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Revealing Curitiba's flawed sustainability: How discourse can prevent institutional change

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ABSTRACT

The city of Curitiba, Brazil, is considered an exceptional model of sustainable urban planning. It has received praise for its invention of the Bus Rapid Transit System and numerous awards identify Curitiba as one of the world's greenest cities. Controversial elements have, however, been left out of this hegemonic city discourse, along with inevitable new challenges. The aim of this article is two-fold. First, we assess whether Curitiba is living up to its reputation as a leading sustainable city by analyzing three areas of urban sustainable development: green spaces, water bodies and public transportation. We show how Curitiba experiences problems ranging from social exclusion resulting from green space policies, to polluted water bodies and hampered planning in the area of public transportation. Second, we examine how the Curitiba discourse as a leading sustainable city is able to endure in this changed material context. We demonstrate how this hegemonic discourse prevents institutional transformations: the discourse becomes reproduced by powerful networks and propaganda, masking new unsustainable realities and by the same token preventing fast and successful institutional renewal.

1. Introduction

Curitiba, capital of the southern Brazilian state of Paraná, is recognized regionally, nationally and internationally as an exceptional model of sustainable city planning: an "archetype of urban development, the ideal image of what a livable city should be" (Macedo, 2004: 537). Such storylines, illustrating its sparkling trajectory, are reiterated as hymns of praise and translated into epithets by itself and by others (Editorial, 2011; Marchiori, 2014). Curitiba has been referred to as, among others, the ecological/green capital, social capital, model city, the city for all, and the human city.

Its refined status is also reflected in at least 53 awards over the last 25 years, the majority acknowledging environmental and broader sustainable development efforts (IPPUC, 2015a). Among these are: the *Global Sustainable City Award 2010*, recognizing Curitiba's "maturity in their understanding of sustainable city development" (Globe Award, 2015); the *Global Green City Award 2012*, organized by the Global Forum on Human Settlements and supported by the United Nations Environment Program; and the *World Habitat Award* for Urban Management, to which it was a winner and a finalist on different occasions. These awards have praised Curitiba on a number of topics, ranging from social housing and policy efforts to create and protect green spaces for a livable city, to innovations in public transport and waste management.

The 1970s was a critical decade influencing Curitiba's city planning trajectory. The Curitiba Master Plan was implemented, after years of discussions and research carried out within the Curitiba Research and Urban Planning Institute (IPPUC, hereafter the Planning Institute), resulting in major infrastructural works. Transportation and land use were jointly-addressed, changing the city's growth orientation from radial to linear: mixed-use arterial corridors concentrated settlement along structural axes (see Fig. 5), reducing overpopulation in the city center. The planning structure also prescribed areas exclusively for pedestrians, the creation of public green spaces and renewed the urban landscape to support social projects. After the 1970s though, a different urbanism was pursued, with isolated projects emphasizing form over function. This second wave saw several city landmarks constructed (e.g. Botanical Garden, Wire Opera House) contributing to local identity, attractiveness and publicity.

However, while Curitiba has earned its reputation through these

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developments, they are handpicked aspects of a wider reality: controversial elements, along in which new challenges were left out of the hegemonic city discourse. From the 1970s through the 1990s, Curitiba and its wider metropolitan region underwent one of the highest population growth rates in Brazil (COMEC, 2015). In 2015 nearly 1.8 million inhabitants reside in Curitiba; this doubles when its wider metropolitan region is included. Curitiba thus went from being a provincial mid-sized city in the 1960s (circa 360,000 inhabitants) to the eighth largest municipality in Brazil. It also has the highest rate of motorized vehicles per capita in the country and an alarming projection states that in five years its traffic will collapse if changes are not made (Prates, 2014; Santana, 2014).

Is Curitiba still the prototypical exception of sustainable city development, specially chosen by those eager to find flawless role models? Hence our first question asks whether Curitiba still lives up to its reputation. To explore this, we investigate three areas linked to sustainable city planning in Curitiba: green space, water bodies and public transportation. Our analysis shows that while Curitiba's image as a sustainable city endures, its material reality of sustainability has changed. Secondly, we question how Curitiba has been able to maintain its reputation as a role-model city, while its material reality has diverted from its sustainability reputation. To answer this, we engage discursive institutionalism, which centers on the role of ideas and discourse to account for institutional flux and change (Schmidt, 2010, 2008).

The article is divided into four sections. First, as a theoretical perspective, we engage with the school of discursive institutionalism and discuss how discourses can trigger and obstruct institutional change. Second, we assess three key domains of urban sustainable development in Curitiba. Third, through the lens of discursive institutionalism, we discuss how Curitiba has maintained its sustainable city image, while in reality its efforts towards achieving this are deteriorating. It closes with conclusions.

1.1. Institutionalism and social change

The central argument we develop in this article is that Curitiba's image as 'a role model sustainable city' has become so powerful and widely accepted, that the city has largely lost grip of its material reality. As we will demonstrate in the next section, Curitiba's performance on sustainable development is becoming increasingly flawed. Meanwhile, Curitiba's sustainable city discourse continues to become reproduced. To explain why Curitiba and the international community have not yet acknowledged the deteriorating state of Curitiba's performance on sustainability and taken action to address the problems at hand, we draw on the school of discursive institutionalism to show how ideas and discourse about Curitiba can prevent institutional change.

