantee water security for 12 million people in 390 municipalities in the states of Pernambuco, Ceará, Rio Grande do Norte and Paraíba.²⁵ Construction is to be completed by early 2018.²⁶

Figure 3. Map of the two main axes of the PISF.



Source : MIN (2004).

The project is part of a wider effort by the Federal Government to develop water infrastructure in the Northeast with, for instance, the reservoirs Santa Cruz (on the Apodi River), Acauã (Paraíba River), and Castanhão (Jaguaribe River). These are infrastructures to be articulated with the *transposição*, as the state infrastructure investments of the Castanhão Canal (interlinking of the Castanhão Reservoir with the metropolitan river basins of Fortaleza [Ceará]), the Redenção Canal or many irrigated areas.

²⁵ www.mi.gov.br/web/projeto-sao-francisco/entenda-os-detalhes (accessed 17 December 2016)

²⁶ As of December 2016.

The hydraulic mission at its apogee?

Big hydraulic infrastructure has long been built by governments not only to ensure water security and to boost development, but also to gain political power and legitimacy (McNeill, 2000). The *transposição* is viewed by many experts in hydrology and environmentalists as a continuation of the age-old logic of increasing water supplies by investing in costly infrastructure in the Northeast, following primarily ideological and political goals. Hundreds of reservoirs were built in the semiarid under the heading of the DNOCS, but they have been poorly managed and they do not deliver water to those who need it most. The long and complex conflict spurred by the *transposição* reveals the limits of the new water management institutions. The problem of representativeness of diverse actors is compounded by the unprecedented scale at which governance is to be implemented in the case of an inter-regional and inter-state infrastructure.

As explained *supra*, the Brazilian water sector has undergone important evolutions since the 1990s: 'subsidiarity' as a key principle in water resources management in a federal context (1988 Constitution), the 1997 Water law (demand policies, cost recovery, basin-scale management etc), the creation of water Agencies (*Agências da Água*) and Basin Committees (*Comitês de Bacias Hidrográficas*, CBH). Basin Committees have important but limited powers, the executive bodies being Water Agencies. In 2000, the Federal Law No. 9984 created the National Water Agency (*Agência Nacional das Águas*, ANA). CBHs must include representatives of the public sector (maximum 40%), civil organisations (minimum 20%) and water users (maximum 40%). This is not the case in other water-related institutions. Indeed, within the National Council for Water Resources (*Conselho Nacional de Recursos Hídricos* – CNRH), the executive body in charge of national water policies, 29 out of the 57 members of the Council were representatives of federal ministries by the time the *transposição* dispute was settled. Whereas River Basin Committees have deliberative powers (besides advisory and consultative functions), their decisions can be annulled by the Council in case of appeal (the Council is hierarchically superior to the Committee). The final decision in favour of the *transposição* was actually taken in the CNRH and it bypassed the São Francisco River Basin Committee (CBHSF)'s deliberation, which raised protest on the part of members of the CBHSF and social movements engaged against the project. Such results are in line with research on the politics of participatory basin-scale management in Brazil. The engineers and technocrats who promoted the new system tried to insulate it from politics, hoping to establish 'depoliticised' participatory river-basin governance (Abers and Keck, 2006). But this ideal was hardly achieved in any river-basin committee. Most of them are still in a construction phase, while many are still to be created. Moreover, the Brazilian case shows that even though water resources management is theoretically decentralised and participatory, it is very difficult to get rid of the inheritance of a paternalistic state that maintains close links with dominant groups and local elites (Fracalanza and Campos, 2010).

When the decision was taken, the government had chosen to publicly fund the entire investment. The traditional source of funding for big water infrastructure in developing countries, the World Bank, decided not to take part in the financing of the *transposição*. The Bank had been investing extensively in water infrastructure in the Northeast of Brazil but it did not support the *transposição*. Although Brazil entered negotiation with the World Bank under F. H. Cardoso's presidency and received technical advice from the Bank, the financial institution finally stepped back.²⁷ Later, a confidential document was released, presenting criticism from a World Bank team on the *transposição* project: among other limitations, it would have little impact on poverty, aim high-tech commercial purposes, and do little to relieve water scarcity in the semiarid. Such doubts about the necessity of the *transposição* were reiterated in official documents (Banco Mundial, 2005).

²⁷ According to some, because it was not considered an economically viable project.

