Transnational climate change leadership and the middle-out approach: comparing São Paulo and California

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1. Introduction

The role of subnational governments in addressing climate change has been increasingly acknowledged in the past decade. Influential cities and states can facilitate the reduction of emissions and can be nimble in policy implementation where national governments falter (Betsill & Bulkeley, 2006; Bruyninckx et al., 2012; Chen et al., 2010; Falkner et al., 2010; Rabe, 2008; Schreurs, 2008). This emerging role is adding to the complexity of the international climate governance architecture, but also provides a potential alternative to top-down and bottom-up approaches. The 'middle-out' approach, and the linkages it enables between the local, the national and the international levels, as well as with non-state actors is a factor in global climate change governance that needs to be better understood.

This paper looks at the activity in both São Paulo (Brazil) and California (US) over the past decade to tackle climate change. While the contexts and starting points of both states are very diverse and the approaches taken have not been optimal in certain respects, there are some key similarities and successes which offer interesting insights into the role that states can play in leading progress towards global decarbonisation. The narrative of these activities is not exhaustive, but discusses some of the major and distinct areas in which leadership can be identified in both states around climate change law and policy.

The paper argues that the subnational (state) level is uniquely situated to affect change and coordinate collaborative efforts with and between the other levels. Being closer to the people allows for context to be accounted for, and being smaller than the nation state, policy interventions can take more risks, be more experimental and innovative. Similarly, being larger than the city or municipal area, more policy levers are available to the state, can affect a much larger population and has more resources and capacity to deliver. Advocating a middle-out approach, whereby the state can deliver policies and legislative frameworks that can be replicated 'up' and implemented 'down' puts the state as the 'middle' entity in a unique position as an important driver for economic, societal and environmental change to tackle many complex policy problems, such as climate change.

Particularly in regard to the states of California and São Paulo, the paper argues that these subnational governments have established a practice of leadership in climate policy making. Both São Paulo and California introduced legislation with binding emission reduction targets and are taking action in the absence of a coordinated, ambitious national response. They are also active in domestic and transnational networks and seek a profile of 'leadership' both domestically and at the international level. The paper traces the leadership discourse of each state, and investigates how this discourse was built and how it was put in practice. The role that both states' rhetoric is playing in raising awareness of the issue and this influence in the global climate governance regime will be explored.

This paper firstly examines the literature on leadership generally and recent work on environmental and subnational leadership more specifically. We introduce the "middle-out" concept as it relates to the roles that subnational governments can exert in climate policy-making. Before we move into the case study, a short introduction to the context of

both Sao Paulo and California is offered. We then explore the activities that have taken place in or involving each state over the past decade, and which represents their leadership in addressing climate change. We reflect on progress made to date and offer some insight into what the similarities and differences that can be gleaned from this comparative study, as well as the significance of these.

2. Review of the literature: subnational leadership

The literature on leadership is diverse, stems from many different disciplines and is constantly evolving – indeed, no single definition has been agreed upon (Gallagher, 2012). The current review therefore, is not exhaustive and makes some important delineation. Firstly, whilst the wealth of this literature is important to investigate the leadership of individuals, the leadership conceived of and discussed in this paper is much more concerned with the collective or specific leadership of a particular level of government (subnational governments), and all of its constituents (individual and organisational). The idea of *subnational leadership* pulls together a vision of the future, rather than of just the role played by the respective Governor (whilst this is important and will also be considered) and the influence this individual has had. Along with this more collective discourse, this work draws from, and aims to add to, the recent literature that discusses environmental and climate leadership, and the specific role of subnational governments in addressing climate change.

Yukl's (2006) definition is a good starting point, whereby leadership is conceived to be the process of influencing others to understand and agree what needs to be done and how to do it. Yukl is concerned with facilitating individual and collective efforts to achieve shared goals. Similarly, Saul and Seidel (2011) define leadership as a form of behaviour that is - as with any other behaviour - characterized by specific intentions and specific means to realize the intentions. On the intention side, a political agent is a leader if he intends to contribute to the solution of a collective action problem himself, and if he wants others to contribute to solving it, too. But good intentions are not enough; a leader uses different 'leadership modes' to put aims into action.