In the social science literature, institutionalism is increasingly used as a perspective or theoretical lens to study continuity and change in social systems. Usually three so-called neo-institutionalist schools of thought are distinguished (Schmidt, 2010:2): rational choice institutionalism focusing on the logic of calculation, historical institutionalism focusing on the logic of path-dependency, and sociological institutionalism focusing on the logic of appropriateness of socially-constructed and culturally defined norms and rules. While there are clear differences between the three, they share a focus on institutions that constrain change and explain continuity in social systems; meanwhile change is primarily seen as exogenous, coming from outside these institutions. In the institutional domain of sustainable development, such an exogenously triggered change could entail, for example, environmental institutions facing budget cuts and structural reorganization due to an economic crisis (Mol, 2009).

More recently, a number of institutionalists have started to explain the origin of, and shifts in, institutional change endogenously, concentrating especially on ideas and discourse. The argument is that institutions themselves are "the carriers of ideas or 'collective memories' which make them objects of trust or mistrust and changeable over time as actors' ideas and discourse about them change in tandem with changes in their performance" (Schmidt, 2010:9). Again applied to the case of sustainable development, this could imply, for example, environmental institutions obtaining a central role in urban planning because their underlying discourses and reproduced storylines provide policy-makers and politicians with the conviction that environmental policy-making is central to achieving urban sustainable development (e.g. Rana, 2009).

Scholars in this line come from various traditions, use distinct concepts, focus on different aspects (ideas, discourse, discursive practices) and use different labels (e.g. ideational turn, ideational institutionalism, constructivist institutionalism, discourse analysis, deliberative democracy, argumentative turn; e.g. Dryzek, 2000; Hay, 2006; Fisher, 2003; Blyth, 2002). Nevertheless, they are increasingly linked via a new fourth neo-institutionalist school: discursive institutionalism (Schmidt, 2010). Discursive institutionalism moves beyond the limits of the three other neo-institutionalisms by explaining change in modern institutions as being rooted in ideas, discourse and discursive practices endogenous to these institutions (e.g. Panizza & Miorelli, 2013; Schmidt, 2008). The analysis centers on the substantive content of normative and cognitive ideas, the representation of ideas through frames, narratives, collective memories, storylines and the like, as well as on the interactive, communicative and coordinating processes by which ideas are conveyed and exchanged through discourses, discursive practices and discursive communities. While highly varied, discursive institutionalism unites these by placing the role of ideas and discourse in politics central to provide an endogenous understanding of institutional change, rather than focusing on institutional continuity and constraints. It differs from the other three neo-institutionalisms in its definition of institutions, its object and logic of explanation, and in how it deals with continuity/change (Schmidt, 2010).

While discursive institutionalism brings refreshing insights and prevents us from interpreting institutions only in terms of continuity and persistence, or in terms of exogenous change, ideas and discourse do not necessarily have to be the origin of institutional change. As discursive theorists acknowledge, ideas and discourse can also be a source of continuity and persistence (e.g. Hajer, 1995), much in line with the other three neo-institutionalisms. We go one step further: the study of ideas, discourse and discursive practices is not only helpful in providing us adequate tools to signal, interpret and understand the nature and dynamics of institutional change taking place, but may even benefit our understanding of the lack and obstruction to institutional change. There is no theoretical prevalence, priority or preference for ideas and discourses to be always a leading or progressive force in institutional transformations. As argued by Hope and Raudla (2012:403): "In the same way that discourses can be formulated to drive progress on a policy issue, their very formulation can also be obstructive to action (…) Discourse can suppress the emergence of new interest coalitions, prevent the emergence of new norms and undermined the development of particular forms of institutions". Under specific conditions there may be key interests in maintaining hegemonic ideas and storylines, while realties are no longer represented by the dominant discourse. Through processes of framing of ideas and lock-in effects, a discourse can sustain and endure while realities have transformed. This blocks (much needed) institutional change. Hegemonic powers may have interests in maintaining dominant storylines, ideas or frames, to conceal the need for institutional

transformations.

1.2. Material reality

For our case of explaining institutional continuity and change related to urban sustainability, the material reality of sustainability has to be drawn into the analysis. In the field of environmental sustainability, most institutional analyses study the problem of institutional continuity and/or call (normatively) for institutional change. This is rooted in the broad agreement that the current institutional lay-out of modern societies is ill-equipped in handling current material unsustainability. There are still very few (best practice) cases where environmental scholars or environmental practitioners collectively call for institutional continuity so that the existing institutional lay-out may continue the currently existing preferential green materiality and development. Hence in the field of sustainability, advocates, discourse and practices of institutional continuity are most of the time in conflict with environmental advocates, discourse and practices for having too moderate/low sustainability ambitions.

In that sense, Curitiba is a unique case. It is renowned as a best practice city receiving global praise and wide discursive support for continuing its institutionalized sustainable development. Curitiba's hegemonic discourse has undergone several reinterpretations aligning with changing administrative aims, but until today it has not lost its "sustainable city" narrative from the 1970s–1990s. But, as we illustrate in the next section, Curitiba's hegemonic ideas and discourse no longer reflect contemporary Curitiba. The hegemonic discourse of a role model sustainability city then obstructs institutions to become successfully adapted and renewed: discursive institutionalism is then not about institutional change but about (undesirable) institutional continuity.