<http://noticias.terra.com.br/brasil/noticias/0,,OI466006-EI306,00-Transposicao+do+Sao+Francisco+e+inviavel+diz+Bird.html>

MULTIPLE OPPOSITION LINES

The *transposição* conflict is a case of socioenvironmental conflict that is quite different from the typical situation with local (often indigenous) people opposing a big construction company eager to make money with the exploitation of natural resources at the 'extraction frontier' (Martínez-Alier et al., 2010). It is a very complex intermingling of actors at several scales, of interests (of different nature) and of constituencies. The Federal government,²⁸ allied with some state governors and representatives, with (only part) of its political base and a fraction of the water management community, has confronted several state governors and representatives, a wide array of NGOs, social movements and scholars (geographers, hydrologists, agronomists etc) and an eclectic group of politicians of all parties.

The geographical situation undoubtedly explains much of the actors' standpoint on the *transposição*.²⁹ Those inside the receiver area are in favour, those in the donation area are against, and those outside these areas are more often neutral. Tellingly, the PT of Bahia was against the project, while the PT of Paraíba was in favour. For de Castro (2011), the front line passes between donor states (Alagoas, Bahia, Minas Gerais and Sergipe) and receiver states (Ceará, Paraíba, Pernambuco, Rio Grande do Norte). The conflict about the *transposição* would boil down to a dispute for Federal resources. Political parties in Ceará (PMDB, PTB, PT...) have mostly backed the *transposição*, while in Minas Gerais they campaigned against it. Consensus has however not been reached, even within the PT. As far as leftist parties are concerned, debate has been raging for a long time to settle an official line, and diverse positions were adopted. Many PSOL and PT members voiced their concern about the project, but no clear-cut and widely agreed position was found.

It is in Minas Gerais that the most active anti-*transposição* movement emerged, notably with the Rio das Velhas Basin Committee (CBH *Rio das Velhas*; an affluent of the São Francisco River) and the Manuelzão Project (*Projeto Manuelzão*), led by professors of the Federal University of Minas Gerais (*Universidade Federal de Minas Gerais* – UFMG). Their viewpoint is that the project is not necessary, that the wrong reasons for its implementation are given and that the revitalisation of the São Francisco (*revitalização*) should be engaged before considering the possibility of *transposição*. The *revitalização* project is a long-awaited project to tackle the many socioenvironmental issues at stake in the São Francisco basin: alluviation, pollution (scant sanitation in riparian settlements), degradation of riparian flora and fauna, degradation of riverbanks, decreasing water flows etc. The project would entail billions of Reais and span several years to 'give back life' to the river and its riparian people. It would necessitate *revitalização* of major tributaries like the das Velhas River (*rio das Velhas*) in Minas Gerais state. After a long struggle to make the *revitalização* a priority before any *transposição* could be made, the Federal government endorsed a project of *revitalização* as a complement to the *transposição*. As it appears clearly through many sources, the *revitalização* project was not really considered until the *transposição* was decided: that is why it is viewed by many observers as a mere compensation, a 'gift' to donor states and defenders of the São Francisco Basin.³⁰

State governors of Minas Gerais have also sided with opponents to the project: they have been waiting for the *revitalização* and they fear that new water uses downstream will constrain uses upstream. State governor Antonio Anastasia went so far as to say that the *transposição* is an environmental crime against Minas Gerais.³¹ Many politicians from other donor states have voiced their

²⁸ The government is however not monolithic and has entertained diverse views on the topic.

²⁹ IHU Online, *Transposição do Rio S. Francisco: 'Vai usar a água quem estiver mais organizado'*. Entrevista especial com Pedro Costa Guedes Vianna, April 13, 2007.

³⁰ This view is supported, among many other testimonies, by the Federal Court of Accounts (*Tribunal de Contas da União*) in an auditing document about the *revitalização* (TCU, 2012).

³¹ 'Anastasia diz que transposição do Rio São Francisco é um crime ambiental contra MG', Blog of Minas Gerais PSDB, August 15, 2010.

opposition. It is the case, among many others, of the governors of Alagoas (Teotônio Vilela Filho) and Sergipe (João Alves Filho) (Alves Filho, 2008). They have argued that the river mouth of the São Francisco is in a dire condition and no further reduction in its natural flow is tolerable. In Bahia, most people have also sided against the *transposição*, like Jorge Khoury, former Secretary of the Environment of the state of Bahia and former President of the CBHSF. On the other side of the conflict, Ceará representatives have been at the forefront of lobbying in favour of the *transposição*. It has been the case of Lúcio Alcântara, governor of Ceará and member of the PSDB (*Partido da Social Democracia Brasileira* – Party of the Brazilian Social Democracy, one of the main Brazilian political parties, opposed to the PT³²) and of Ciro Gomes, former governor of Ceará and Minister of Integration (in charge of the *transposição*).