Northouse (2012) also conceives of leadership as a process – a non-linear one that is open to everyone. He goes on to offer three other characteristics, which have synergy with Yukl's approach, but perhaps take us further in appreciating how to identify leadership. He suggests that leadership involves influence (how leaders affect followers), that leadership occurs in groups and involves common goals. Northouse offers some insight into 'transformational' leadership that he defines: "*as a process that changes and transforms people. It is concerned with emotions, values, ethics, standards and long-term goals. [...] Transformational leadership involves an exceptional form of influence that moves followers to accomplish more than what is usually expected on them*" (2013, 185).

Some important additional characteristics of transformational leaders, they are effective at working with other people, they build trust and collaborate, encourage and celebrate with others. However, transformational leadership does not provide a clearly defined set of assumptions about how leaders should act, instead it helps to understand leadership is primarily concerned with ideals, inspirations, innovation and individual concerns (Northouse, 2012). Moreover, none of these types of leadership deal with institutional leadership, or the collective leadership that goes beyond individuals and is found, as we suggest in this paper, in a particular level of government – the subnational level.

The choice of subnational governments as the key actors of this paper is underpinned by the idea that even in an 'era of governance', *governments* continue to play a central role (Baker & Eckerberg, 2008; Jordan, 2008; Jordan et al., 2005). As Van den Brande et al. (2012, p. 5) argue: first, most multi-actor interactions still rely on governments to initiate actions, formulate priorities, coordinate efforts or legitimate their decisions. Second, governments are the only actors in multi-actor governance that have a legitimate democratic mandate to represent collective interests and be held accountable for it. Third, without governments it is impossible to promote changes in all the societal processes that are targeted by sustainable development.

The analysis specifically concerns *subnational governments*. However, the term itself requires some clarification. In fact, subnational governments are not unitary actors, and the term encompasses different units depending on the source and context that it is used. For instance, countries differ in their governmental architectures and in the levels of government. Here, we consider the definition of subnational governments as the "coherent territorial entity situated between local and national levels, with a capacity for authoritative decision-making" (Marks et al., 2008, p. 113). The term applies to the first immediate level of government below the national and above the local. It involves regional governments such as states, provinces, domains, territories, länder, cantons, autonomous communities, oblasts, etc., depending on the country. Subnational governments are also distinct from 'local authorities', which include all levels of government below the subnational.

With regard to environmental leadership, the starting point for many in this field (Rittel and Webber, 1973; Gallagher, 2012; Ney, 2009) is to describe the nature of the challenges under consideration. Indeed environmental challenges are conceived of as 'wicked' or 'super wicked' problems, given that they have the following characteristics: long times to solutions, complex interactions of components and people, a weak and scattered science base, a need for interaction across disciplines to understand or solve them, and an atmosphere that is emotionally charged and contentious. There is also the likelihood of unintended consequences and surprises (Gordon and Berry, 2006, 2). But Gordon and Berry suggest that all important problems leaders confront exhibit such characteristics and therefore the leadership skills and style required are essential. Thus, essential leadership has been formed as an evolution from their earlier work on 'environmental leadership'.

However, much of the work on climate change leadership is focused on contexts other than the subnational. Leadership is examined either on the individual level, or, if a wider scope is considered, it would be on the regional/EU level, or Few recognise the concomitant existence of different types/scales of leadership. Individual leadership receive considerable attention, and is considered in terms of "policy entrepreneurs" or "frontrunners" (Jones, 2014; Kingdon, 2003; Lovell, 2009; Ralston, 2013). Drawing upon the work of Kingdon (2003), they explain how "policy entrepreneurs" bring policy issues into focus on the government agenda. Entrepreneurs are individuals "willing to invest their resources in return for future policies they favour" (Kingdon, 2003, p. 117) and can include academics, researchers and think tanks to voluntary sector and private sector leaders to government committee staffers and budget analysts to programme and policy officers. The appearance of the "right entrepreneur at the right time" who can join the three streams together either by chance or design create a "policy window".