2. Assessing Curitiba's reputation of a sustainable city

In analyzing Curitiba's sustainability performance, three key domains of urban sustainable development are examined: green spaces, water bodies and public transportation. These three domains were selected for the following reasons. Firstly, Curitiba's water bodies are experiencing significant problems, namely regarding deteriorating water quality; however these problems have remained relatively hidden from international discussions and analyses of Curitiba's performance on sustainable development. In contrast, green spaces and public transport are selected precisely because Curitiba's performance in these domains is world-renowned (see e.g., Albuquerque, 2007; UNEP, 2009; UN Sustainable Development Knowledge Platform, 2011). Emerging problems in the latter two sectors will in particular challenge Curitiba's image as a prototype sustainable city. The analysis is based on secondary sources and official data from environmental and urban planning institutions and news media.

2.1. Green space

Although it is difficult to pinpoint the precise aspects that classify a city as "green" or "eco-friendly" Curitiba's green spaces are often mentioned to reaffirm the titles held by the city. The first green spaces — extensive parks and woodlands largely created between 1972 and 1982 — increased Curitiba's green area by 10 million m^2, representing a leap from 0.1 to 10 m^2 per capita (Oliveira, 1996). Approximately 20 relevant policies related to the protection, conservation, creation and recovery of green spaces have been deployed, some highlighted nationally (Panasolo, Silva, Peters, & Santos, 2014; Seraphim, 1996). Efforts in this area were constant and continuous, reinforcing Curitiba's symbol of

environmental care. Additional green spaces were created in recent decades, totaling an average of 64.5 m^2 per capita in 2010 (Scoz, 2012). However impressive, what does this mean?

Largely investment in parks was for flood control: floodwaters from rivers and creeks running through the city were diverted, collecting rainwater and runoff in urban lakes that were constructed in these parks (Oliveira, 2001). Recreational facilities around the urban lakes were also built, to deter irregular occupation[1] surrounding these water bodies. Green spaces also protect valley floors and riverbanks, while supporting political and socio-cultural aims (e.g. tributes to public figures or cultural representations of Curitiba's immigrant colonies).

However, not all Curitiba residents have equal access to green spaces in close proximity. Müller (2004) found through a series of interviews that around 54% of respondents affirmed using green spaces for leisure; however 46% did not, due to lack of proximity. When analyzing green space distribution by neighborhood, a deeper contrast is found: since the beginning of their creation the vast majority of green spaces are concentrated in one-third of the city, in the northern and south-western regions. The first consists of elite neighborhoods where green spaces are prevalent; the latter comprises some of the poorest neighborhoods with irregular occupations encroaching on protected areas surrounding Curitiba.

Significant discrepancies are also encountered regarding the total area of public green space per capita, and their distribution (see Fig. 2). Only 14 neighborhoods (18% of the population) have sufficient public green space per capita according to institutional standards (i.e. Planning Institute), also population concentration is less in these neighborhoods compared to others.

When it comes to forest massif[2] by neighborhood, circa half of neighborhoods have less than 12% forest massif coverage, while 34% of neighborhoods have the richest concentration. A neighborhood in southeast Curitiba (number 21 in Figs. 1 and 2) underwent intense irregular occupation in the 1980s/1990s and is today one of the city's most densely populated (and poorest) neighborhoods, with a green space per capita ratio of 6.9 m^2 in 2010 (IPPUC, 2010b). As a reference, the World Health Organization recommends 9–12 m^2 of green space per capita for urban residents.

Buccheri Filho and Nucci (2006) argue that green space indexes and measurements should be handled with care, to prevent ambiguity or misleading parameters. Much confusion around indexes remains, especially without standardization: indexes without clear definitions cannot provide reliable benchmarks (Buccheri Filho & Nucci, 2006). For example, Curitiba recently counted 51.5 m^2 of green area per capita; but when it comes to *public* green area per capita this corresponds to only 12.53 m^2. Which ratio is more valid depends on the interpretation and intended use of the data. On one hand the municipal administration interprets the recent leap of green areas (in 2010) as confirmation of Curitiba's improved quality of life; on the other hand, the Planning Institute affirms that there was no actual improvement, just a change in data collection methods (Scoz, 2012).

Lastly, the environmental impacts of irregular occupations are considerable, especially in environmentally protected areas. The most common outcomes include: deforestation, microclimate changes, enhanced flooding/landslide risk and pollution of rivers/underground reservoirs. Most of Curitiba's irregular occupations

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[1] Irregular occupations comprise two types of informal settlements: "favelas" (slums) and clandestine developments. Favelas are illegal with regard to land ownership, while clandestine developments do not comply with urban standards and requirements.

[2] Forest massif is a dense conjunct of trees where treetops form a continuous belt, over 100 m^2.

Fig. 1. Parks and woodlands by neighborhood in 2011. *Source*: adapted from IPPUC (2011).

are located on the urban periphery, and continue to grow (Fig. 3). The intended prevention of irregular occupations in protected green spaces has not proven successful: 63% of irregular occupations are found partially or fully in environmental-protected areas, of which 3% are in at-risk areas and 38% in high-risk flood zones (IPPUC, 2010b).