On the side of the resistance against the *transposição*, beyond members of donor states, one finds a broad convergence of NGOs and CSOs, including some powerful ones in the Brazilian landscape, as the MST (*Movimento dos Trabalhadores Rurais Sem Terra* – Landless Workers' Movement), the MAB (*Movimento dos Atingidos por Barragens* – Movement of people Affected by Dams), the ASA (*Articulação do Semi-Árido* – A federation of organisations operating in the semiarid), the Cearense front for a new culture of water and against the transfer of the waters of the São Francisco River (*Frente Cearense por uma nova cultura da Água e contra a transposição das águas do Rio São Francisco*) and various smaller organisations (religious groups, indigenous and Quilombola communities, fishermen associations etc), many of which gathered in the 'Caravan for the defence of the São Francisco River and the semiarid and against the *transposição*'. They formed a resistance network that is quite exceptional in terms of social and political diversity. They also made themselves heard within the arena of the CBHSF.

The Catholic Church was also profoundly shaken and divided by the *transposição*. While the now famous Frei Dom Cappio (Bishop of Barra, Bahia) led the movement against the project and went so far as to do a hunger strike in 2004 and again in 2007, he did not receive official backing from the National Conference of Brazilian Bishops (*Conferência Nacional dos Bispos do Brasil*, CNBB).

The main lines of argument

The São Francisco River, the '*rio da integração nacional*' ('national integration river'), is an administratively and politically undisciplined river, which transcends state and political boundaries. The two key issues are: is there a real and proved need for importing water from another basin in the states of Ceará, Paraíba, Rio Grande do Norte and Pernambuco? Is there a possibility to add to existing uses of the waters of the São Francisco another use, outside the basin? To the first question, representatives of the Federal Government and of the receiver states quite invariably answer positively. There is a clear need to import water, and it will increasingly be the case in the near future. The UN figures are often cited (1500 m³/capita/year). The 'narrative of scarcity', which has long been used to legitimate modernist responses of infrastructure building (Swyngedouw, 1999), has been abundantly mobilised to promote the *transposição* project, not least by president Lula. The very impact evaluation report reinforces the idea that the semiarid is caught in a natural determinism by presenting its problems as predominantly water-led (instead of being determined by antiquated power relations between social strata) and suggesting that without the *transposição* the region is bound to remain in a state of underdevelopment (MIN, 2004). In the scenarios for the future development of the region it displays, no one is '*convivência*'³³ (living with the semiarid) accompanied with profound changes in the political and agrarian structures of the region.

³² See Alcântara (2006).

³³ '*Convivência com o semiárido*' has become the motto of social mobilisations against the *transposição*. It has finally been integrated in official discourse and policies for the Northeast, including the Integration Ministry – the institution responsible

Representatives of the donor states, of the lower reach of the São Francisco River, as well as a great number of CSOs and NGOs, answered negatively. There is plenty of water, but it is neither effectively distributed and managed nor equitably shared. The people of the São Francisco River are against *transposição* because they think the water will not go to poor people but to agribusiness. From the critical standpoint shared by many NGOs and grassroots organisations,³⁴ the *transposição* is viewed as a tool to integrate peripheral regions (the interior of Northeastern states) to the global market of commodities, or to the global circuit of capital accumulation (Acsehrad, 2001; Suassuna, 2010).