The EU has been a prominent focus (Schreurs & Tiberghien, 2007; Zito, 2000). Zito's focus on "collective entrepreneurship", used to explore the case of EU climate change leadership, can be useful to understand subnational leadership. Zito analyses European environmental policy and raises the question of why in some, but not all environmental

cases, the EU has been able to introduce substantial policy change. He suggests that while intergovernmental bargaining perspectives would assume least common denominator outcomes, through "collective entrepreneurship" more demanding policies can emerge. Entrepreneurs - a Member State, the parliament, or the Commission - can pursue policy ideas that can lead to a revision of policy goals, in turn causing a redefinition of actor interests. He concludes, however, that no set patterns exist for determining whether inter-governmental bargaining or collective entrepreneurship will dominate.

State (as the Nation-State) leadership is explored by International Relations scholars. Within this field, scholars have already developed theoretical accounts of the relation between leadership and cooperation in international climate change mitigation policy (Saul & Seidel, 2011). Using game-theoretical analysis of the impediments to cooperation, they predict that increased leadership facilitates cooperation, and that different leadership modes contribute to cooperation in varying degrees. By testing these hypotheses, the Saul & Seidel suggest a 'leadership index, which measures the extent to which the EU exhibited leadership at the negotiations of the Conference of the Parties.

Only limited work has been conducted to date on the role of subnational leadership on climate change. This is the case of the work of Rabe (Rabe, 2007, 2008, 2009), and other recent scholarship mostly focused on North-American politics (Engel, 2006; Jones, 2014; Selin & VanDeveer, 2005, 2007, 2009, 2011), cases in the UK and Australia (Bulkeley, 2005, 2010, 2013) or global cities (Lee & Koski, 2014). Osofsky's (2009) work developing the notion of 'diagonal regulation' has emerged in legal studies to investigate the increasing role of climate change-related litigation in the USA and is also of relevance here. [Refine]

[Link to section 3]

3. Subnational state governments and the middle-out approach

Much attention has been given in the past to the changing dynamics and importance of 'bottom up' and 'top down' perspectives of governance. Specific focus is given here to the state-level as a starting point of analysis and examines the importance of and distinct role that can be played by the meso-level of government, operating in the middle between national and local levels. Recent research on the "middle-out" perspective, not necessarily an alternative to the top or bottom but rather an additional, supportive, and maybe more effective way of delivering change (Parag and Janda, 2010), is used here in the context of sub-national governments. Indeed, this research aims to progress thinking further in this area by applying it to a political setting.

Multi-level governance, explores the "existence of overlapping competencies among multiple levels of government and the interaction of political actors across those levels" (Hooghe and Marks et al., 2003). Whilst this research is informed by the MLG perspective and appreciates that the distinct levels operate simultaneously in decision-making processes and that there is a need for more fluid and dynamic governance to effectively tackle 'glocal' (Gupta et al., 2007) problems, it is not focused solely on exploring the interactions between the levels. It is first and foremost concerned with the context, situation and role of the sub-national level. This is important because as Ralston (2013:2) points out, the leadership of the subnational level is currently not widespread knowledge.

This approach acknowledges the fact that an institutional hierarchy is still largely dominant in federal systems and this reality needs to be taken account of. Whilst states are not intergovernmental free agents (Rabe, 2007), with a level of influence and freedom, they are often cited as test-beds where experimental and ground breaking policies can be tried, on a scale which prevents risking national governments and which if successful, could be rolled out or replicated on a larger scale (Markwell, 1991; Harrington et al., 1998). Indeed as US Supreme Court Justice Louis Brandeis famously posited state governments can be viewed as 'laboratories of innovative government' (New State Ice Co. V. Liebmann, 285 U.S. 262 (1932)). The scale and coverage of the national level is often too large for the risk associated with trialling new ideas and ways of working to outweigh the potential benefits of success. Similarly in comparison to local levels of government, states have more resources, capacity or often information to conduct such experiments (Anderton, 2012).

By understanding better the distinct role of the state, can then begin to think about the middle-out perspective to examine the relationships between the subnational and the other levels of government. Ideas coming from the middle could be better tailored to downstream needs, better communicated upstream, more acceptable by both up and down stream. The middle also might have greater agency then the top and bottom to actually implement changes (Parag and Janda, 2010).

4. The case of São Paulo and California

Sao Paulo and California share a number of similarities: both are responsible for a large share of economic production and are the most populous of their respective countries, with each having around 40 million inhabitants.