2.2. Water bodies

Curitiba's metropolitan region falls within the Upper Iguaçu Basin, covering 3000 km^2 and providing water resources for 15 municipalities (ÁguasParaná, 2015). The region has plentiful access to water resources; surface water availability accounts for
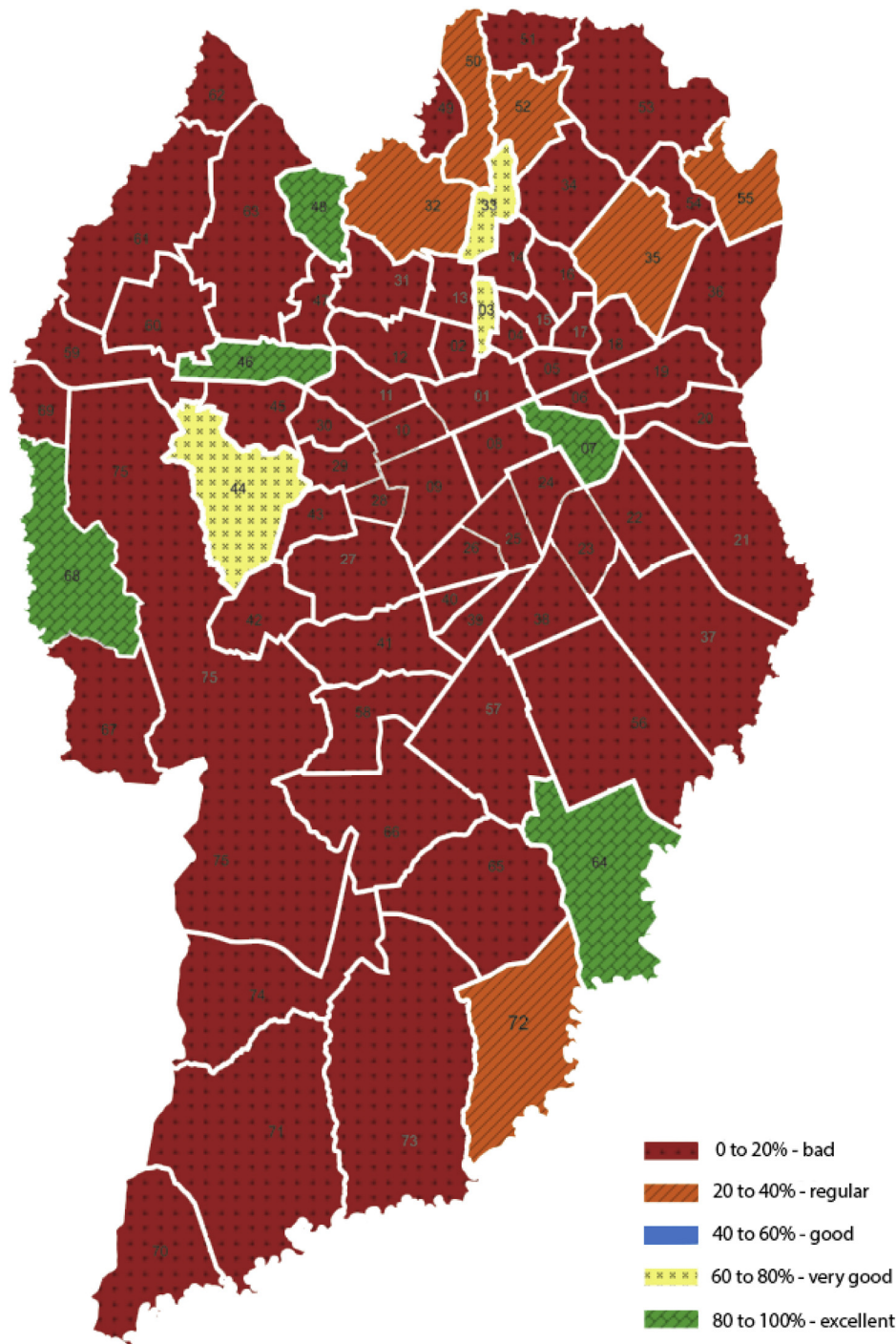
Fig. 2. Square meters of public green space per inhabitant in 2009 with neighborhood borders. *Source*: adapted from IPPUC (2010).

approximately 30% of Paraná's total availability (IPARDES, 2010). The Basin comprises five main rivers, the Iguaçu as the most renowned: at its endpoint lie massive protected waterfalls (e.g. UNESCO). Upstream, the picture is not quite as positive.

When crossing Curitiba's metropolitan region, the Iguaçu River becomes polluted by industries and domestic sewage. The five most polluting industries release over 30 tons/month of toxic substances. For two decades (1990s–2000s) the Iguaçu received 240 million liters/year of slurry generated by Caximba Landfill in Curitiba's most peripheral district. According to the municipality, the fluid