As far as the second question is concerned, representatives of the Federal Government and of the receiver states argue that diverted volumes represent only 1% of the average flow "that comes down to the sea", so it is just a drop of water. Representatives of the donor states and of downstream states of the São Francisco River argue that what is relevant is not the river's average flow, but the quantity of water that is currently available for extra uses once volumes already granted to water users within the São Francisco River basin are taken into account. Only 25 m³/s are available for new uses according to the 2004 Water Plan of the São Francisco River Committee,³⁵ which turns the 26.4 m³/s granted to the extra-basin uses of the *transposição* to an overdraft. Moreover, climate change is reducing the flowing volumes and once all the usable water is granted, no spare uses for further development of agriculture in the São Francisco River Basin will remain, which is a serious mortgage on the future of a poor region. But, as the pro-*transposição* camp points out, of the 330 m³/s already granted, only a tiny part is effectively used. So, the available water is much more than 25 m³/s, and current licenses will have to be re-examined on stricter grounds. Suassuna (2010) argues, first, that several cheaper alternatives exist to bring water to poor rural households, and second, that the dimensions of the canals (they can carry up to 127 m³/s, i.e. almost five times the requirements for ensuring drinking water to the targeted population) are a proof that they were purposefully devised to turn the *transposição* into a project to supply large-scale irrigation, notably in the state of Ceará. Additional proof of it would be the numerous projects of water development and of irrigation areas under consideration in Ceará.

Beside these arguments, opponents argue that impact evaluation was done disregarding the interests of the São Francisco Basin people and of Minas Gerais state, while inflating benefits and downplaying costs.³⁶ It is true that the second (and last) impact evaluation report grossly disregarded impacts upstream of the derivation canals, especially constraints to be felt in Minas Gerais (MIN, 2004).

The São Francisco Basin Committee: The muddy waters of fuzzy multiscalar politics

The complex politics of Brazilian River Basin Committees have been well described in recent academic work (e.g. Abers and Jorge, 2005; Abers and Keck, 2006; Abers and Keck, 2013). The role played by the CBHSF in the *transposição* saga is particularly complex since the committee was a baby when it took part in the debates and it was confronted with a truly unprecedented problematic.

for the *transposição* project (DNOCS, Ministério da Integração discute Conferência Nacional sobre Convivência com a Seca, 29 November 2013).

³⁴ Comissão Pastoral da Terra (CPT), Fundação Nacional do Índio (FUNAI), Permanent Forum for the Defense of San Francisco, Movimento dos Atingidos por Barragens (MAB), Manuelzo Project, Indigenous Associations and Organisations of Pernambuco, Bahia, Paraíba and Alagoas, Popular Articulation for the Revitalisation of the So Francisco River, Via Campesina, The Bahia Engineering Union, National Forum for Agrarian-Reform and Justice in the Countryside, Plataforma Dhesca Brasil – Rede Nacional de Direitos Humanos, Frente Cearense por uma nova cultura da Água e contra a transposição das águas do Rio São Francisco...

³⁵ The decision about the remaining 'allocable' flow of water (*vazão alocável*) in the São Francisco Basin has lent itself to much debate inside the Committee. It had to consider, among numerous parameters, all the already granted volumes of water to the diverse water users (hydroelectric companies, farmers, sanitation companies etc.), the agreed ecological flows (*vazão ecológica*) at the river mouth, and perspectives of water development within the watershed.

³⁶ The political economy of social and environmental impact assessment of large infrastructure in Brazil has been extensively treated by Philip M. Fearnside in the case of dam decisions and impact assessment in Amazonia (see, e.g., Fearnside, 2013).

According to the Federal Law nº9.433/1997, water use licenses must respect the water use priorities established in the water resources plans, the latter being approved by basin committees. The CBHSF approved a plan (CBHSF, 2004) with only little volumetric space for extra-basin uses of the river's waters, and with the conditions that any water diversion out of the basin should be 1) restricted to cases of proved scarcity in the receiving basin(s), and 2) restricted to the supply of human and animal consumption (uses of diverted water as productive input are not allowed) (CBHSF, 2004: 147). The possibility of a *transposição* following economic development ends was thereby repealed.