The state of São Paulo is a regional government located in South-eastern Brazil. The state is one of the twenty-seven Brazilian federated units situated between the national level and the local level of municipalities. The state of São Paulo consists of 645 municipalities, arranged into intermediate metropolitan groupings for administrative purposes. The state has a population of 42 million people, around 20% of the national population. São Paulo is the economic centre of the country, with approximately $0.4 trillion gross state product in 2008, or 33% of Brazilian GDP (SEADE, 2010) – placing Sao Paulo as the 19th economy in the world (CETESB, 2011).

California is the most populous of the 51 US states, with over 38 million inhabitants (US Census Bureau, 2013). California is an economic powerhouse; a hub of innovation and enterprise with a $2.05 trillion gross state product in 2013, or 13% of US GDP (US Department of Labor, 2014) – placing California amongst the top 10 economies in the world. It is home to the second and fifth most populous areas in the country (the Greater Los Angeles Area and San Francisco Bay Area) and eight of the nation's 50 most populated cities including San Diego, Sacramento (the capitol) and Oakland.

In addition, São Paulo and California face the most serious air pollution problems and both are significant GHG emitters in their respective countries. In the past decades, both states have been making efforts and legislating to reduce air pollution and GHG emissions, while seeking the economic benefits resulting from pro-active efforts to mitigate GHG and improve energy efficiency. Moreover, São Paulo and California have built up a reputation of leaders in the adoption of climate policies. California passed its Global Warming Solutions Act in 2006, aiming at reducing GHG emissions by 25% on 1990 levels by 2020. São Paulo passed its state Climate Policy in 2009, aimed at reducing GHG emissions by 20% from 2005 levels by 2020.

According to Sao Paulo's first GHG Inventory (CETESB, 2011), in 2005 the State emitted 139,811 GgCO2eq.[1] For this same year, energy responded for the majority of the emissions, 57.2%, followed by agriculture (21.3%), industrial processes (14.7%), and waste (6.7%). The transport subsector was responsible for 48 % of emissions of the energy sector and 27 % of total emissions from the state for 2005. Within the transport subsector, road transportation is responsible for nearly 90% of emissions, followed by the waterway mode, air and rail (CETESB, 2014).

The data that was been used to calculate the emission reduction requirements in California was the 2004 GHG Inventory, which reported that the state emitted 474,500 GgCO2eq. In 2004, 38% of emissions came from transportation. Within the transport sector, 94% of these emissions was on-road transportation, 74% of this figure was from passenger cars alone. California is one of few example jurisdictions where energy emissions do not constitute the primary source. Transportation was followed by electric power (23%), commercial and industrial processes (20%) commercial and residential fuel use (9%) and agriculture (6%) (CARB, 2008).

The state of São Paulo is a national reference point for environmental policymaking {Lucon, 2010 #224;Ribeiro, 2011 #563}, as well as for supervising and monitoring polluting activities {Garcia-Johnson, 2000 #396}. Sao Paulo's environmental agency, CETESB, was created in 1968, and is responsible for pollution control, environmental monitoring, and technology transfer in the state. It has almost 2,500 employees, fifty-one decentralised units in the state, and seven laboratories {CETESB, 2012 #897}. In addition, the climate change agenda offered the state an opportunity to play a particularly strong leadership role. Since 1995, the state of Sao Paulo issued a number of laws and regulations to address climate change (see annex 1). The 1988 Brazilian Constitution establishes an administrative decentralisation which allows the national government, the federated states, and the municipalities to engage in environmental issues. As a result, the three levels of government have equal administrative competence to protect the environment and combat pollution (*common competence* - Article 23)[2] and *concurrent competence* to create laws and regulations on environmental subjects (Article 24).[3]

California has a history of leadership on environmental issues dating back nearly 40 years. The establishment of the California Air Resources Board (CARB) in 1967 was fundamental to this, because CARB preceded the Federal Clean Air Act of 1970; the state was afforded the right to set standards above the national average, by requesting special dispensation (a waiver) from the federal Environmental Protection Agency (EPA) to make their standards legal. No other state is permitted by federal law to establish an ARB or equivalent, but may meet California's standards over those set by the federal government. CARB was primarily established to address the immense impact that automobiles were having on the state's air quality (Anderton, 2010). Since the early 2000s, California has passed several pieces of legislation to address climate change (see annex 2).