reaching the river hardly contributed to its pollution. For specialists though, besides the odor and dark water color associated to this, using the river for slurry 'treatment' is illegal, since its preservation status means that it should be protected from such activities (Favreto, 2008). The Paraná Environmental Institute reported that the slurry dumped in the Iguaçu River exceeded environmental legislation standards 60 times (Andrich, 2013). This situation, along with the inability to extend the landfill's lifespan, resulted in Caximba's deactivation and the (intended) creation of a nearby environmental reserve. Expectations that the landfill's closure would
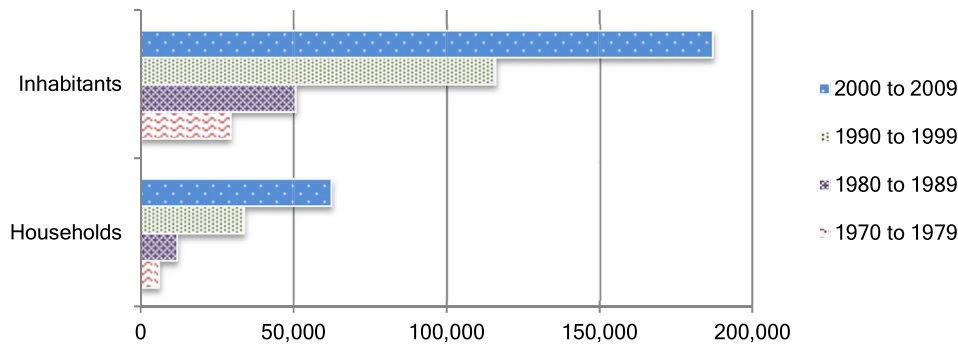
Fig. 3. Households and inhabitants of irregular occupations in Curitiba per decade. *Source*: adapted from IPPUC (2010a).
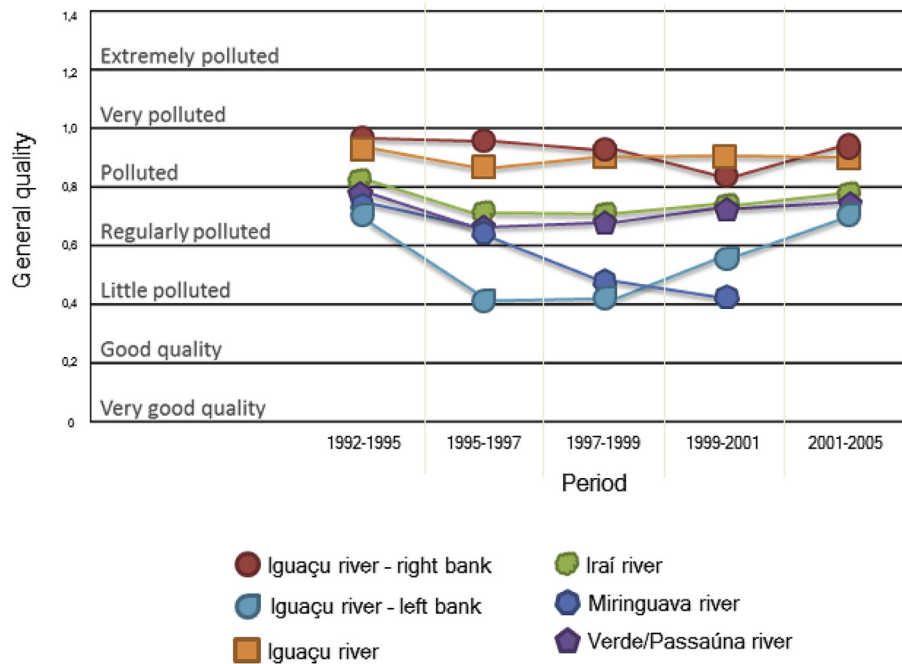

Fig. 4. General water quality of rivers of the Iguaçu basin according to their Water Quality Index. *Source*: adapted from IAP (2005).

lead to improvements, however, did not manifest; residents still await improvements (Carvalho, 2013).

Every day 60 tons of raw domestic sewage produced by the Upper Iguaçu population is discharged in the river system (Knapik, 2009). In 2012 the Paraná Sanitary Company was charged for dumping sewage from collection stations directly into the river without treatment. It was also discovered and verified that 20% of sewage treatment plants in Paraná acted illegally, by discharging sewage and deforesting protected areas (Brembatti, Aníbal, Cruz, & Marchiori, 2012).

Consequently, the region's rivers (with the exception of Miringuava River; see Fig. 4) demonstrate a worsening water quality since the 1990s. In 2001 the Iguaçu River ceased to be the region's fresh water supplier (Favreto, 2008). Its pollution became so intense, that the national Sustainable Development Indexes for 2008, 2010 and 2012 identified the Iguaçu as Brazil's second most polluted river (IBGE, 2008, 2010, 2012).

Lastly, frequent river flooding is not merely caused by excessive rain, but also due to social and environmental factors, including soil sealing and irregular occupations. The 25 parks with lakes were designed to hold excessive rainwater. This however, has not been sufficient: according to their creator, 50 additional parks are needed to meet the demand (Azevedo, 2011b). Additionally the municipal Drainage Master Plan (finalized several years ago) remains in revision, resulting in a water management plan existing on paper, without implementation or achievements (Komarchesqui, 2014).

2.3. Public transportation

Curitiba's public transportation system is based solely on buses — including the city's famous bus rapid transit system (BRT) — with most routes connecting via terminals. The BRT was designed to provide quick and comfortable urban mobility through a unique infrastructure, mimicking the performance characteristics of rail transport systems at a fraction of the cost (Wright & Hook, 2008). The transportation system gradually expanded until most routes were incorporated within the Integrated Transportation Network, connecting neighboring cities. Those first achievements resulted in wide approval by Curitiba's residents and international appraisal.