The CBHSF therefore positioned itself clearly against the project as it was proposed, and members of the committee, even if not all on the same line, were mainly disapproving the transfer. But after a period of struggle against the Federal Government, it set up to a more conciliatory posture, by entering in the management council of the *transposição*.³⁷ The opposition between the CBHSF and the Federal Government was at its highest between 2004 and 2007, as it felt that its views, as expressed in the democratically built Basin Plan (*Plano de Bacia*), were overlooked by the federal power. It is the feeling of many observers that the deliberation of the CBHSF was violated since interbasin transfers were permitted by the committee only in case of proved needs for human and animal consumption (Khoury, 2008). As Caubet and Araújo (2004) argue,³⁸ the decision to approve the *transposição* project was a legal *coup de force*: while the recently adopted water law of 1997 called for decentralisation, wide stakeholder participation and basin-scale governance, the Federal Government decided to settle the issue in the National Council of Water Resources (CNRH), within which it enjoyed decisional power.³⁹ All court cases (many of which, filed by the *Ministério Público* of Bahia state) were settled by the STF (*Supremo Tribunal Federal* – Supreme Federal Court) in favour of the Federal Government, so that the works could be started in 2007. So, in the absence of an interstate committee to settle disputes over the São Francisco waters between Nordeste states, the bargaining was left to the Federal Government and to the National Council of Water Resources (*Conselho Nacional de Recursos Hídricos* – CNRH). In a study about the functioning of the CBHSF, de Freitas (2015: 299) argues that "capture of new governance spaces and the (re-)embedding of state authority in both new and old institutions dominated by traditional elite agendas has helped to reiterate a state – society relationship that benefits the traditional elite and allows them to (re)produce favourable socio-natural conditions". So, the reforms aiming at decentralising environmental policies, and especially those in the water sector, have not come so far as to question the government's hold on strategic issues. De Freitas cites a federal government representative: "the federal government will go 'all in'" on projects it deems important and if "the committee says 'no, we're against this', will the president of ANA refrain from authorising the allocation [of water resources]? Maybe. Maybe not". The case of the *transposição* illustrates that the 'not' is probable. But despite such control, the CBHSF has played a role by advancing the ideas and interests of affected communities and activists and by challenging the official agenda of big infrastructure and water for agribusiness (de Freitas, 2015).

³⁷ It is only in 2014 that the CBHSF joined the Managing Council of the Management System of the Project for the Integration of the São Francisco River with River Basins of the Northern Northeast (*Conselho Gestor do Sistema de Gestão do Projeto de Integração do Rio São Francisco com Bacias Hidrográficas do Nordeste Setentrional* – CGSGIB) created in 2006 and responsible for the shared governance of the PISF between federal entities and donor and receiver basins.

³⁸ This is also what transpires from our interviews with key actors of the debate, whether they are former CBHSF members or non-members.

³⁹ As pointed out more generally by Zhouri (2015), participation in decision about large projects is recognised in Brazil, but it has ambiguous democratic effects.

An analysis of the interplay of actors and discourses

Narratives of scarcity are pervasive in the water management sphere, especially when big infrastructure is at stake.⁴⁰ Brazil is no exception as far as the *transposição* is concerned, and the social construction of scarcity, including by the language, is at play in ways very similar to those in other water settings (see, e.g. Aguilera-Klink et al., 2000; Mehta, 2001, 2007; Kaika, 2003; Bakker, 2009; Buchs, 2012; Crow-Miller, 2015).

The *transposição* is officially *not* a project aiming chiefly at developing the Northeast 'in an economic sense'. Its purpose is to ensure water security for millions of people, mainly urban inhabitants. It is therefore no surprise that careful use of the word 'development' is made by state officials and the personnel in charge of the project to downplay its economic part. As the water diverted is intended to be used for human and animal consumption (these are the only uses for which out-of-basin diversions have been allowed by the CBHSF), and other uses are allowed only if the São Francisco is in good hydraulic shape, the very nature of the *transposição* is not supposed to be developmental (i.e. not meant to help develop export-oriented irrigated agriculture or industrial activities). This precise point is exactly what is contested by opponents (see, e.g. Suassuna, 2010): the 'social' discourse ('*matar a sede dos sertanejos*' – 'abolishing thirst for people of the *sertão*'⁴¹) is at odds with the fact that only a tiny part of the diverted waters is destined to poor and drought-stricken *sertanejos* (MIN, 2000, 2004). Only 4% of the diverted waters are destined to scattered people, 26% go to urban uses (industrial and residential) and 70% to irrigation. But as it was predicted by Brazilian geographer Pedro Costa Guedes Vianna, and as it can be seen at a time when water is just starting to flow in the *transposição* canals,⁴² water will probably be used by the most powerful and best organised.⁴³ Lula himself recently warned against massive use of diverted water for irrigation purposes, and he reasserted that the *transposição* should play a *social* role.⁴⁴ This may be viewed as confirmation that the *transposição* was launched (in 2007) with hardly any certainty that complementary and capillary infrastructure at the canals' ends will be ready to bring water to where it is most needed.⁴⁵