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[1] The reference year for the Inventory is 2005 because the State Climate Law (Law 13,789/2009) defines the year 2005 as reference, for a target to be reached in 2020. Aiming for generating a historic series, the emissions of 1990 and 2008 were also estimated.

[2] This common competence translates the notion of a *cooperative federalism*, which emphasises the importance of engaging multiple levels of governance in policymaking, particularly in the effort to deal with environmental problems {Boyd, 2011 #420;Carlson, 2008 #636}.

[3] This means that where there is no federal law, states have full legislative competence. The existence of a general federal law suspends the effects of the state law in case of discrepancy.
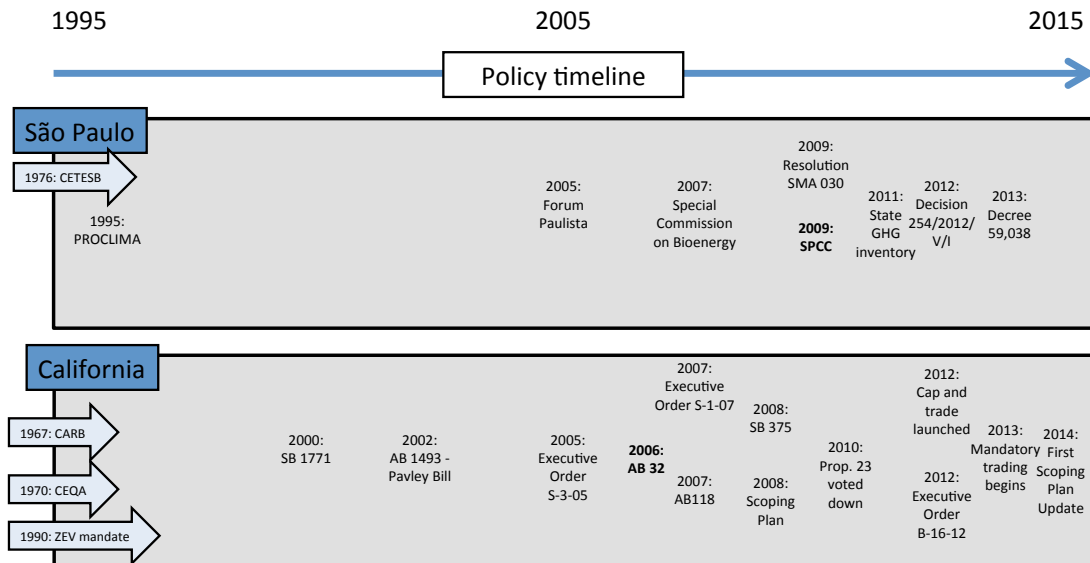
Figure 1: policy timeline for São Paulo and California

In addition to the individual policies and legislation in place in São Paulo and California, in the past 10 years the two states became partners. The first partnership was established in December 2005, during COP-11, in Montreal, with a Memorandum of Understanding (MOU) entered into between São Paulo's environmental secretariat and agency and the California Environmental Agency. The MOU aimed to promote climate change mitigation with a focus on transportation and technical cooperation in the areas of renewable energy sources, environmental improvement, climate change and biodiversity. In 2009, at COP-15, in Copenhagen, Governor of São Paulo José Serra and the Governor of California Arnold Schwarzenegger organised a joint side-event.

==Include a paragraph comparing Sao Paulo's and California's climate acts (e.g. structure, principles, priorities) and what is the focus of legislation in each state and compare.==

In both states, as well as having particularly large shares of emissions to address, one of the key drivers behind each state's response to climate change is the perceived inaction of the federal government to formulate an adequate response to tackling the problem.

5. Subnational leadership in relation to federal lack of leadership

In contrast to a lack of leadership from the federal government, which has characterized both US and Brazilian climate change politics, much of the most interesting policy activity in both countries has occurred at the state and municipal levels.

In the US, many environmentally progressive states and cities reacted against Washington's dismissal of the Kyoto Protocol and its opposition to mandatory GHG regulations. "In the absence of federal leadership, and sometimes motivated by European examples, a substantial number of U.S. states have taken initiatives and adopted numerical targets for short-term and long-term GHG reductions" (Schreurs et al., 2009).