Curitiba's public transportation model was considered innovative when introduced in 1974, becoming a global benchmark for affordable and advanced BRT systems (Charner n.d). The pioneering
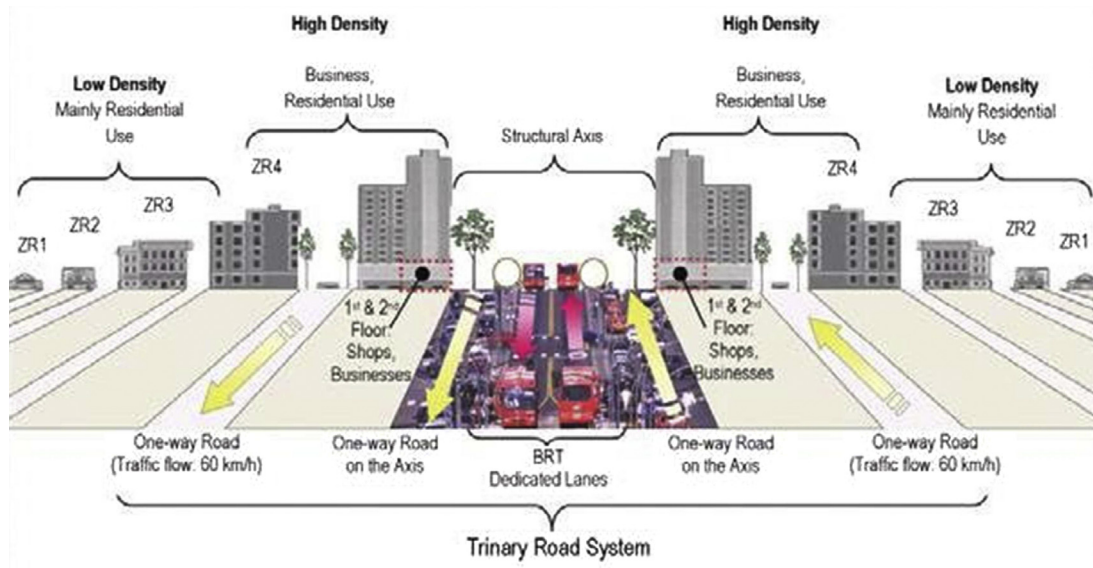
Fig. 5. Soil use and transportation integrated planning: Curitiba's trinary road system. *Source: Adapted from* Suzuki, Dastur, Moffat, Yabuki, and Maruyama (2010).

BRT corridors worked as reference for 191 cities in 42 countries (Global BRT Data, 2015). Its operational transport schemes "are widely appreciated as the most advanced and widely-used BRT systems in the world" (Nikitas & Karlsson, 2015:12). Some changes were made since 1974, namely network extensions, bus improvements and experiments with new technologies. Not too long after the system's implementation however, flaws emerged.

These flaws are divided into three categories: periphery attendance, fare price and system administration. Peripheral neighborhoods lack reasonable coverage and experience degrading public transport infrastructure. In addition, the Integrated Transportation Network has not yet achieved complete integration; 143 of 547 lines are not integrated (Firkowski & Moura, 2014). This resulted in declining passenger numbers per trip and per kilometer, with a significantly larger drop compared to cities such as São Paulo, Rio de Janeiro, and Brasília since 2000 (Azevedo, 2011a).

Concerning fare prices, in the 1970s, Curitiba had one of Brazil's most affordable bus rates. But by 2015 it was the third most expensive city in Brazil, vis-à-vis bus fares (Redação Gazeta do Povo, 2015). According to recent public opinion surveys, 60% of interviewees consider the fare[3] too high, especially those not using the system (63% of total population) (Trisotto, 2013). Although the fares continued to increase, there were few complaints until 2013, when the 'June Days'[4] took place. Afterwards, the transportation system was investigated by a Parliamentary Inquiry Commission. It revealed that almost 69% of the stocks were held by private companies belonging to a single 'cartel' group, and that problems of tax evasion persisted (Aníbal, 2013). It concluded that the technical fare could be reduced by 12% (Pessuti, 2013). In 2015 the Integrated Transportation Network financially disintegrated due to disagreements between state and municipal governments. Metropolitan bus lines were discontinued or modified, and fares further increased. With ongoing discussions the future of Integrated Transportation Network remains uncertain. The BRT, which

provided Curitiba a great part of its innovative and creative reputation, may soon end, since its replacement by a subway system is under discussion (Aníbal, 2013; Marchiori, 2015).

Despite these problems, Curitiba had the highest usage of public transport (45%) in Brazil in 2009 (Suzuki et al., 2010). However, between 2008 and 2014 there was a decrease of 14 million users, whilst this number increased or remained stable in big cities such as Florianópolis and Porto Alegre in the same period (Antonello & Barão, 2012). Recent surveys also demonstrate growing user detachment. A study found that 55% of city respondents switched transport modes in the last five years, for improved comfort or speed. Among those surveyed, 56% moved from public transport to cars or bikes, 21% switched to walking, and only 15% newly embraced public transportation (Liberty, 2014). In the 40 years since BRT's introduction, Curitiba's per capita vehicle ownership rate has increased substantially; in 2015 it was 1.33 per inhabitant (Agência de Notícias da PMC, 2015). Other municipalities in the region have even higher rates, with annual increases in private car ownership and driving at circa 9.7% (Firkowski & Moura, 2014). As a result, the city ranks ninth nationally for traffic congestion (TomTom, 2015).

2.4. Discourses of sustainable Curitiba preventing institutional change

This analysis highlights that while Curitiba's reputation as a sustainability role model endures, its on-the-ground reality has changed. Green space policies are no longer merely about environmental care, but exacerbate segregation. Water bodies have become severely polluted. And its famous BRT system falters, while traffic congestion grows. Meanwhile, Curitiba continues to receive numerous awards and is referenced as a best practice by transnational city networks (e.g. C40) and international organizations. How can we explain the growing and inert divergence between discourse and reality?