Articulated to the 'redemption' discourse ('the infrastructure will change the face of the semi-arid', or '*o sertão vai virar mar*' – 'the *sertão* will become a sea'⁴⁶) is the discourse of geographical equity. On the one hand, the São Francisco Basin is water-'rich'. The alleged inexpressiveness of the amount of water diverted from the São Francisco is often implied through formulations such as 'waters withdrawn from the river amount to only 1 or 2% of the water running to the sea'. It would represent the extraction of a mere drop in a great volume of water uselessly dumped to the sea. On the other hand, the northern Northeast region is water-'poor'. Former Minister of Integration Ciro Gomes declared:

The Brazilian Northeast (...) benefits from only 3% of the water resources present on the national territory. And, more serious than that (...), the São Francisco River concentrates 70% of all the water in the

⁴⁰ For an account of 'drought discourses' in the Northeast, see Carvalho and Espíndula (2014) about the *transposição* and da Silva and Nobre (2017) about the Ceará water belt (*Cinturão das Águas do Ceará*).

⁴¹ *Sertão* is a word commonly used to designate the vast hinterland of north-eastern Brazil.

⁴² As of April 2017.

⁴³ IHU Online, *Transposição do Rio S. Francisco: 'Vai usar a água quem estiver mais organizado'*. Entrevista especial com Pedro Costa Guedes Vianna, April 13, 2007.

⁴⁴ www.blogdomagno.com.br/ver_post.php?id=173622

⁴⁵ This was pointed out as early as in 2009 when the ANA issued a critical report on the (lack of) advancement of necessary institutional and material infrastructure to 'welcome' the *transposição* in the receiving States (ANA, 2009). As of April 2017, water is being delivered in the Jaguaribe river basin with very little infrastructure to distribute it to scattered households (*população difusa*).

⁴⁶ It is the motto for success that Lula is using, as water from the São Francisco is finally arriving in Pernambuco, Ceará and Rio Grande do Norte. www.blogdogsilva.com/2017/03/pelas-redes-sociais-lula-cobra.html

northeastern territory. (...) The Northern Northeast region does not have any important perennial river. (...) It is this deficiency that we intend to address with the water of the São Francisco, thanks to human ingenuity and to the firm political decision made by President Lula, and upheld by this gift from God (Câmara dos Deputados, 2005: 12).

The growing imbalance in supply-demand of water is very often the key argument (Mello, 2008). This imbalance is caused by natural imbalances, i.e. unequal repartition of water on the territory. The *transposição* would be a means of reducing nordestine migrations to the Southeast region and to São Paulo. As the river had always been the river of national integration, being against the project would mean to oppose national unity and integration following regionalist and/or particularistic strategies.

In line with such public understatement of the economic dimension of the project and emphasis on equity considerations, one may argue that most proponents of the *transposição* have resorted chiefly not to the 'industrial' justification order (or 'cité', to use the vocabulary proposed by Boltansky and Thévenot, 1991) but to the 'civic' justification order. It has oftentimes been argued that the project was 'technically perfect',⁴⁷ but the discourse of solidarity (between water-rich and water-poor regions) and equity (between states) has clearly outweighed the discourse of technical achievement and development of productive forces.

The opposition by CSOs, including foreign ones,⁴⁸ was publicly interpreted as interference in national affairs. It was also considered as a coalition of particular interest groups opposing public Brazilian interest. So, opponents were blamed for promoting vested interests and/or foreign environmentalist agendas (advocacy), against the general good for Brazilians (legitimacy). Along this line, it was oftentimes noted by project proponents that democratic debate is biased in favour of a few lousy opponents and against the silent majority⁴⁹ (millions of people in the *semiárid*).

Distributional ambiguities

The social narrative vs. developmental narrative issue is directly related to long-standing distributional ambiguities at the heart of the project. How much water is to be diverted, and whom will it (truly and precisely) benefit? The early version of the project, designed under President Fernando Henrique Cardoso (FHC) (Lula's predecessor), was more ambitious (64 m³/s) and openly directed to the development of irrigation in the Northeast (71% of diverted water to irrigation, 25% for urban consumption and 4% for leakages and other consumption) (Andrade, 2002; Mello, 2008). The objective was to replicate the successful example of Petrolina and Juazeiro (cities enriched by tropical agriculture on the São Francisco River), and maybe also to turn the Northeast into a 'new California' (Broggio and Droulers, 2000). But since the FHC project, ambiguity has been maintained about who was going to receive the water (Mello, 2008). The pro-irrigation and pro-developmental aim was not clearly stated. According to Mello, "The discourse of the Fernando Henrique Cardoso government oscillated in the