The role that federal inaction has played in the US is well documented in the literature (Rabe, 2007; Engel, 2009). Snyder and Binder (2009) point out that:

"A silver lining of the federal inaction on climate change over the past eight years has been that it fostered the development of innovative and pioneering efforts by state and local governments to combat climate change."

But California has been acknowledged in particular, domestically and internationally, for its efforts and has also been vocal about the importance of its own advocacy role for climate change action. With statements like *"Washington is asleep at the wheel [...] we know we can't count on leadership there."* (SF Gate, 2008), Governor Schwarzenegger made his intentions to lead on climate change clear. And the state-wide cap on emissions was the first of its kind and the delivery strategies that have subsequently emerged are increasingly taking into account more and more sectors to manage the state's economy-wide footprint, not just that of the energy or transportation sectors.

Yet, state-led action is conflicted. Although first movers can help shaping the national approach, because the US Supremacy Clause establishes that federal law pre-empts any conflicting state law, state-led approaches might be in vain. Initially, California was a strong advocate for a national response to climate change. But such vocal support has perhaps waned as its own legislative mechanisms have evolved. National climate legislation has continually stalled and faced set backs since President Obama took office in 2008, and California's almost decade-old legal framework for emission reductions is becoming established and gaining valuable experience and insight, and more importantly beginning to deliver results, to the extent that it would be increasingly difficult to rescind.

Similarly, in Brazil, the climate change agenda offered subnational governments an opportunity to play a strong leadership role (Setzer, 2014). The state of São Paulo took the forefront of climate policy and legislation. This leading approach to global environmental problems began in 1995, when the climate change prevention programme was launched, and it culminated in November 2009, when the state enacted its own state climate policy (Law 13,798). Not only São Paulo's climate law was enacted ahead of the federal government regulation, but most importantly it established a mandatory and economy-wide GHG reduction target of 20% by 2020, considering 2005 as a baseline. As Lucon and Goldemberg (2010, p. 348) argue, the target confirmed São Paulo's position as "the other Brazil": it "has no precedent in the developing world and stands as the most far-reaching climate policy initiative on the subnational level in a developing economy". The Coordinator of the Climate Campaign for Greenpeace Brazil also acknowledged that "São Paulo is usually on the avant-garde of environmental policymaking, and once again it took the forefront establishing a reduction target - and a mandatory and ambitious one".

6. Understanding subnational leadership within the middle-out approach

A deeper investigation into the leadership roles of the states of Sao Paulo and California, in the context of the middle-out approach, allows us to begin delineating some general observations of action into eight specific areas of leadership, which will be discussed in turn:

1. Establishing mandatory climate change law and supporting action plans;
2. Establishing specific sector-related actions;
3. Working with local authorities;
4. Using climate litigation [as a means to drive change/implement]
5. Establishing/participating in multi-state initiatives;
6. Bi-lateral agreements/partnerships;

7. Joining transnational networks;
8. Formalising/recognition of role in international regime.

These elements are ordered, first as actions in states, at the state-wide level, but also through partnership with local authorities (nested in-state), then with other states (horizontally out- domestically and up to national), then with many states, bi-lateral (international) partnerships, then networks, the within the international regime. The justification for this order, therefore, is that it allows for consideration of the activities within the state first, before considering activities that take place domestically and then transnationally. Finally, the role of the state within the international regime discourse is discussed, to achieve a comprehensive sense of the middle-out. This is represented in Figure 2.
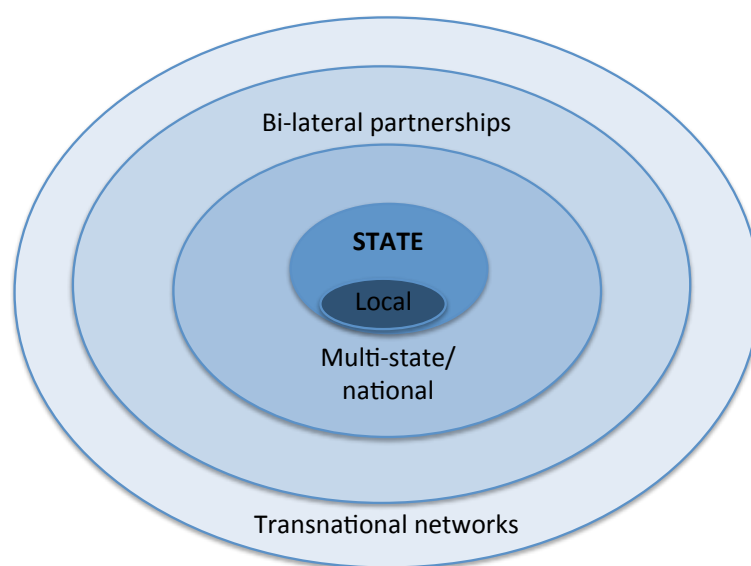