Building on theories of neo-institutionalism, exogenous forces help explain Curitiba's weakening sustainability performance. Most notably is the rapid population increase from around 360,000 inhabitants in the 1960s to over 1.8 million in 2015 (IBGE, 2015a,b), expanding pressure on Curitiba's urban planning, including its famous BRT system. This started already in the 1970s with largely

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[3] The bus fare is equated via the Index of Passengers per Kilometer (IPK) or the ratio of the monthly quantity of transported passengers and the total mileage. In practice, the smaller the IPK, the more expensive the fares (Azevedo, 2011a).

[4] The June Days were a series of massive demonstrations, which emerged in major cities and spread throughout Brazil. The initial cause was the dramatic increase in the bus fares, having their agenda extended later on.

Table 1
Curitiba's mayors. Politicians in italic had heavily aligned and interdependent interests, connections, agendas and political parties.

Mandate	Party	Politician	Specifics
1971–1974	ARENA	*Lerner*	Appointed by the military government.
1974–1975		*Gulin*	
1975–1979		*Raiz*	
1979–1983		*Lerner*	
1983–1985	PMDB	M. Fruet	Appointed by Governor J. Richa (transitional period from military government). Also city councilor and state and federal deputy.
1986–1988		Requião	First mayor elected by direct vote, son of Curitiba's former mayor. Also state deputy, state secretary, governor of Paraná and senator.
1989–1992	PDT	*Lerner*	One of the first IPPUC presidents, also governor of Paraná.
1993–1996	PFL	*Greca*	Supported by Lerner; IPPUC engineer. Also city councilor, state and federal deputy, state secretary and minister.
1997–2000		*Taniguchi*	Supported by Lerner and Greca. Also president of IPPUC and URBS, and secretary under B. Richa.
2001–2004			
2005–2008	PSDB	*B. Richa*	Taniguchi's vice-mayor, twice-elected mayor, former governor J. Richa's son. State deputy, municipal secretary and governor.
2009–2010			
2010–2012	PSB	*Ducci*	Richa's vice-mayor.
2013–2016	PDT	G. Fruet	Member of PMDB and PSDB; son of M. Fruet, former mayor/councilor/deputy. Also city councillor and federal deputy.

uncontrolled rural-urban migration, resulting in growing social and environmental problems (Maricato, 2003). Newly arrived, mostly poor, migrants moved to neighborhoods further from the (costly) city center where housing prices rose. Urban sprawl resulted in a spatialization process that generated segregation: while some neighborhoods remained well-serviced with privileged access to infrastructure, others were marginalized.

That dynamic is reflected in Curitiba's economic performance. On one hand, its GDP has been constantly rising, above the average of its metropolitan region (+3%), Paraná (+27%) and Brazil (+32%) from 1999 to 2010 (IPPUC, 2015b). The average per capita household income almost tripled between 1991 and 2010 (DATASUS, 2015). On the other hand, in 2012 Curitiba was selected as the sixth worst Latin America's capital regarding income distribution (Rios, 2012). Even though Curitiba halved poverty between 2004 and 2009, while the middle class grew to 50% of the population, people below the poverty line remain poorer than the national average (Scoz, 2011). These figures clarify Curitiba's social challenges, such as irregular occuption and social segregation. This data also partly explains the switch from public to private transport, as its growing middle class can now afford private vehicles.

Exogenous forces, however, do not explain how Curitiba has maintained its reputation, despite mounting problems and its poor record to adequately react to the latter. For that we turn to discourse. Within Curitiba, continuous discursive support for the core values of its urban vision has helped maintain its sustainable city image and reputation (Sanchez, 1995). For this, political factors proved crucial. The continuity of Curitiba's sustainable city discourse within its political administration was linked to the perpetuation of key political groups and politicians. Both in Paraná and in Curitiba, a deep-rooted political endemism endures, diminishing the possibility of outside renewal (see Table 1). Many key politicians had – and continue to have – close links to the Planning Institute and were politically connected by their agendas and interests, alongside with their parties (see Table 1). In that manner, Curitiba's image of a successful sustainable city is continuously supported and protected by an elitist political discourse coalition remaining in power precisely because of the discourse's past success and sustained discursive praise.

The Planning Institute – responsible for drafting, planning, coordinating and executing urbanization projects – played a key role in this process. Officially independent, the Planning Institute was and is linked directly to the mayor's office, which brought urban planning closer to politics. As a result, updates to Curitiba's Master Plan, developed by the Planning Institute, have been heavily influenced by administrative and political interests (Macedo, 2004).

In addition to securing consistency for long-term urban planning projects, this perpetuated the influence of influential networks in political power circles and the media, resulting in corruption cases (e.g. public transportation). There was also increased spending on institutional propaganda, with annual budgets ranging from US$8 million to US$35 million, through which administrations have publicized their own accomplishments and reinforced the city's sustainable slogans (Félix, 2015; Garcia & Scoz, 2011). This suggests that powerful political actors do not want to relinquish Curitiba's successful image. By holding on to this discourse, they help to sustain it.