⁴⁷ See, e.g., the arguments of the economist and ex-Minister of Integration Pedro Brito (www.agr.feis.unesp.br/fsp20fev2005.php), of the professor in geology and water resources at the University of São Paulo Uriel Duarte (www.rodaviva.fapesp.br/materia/158/entrevistados/debate_transposicao_do_rio_sao_francisco_2005.htm), or Sarmento (2006).

⁴⁸ To cite just a few: Via Campesina, Greenpeace, International Rivers, WWF (which published a critical report on inter-basin water transfers in 2007, including the *transposição* case) have voiced doubts about the opportunity to divert waters from the São Francisco and/or support for the opponents' actions against the project. International recognition of the struggle against the *transposição* reached its apogee in 2009 when bishop Dom Cappio, who became famous for his 2007 hunger strike against the *transposição*, received the Kant-World-Citizen-Prize by the Freiburg Kant Foundation. www.cptne2.org.br/index.php/publicacoes/noticias/grandes-projetos/2286-greenpeace-apoia-greve-de-fome-de-d-cappio <https://ejatlas.org/conflict/deviation-of-the-sao-francisco-river-brazil>

⁴⁹ The noisy minority vs. mute majority interpretation was proposed by Briscoe (2010) to account for the success of the anti-dam movement.

public definition of the direct beneficiaries of the project of *transposição*. In some moments, the central objective of the project was defined as guaranteeing water for big projects of export-oriented irrigated agriculture. However, in other moments, the government produced discursive strategies for occulting such an objective, defining that the objective of the project would be guaranteeing the 'water supply', without specifying its final uses" (Mello, 2008: 112, our translation). Our analysis of the *transposição* case brings us to a similar conclusion about the vagueness in the definition of beneficiaries of the project. Nevertheless, the long struggle between the government and the opponents to the project (especially inside the São Francisco Basin Committee) spurred a process of modification of the parameters of the project and forced the project's proponents to provide more detailed information about 'who will get what'.⁵⁰

In terms of communication, there is a clear discrepancy between the real beneficiaries of the *transposição* and what was shown in official videos and documents (including the EIA/RIMA), namely small family peasants on the margins of the canals who benefit from piped water for consumption and small-scale agriculture. Thus, the project is really sold as a 'social' project to help poor *sertanejos* and *nordestinos* to overcome water scarcity and to gain 'dignity'. But the great bulk of the transferred waters will benefit urban people (in the metropolitan area of Fortaleza), industrial activities and possibly export-oriented irrigated agriculture. This is not the kind of images conveyed by the official material supporting the project of *transposição* – no large-scale irrigated tropical fruit plantation and no inhabitant of Ceará capital city Fortaleza. The ex-Minister of Integration Ciro Gomes himself blamed the PT for using purposely and misleadingly the idea that the *transposição* would eradicate drought in the Northeast. So, reference to the poor has clearly been excessively used to justify such a huge project, in ways that recall old Nordeste redemption narratives and prophecies of divine providence. It is therefore no surprise that the social character of the *transposição* has been widely and recurrently criticised by experts of the semiarid region as misleading (Suassuna, 2010). Anyway, only a small part of the water will go to poor families of the *sertão*, and only a small part of these families is attended by the project.⁵¹ The presence of water on the territory is actually *not* the principal reason for water vulnerability on the part of poor rural households. The problem is one of access,⁵² embedded in complex sociopolitical structures. So, the old problem of the *carro-pipa* will probably not be solved. The water distribution systems necessary to better supply small communities and urban centres are to be realised by state governments and (mostly State) water supply companies, with some financial aid by the Federal Government, but much time is required, plans are lacking, and uncertainties remain concerning who will really benefit from the diverted waters.

Despite all this, the government did engage in an ambitious *revitalização* project to improve the quantity and quality of water in the São Francisco River Basin. According to the Federal Court of Accounts, more than R\$6 billion had been spent by 2011 (TCU, 2012), and according to official sources, another R\$6 billion is to be spent by 2026.⁵³ But according to CBHSF's president Miranda, it is very hard

⁵⁰ The way the government (partly) integrated the critics' concerns in the project's design is well illustrated in Ciro Gomes' public speech behind the Brazilian Chamber of Deputies (Câmara dos Deputados, 2005).