Figure 2: State leadership from the middle out

6.1. Climate change legislation and action plans

Climate change is a prominent policy area for São Paulo. This activity began in 1995, with the creation of a climate change program (PROCLIMA) within the special division for global environmental problems. In the years that followed, the state's programme became a national institutional reference (Biderman, 2011, p. 229). The state promoted seminars and publications; it also prepared a guide for calculating methane emissions and an inventory of methane emissions for the Ministry of Science and Technology (Coelho & Guardabassi, 2007; SMA, 2011). In November 2009 the state enacted its own climate change policy, ahead of the federal government regulation, and established a mandatory and economy-wide GHG reduction target. Sao Paulo's climate law was approved under Jose Serra's (PSDB) administration (2007-2010). Elections took place in October 2010, and Geraldo Alckmin (also PSDB) was elected on the first round. In 2011 the state published its First Direct and Indirect Greenhouse Gases (GHG) Anthropogenic Emissions Inventory, covering the period between 1990 and 2008 (CETESB, 2011).

California's first high profile climate legislation was the Pavley Bill, which was passed under the administration of Governor Davis (Dem.) in 2002. Although California's Board approved the regulation in 2004, the Bill had a complicated passage through to implementation. Because of the pre-emption clause, in 2005 the Pavley Bill became on the only piece of legislation to not be granted a waiver by the federal government under the CAA. It wasn't until President Obama took office in 2009 that the waiver was

granted, giving California the authority to implement GHG emission reduction standards for passenger vehicles (CARB, 2013).

In 2005, Governor Schwarzenegger (Rep.) signed an Executive Order, a non-binding long-term pledge to reduce emissions 80% on 1990 levels by 2050. Alongside, the order established the Climate Action Team, a cross-administration group to account for the fact that AB 32 *requires an unprecedented level of cooperation and coordination across State government* (ARB, 2008). Subsequently in 2006 AB 32 set mandatory targets which commits California broadly to the US Kyoto emission reduction requirements, just with a slightly longer time frame. AB 32 is unique for several reasons, it was sponsored by civil society organisations to get it on the legislative roster, it has received bi-partisan support and is delivering medium-term goals, which will be realised several electoral cycles into the future. It experiments and innovates with new and established policy measures and tries to bring diverse policymakers together. In short, it fulfils many of the characteristics that were outlined relating to transformational leadership.

The Scoping Plan for AB32, which was published in 2008, has been the guiding force for all associated measures in the state that will contribute towards meeting the targets set in the bill. It stated that:

> "Every agency, department and division will bring climate change considerations into its policies, planning and analysis [...] in all these efforts, *California is exercising a leadership role in global action to address climate change*. It is exemplifying the essential role states play as the laboratories of innovation for the nation. As California has done in the past in addressing emissions that caused smog, the State will continue to develop innovative programs that benefit public health and improve our environment and quality of life" (CARB, 2008 – our highlight).

Following the election of Jerry Brown in 2010, cross-party, long term support for the bill has continued and subsequent developments have been made, including the introduction of the cap and trade scheme.

6.2. Establishing sector-specific actions

In addition to issuing a strong legal framework, each one of the two states has continued to innovate, establishing policies in specific sectors to promote a lower carbon economy. The key sectors for both states were transport and energy. [develop this item further]

In the transport sector, California passed the SB 375, designed to link transportation funding, land use planning and climate change. They way in which the state government promoted SB 375 again highlight the leadership role that the state embodies. For example, this quote: *"This landmark bill [SB 375] takes California's fight against global warming to a whole new level, and it creates a model that the rest of the country and world will use. When it comes to reducing greenhouse gases, California is first in tackling car emissions, first to tackle low-carbon fuels, and now with this landmark legislation, we are the first in the nation to tackle land-use planning"* (California Government, 2008).