It is not only the local public administration that reproduces Curitiba's discourse. A survey conducted in 2008 (Ethos & Gazeta do Povo, 2009) among 3780 respondents to trace the profile of the residents of greater Curitiba reveals several clues for understanding citizens' strong support and identification with the city's hallmark. When it comes to political views and values, 66% of city respondents generally trust and follow rules and norms, and 41% believe that the government is the sole responsible agent for solving societal problems. Similarly, half of interviewees believe Curitiba will overcome its problems; 83% take pride in Curitiba in its current state. Such numbers suggest a significant agreement with the dominant city discourse, as well as the status quo, which come together in acceptance of Curitiba's problems. However, a significant ambivalence is found when the city's past, present and future are juxtaposed. Optimism over the past track record is replaced by a future pessimism which may indicate latent dissatisfaction. Paradoxically, while 80% perceive the city as the best place to live in Brazil, 69% worry that Curitiba pays a high price for its growth. In a similar vein, while 54% believe the city is a good place to live, 69% expect worsening traffic if Curitiba continues to expand in a disorderly fashion. A similar proportion believes that the number of irregular occupations will rise and Curitiba will become increasingly polluted.

Another survey (Sallas, 1999) among young people (14–20 years) demonstrates a socio-spatial prejudice and support for the current spatial distribution, which place poorer residents on the sidelines. Around 63% indicated that neighborhood separation by socioeconomic class was normal, or good. Likewise, a study by Müller (2004) on Curitiba's urban planning demonstrated that those with lower income/education have a low capacity to transform their negative experiences in a powerful discourse. Thus, reduced participation and muffled social movements help legitimize governmental policies and programs, granting few chances for transformative actions to affect Curitiba's discourse and subsequent material reality.

Next to Curitiba's internal dynamics and politics, the strong alliance between the city's political administration and multilateral institutions perpetuates Curitiba's sustainability reputation (Sánchez, 2001). World Bank resources were used to implement

Curitiba's BRT and to later expand its infrastructure (World Bank, 2009; World Bank & PMC, 2005). In addition to the World Bank, the French Development Agency and the Inter-American Development Bank, among others, are recurrent investors (Andersen, 1996; Ultramari, 2005). The involvement of bi- and multilateral institutions in Curitiba's sustainability agenda resulted in many international studies of, and publications on "Sustainable Curitiba" such as the World Bank's efforts to disseminate Curitiba's environmental and institutional successes and lessons (Tlaiye & Biller, 1994). As a result, Curitiba's performance became so renowned that international platforms simply refer to Curitiba as a model city without collecting or examining new data themselves (e.g. Business Council on Climate Change, 2013). The common assumption is that Curitiba is still a best practice case. As a result, new studies and awards fail to signal or address Curitiba's worsening performance, keeping its renowned international reputation intact. Curitiba's discourse has in this sense become 'locked-in' within international networks of best practice studies, almost automatically being reproduced as a sustainable city model.

In sum, a combination of exogenous and endogenous factors can explain Curitiba's flawed sustainability. Key exogenous factors include rapid rural-urban migration to Curitiba, from the 1970s onwards putting increasing strain on public services (such as the BRT), combined with problems of poverty and unequal income distributing adding to social segregation. In terms of endogenous forces, our analysis focused on the explanatory role of discourse. We show that discourse does not have to be the cause of institutional turbulence and change, but equally, can obstruct (necessary) change. In Curitiba, the sustainable city discourse continues to be reproduced through domestic and transnational processes, securing a "fixed" image. Meanwhile, Curitiba's material reality has changed over time and it is no longer a global sustainability role model city. The continued hegemony of its sustainability discourse among the city administration and its citizens prevent major institutional/policy renewal and change to better address current sustainability challenges and further advance on-the-ground sustainability achievements.

3. Conclusion

When taken in isolation, model cities offer the impression of being mere consequences of successful local administrations or citizen actions, which are later "discovered" and disseminated internationally. Our analysis of Curitiba demonstrates that model cities can also rely on successful past performances, which become "locked in" within domestic and global discourses; meanwhile Curitiba's contemporary on-the-ground reality has diverted from those reputational discourses. To explain this enduring disconnection between discourse and material reality, we demonstrated how Curitiba's sustainable city discourse is constructed and reproduced (over time and space) through powerful domestic and international networks that often have an interest in preserving a particular discourse. By the same token, such enduring hegemonic discourses hamper institutional change that could reconnect discourse and reality.

Curitiba's famous public transportation system is a clear illustration on how this works. Discussions on BRT's shortcomings are evolving in Curitiba, for example on replacing the BRT with a subway to address public transport problems. But these are ongoing discussions, for over 15 years without clear results. While Curitiba's BRT system continues to receive praise in international discourses, locally it falters. The praise and reputation Curitiba receives may complicate the decision of Curitiba's administration to fundamentally change, or even discontinue, the BRT; additionally because investment interests are within a small but powerful elite

group. This results in a growing and uneasy split between discourse and reality – the absence of forces for change.

As Hope and Raudla (2012) argue, discursive institutionalism is not only helpful in identifying endogenous change, but can explain the opposite: the prevention or obstruction of institutional change. Our analysis demonstrated that the prevailing sustainability discourse no longer reflects Curitiba's material realities; instead it obscures the need for institutional renewal to bridge the gap, and rather propagates Curitiba's planning and decision-making within a business-as-usual mode. Deinstitutionalizing the hegemonic discourse may help to re-align Curitiba's reality with its reputation, incentivizing local leaders and citizens for institutional change, for Curitiba to once again become a model sustainable city. Such deinstitutionalization most likely has to come from outside the prevailing city institutions, limiting the endogeneity claim of discursive institutionalism.

Acknowledgments

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