⁵¹ The fact that the operation and management of the *transposição* was during some time attributed to CODEVASF, the federal institution responsible for irrigation in the São Francisco Valley, is one more argument supporting the idea that the project was designed to promote agribusiness in the semiarid.

⁵² In an interview with the FIEC review (*Federação das Indústrias do Estado do Ceará* – Federation of Industries of the State of Ceará) about water management in Ceará, the president of COGERH (*Companhia de Gestão de Recursos Hídricos* – Ceará State Water Resources Management Company) Francisco Rennys Aguiar declared that if water management in Ceará is performed and reservoirs are almost full but the issue of access to water remains, it is because "important financial resources are needed in the short run to supply all communities of the scattered rural population". Such an argument sheds doubt on the idea that the prime reason for poverty and underdevelopment in the Brazilian semiarid is the lack of water.

⁵³ www.brasil.gov.br/infraestrutura/2016/09/revitalizacao-do-rio-sao-francisco-recebera-r-6-bi-em-recursos-ate-2026. Former President Lula promised that for every Real spent for the *transposição*, one Real would be spent for the *revitalização*.

to monitor how much is really spent on *revitalização* (every investment in *municípios* inside the river basin can be labelled '*revitalização*'). In any case, the relation between *revitalização* and *transposição* is one of complementarity, but not necessarily of the type 'demand-based' vs 'supply-based' solutions to water scarcity. Firstly, because they cover distinct geographical areas. Secondly, because the *revitalização* is thought of as a quantitative and qualitative prerequisite of the *transposição*: it is necessary for the Velho Chico to recover its waters' quality and flow to be a reliable source of water for distant river basins of the northern Northeast.⁵⁴ One could therefore argue that in this case, environmental interventions and improvements support infrastructure development for supply-side management of growing demands.

CONCLUSION

The PISF is the largest project of water infrastructure in Brazil, within the National Policy of Water Resources. Although its dimensions have been reduced in its last versions and a *revitalização* part was added to the project, it is still a megaproject involving hundreds of kilometres of concrete, tunnels of hundreds of kilometres of high-voltage power lines, pumps, and reservoirs. Long-awaited and considered as the Northeast's 'redemption' by some, it has been the object of heated debate and many observers still consider it a 'white elephant'.⁵⁵ Ten years after the start of the works, it has indeed not yet delivered much in terms of water security for inhabitants of the Brazilian semiarid. The final adoption of the project amid harsh criticism reveals not only the power of interests linked to big infrastructure and probably agribusiness, and of political elites in the Northeast, especially Ceará, but also the role of the developmental convention at play since the early 2000s in Brazil. The Brazilian government has revealed its will to bring the (federal) state back into development policies and to meet the demands of powerful political and economic elites while not alienating its social base and civil society organisations. The evolution of the project during the years of overt conflict and the adoption of a 'companion' *revitalização* project alongside the *transposição* reveals (if not the increasing weight of 'soft' paths to water security in Brazil) the increasing difficulty to impose megaprojects of infrastructure in the Brazilian society and the (still limited) influence of civil society in development choices. But whereas one could interpret the *transposição* 'saga' as a supply-side moment which spurred so much debate, mobilisation, conflict and evolution in public policies that huge hydraulic solutions are coming to an end, new projects to divert water from the *old chico* along a Southern axis to Bahia and a Western axis to Piauí as well as calls for transferring waters from Tocantins River to the São Francisco⁵⁶ may be early signs of generalised interstate bargaining for securing water for economic purposes whatever the costs.

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⁵⁴ This is clearly stated in TCU (2012).

⁵⁵ White elephants, i.e. "investment projects with negative social surplus" (Robinson and Torvik, 2005) have their economics: Robinson and Torvik "show that white elephants may be preferred to socially efficient projects if the political benefits are large compared to the surplus generated by efficient projects". This is in line with arguments made by research in management of megaprojects (see, e.g., Flyvbjerg, 2014).

⁵⁶ The drought of 2012-2015 in the Brazilian Northeast and its heavy repercussions on the São Francisco River cast doubt on the feasibility of diverting an average 60 m³/s out of the basin in the years to come. So, diverting water from the Tocantins would help.

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