In Sao Paulo, attending one of the mandates of the Climate Law, the state's environmental agency prepared a Sustainable Transportation Plan. A draft of this plan was issued in 2011. Extensive use of waterways, pipelines, railways and public mass

transportation were pointed as necessary in order for the state to reach the economy-wide target of 20% CO_2 reduction by 2020, compared to 2005 levels.[4]

In Sao Paulo, the Energy Plan (PPE 2020), launched by the governor in early 2013, aims to strengthen existing energy policies and setting up new policies. The energy efficiency measures proposed by the Plan are based on the state Policy for Climate Change and the corresponding target of CO_2 emissions reduction for that year. In addition, it is worth noticing that Sao Paulo is promoting a "Global Network on renewable energy, energy efficiency and energy conservation". This network was established within the Regional Leaders Summit, and it aims at identifying cutting-edge research, produced by the seven members of the Regional Leaders alliance (more about this alliance below).

Yet, it is worth noticing that other sectors such as xxxxx have received less attention, and so far there have been limited efforts to promote adaptation policies. In Sao Paulo, a draft of the Participatory Climate Change Adaptation Plan, another requirement of the 2009 Climate Law, is still being discussed[5]. In California, work on adaptation was confined to describing actions that could be carried out by state agencies (i.e., given the authority and expertise available within government) and were considered fiscally and technologically feasible (i.e., possible with current technology and financial capacity) (Bizikova et al., 2014).

6.3. Working with local authorities

6.4. Using climate litigation

Climate litigation [develop this item further]

In California, cases such as People of California vs. County of San Bernardino (2007) and subsequently People of California vs. City of Pleasanton (2009), both addressed the failure of the local governments to analyse GHG impacts in their General Plan Updates (Niemeier, 2010). [Mass v EPA and implications for California. Local litigation, all have a leadership dimension, Osofsky, 2009]

In Sao Paulo, climate litigation is incipient. Although the Brazilian legislation provides for the polluters pay principle and a "strict liability", meaning that it is unnecessary to demonstrate that the defendant meant to cause harm, so far there is only one climate litigation case being examined by the state courts. The state Prosecutor's Office filed class actions against 40 airplane companies operating in the international airport of Sao Paulo for the emissions and pollution caused during landing and departures. The Public Prosecutor's Office tried to sign an agreement with the companies, through which they would compensate the environmental damaged caused, but the companies refused to sign. The Prosecutor Office appealed calling the companies to be liable for reforestation of the area around the airport. In 2012 the state Court of Justice acknowledged the environmental damage resulting of airplanes landing and departure. "... It is clear that carbon dioxide emissions in the atmosphere are responsible in large measure for the

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greenhouse effect... and the economic activity of the defendant [GOL] implies publicly production of large amounts of such gases", concluded Judge Renato Nalini.[6]

6.5. Multi-state initiatives

California: Carbon trading as a basis, WCI, [+Quebec]

Sao Paulo: Assoc. Env Agencies – SP active in meetings

Both: diffusion – teaching other states about climate laws

In May 2009, Governor Schwarzenegger joined a coalition of more than 30 states and territories to express support for active state-federal collaboration on the issue. Speaking at the launch of the group, the Governor said: ""It is not easy to bring together such a diverse group of governors on any topic, so this coalition speaks loudly to the need to work with states and adopt a federal approach as we work toward our common energy and green economy goals"[7], illustrating definite support for federal action coming from the states.

6.6. Bi-lateral agreements/partnerships

Both: MOU (Montreal) – preamble – similarities. Press release – with each other. Both leaders, distinguish with others (Germany etc.) Equal partnership (N>S).

The leadership aspect constitutes a bond between the state and its counterparts. Policy makers in the state and at the national level often refer to or compare the state's position in Brazil with that of California. São Paulo is referred to as 'the South American California'[8], or the 'equivalent to California in Brazil'[9]. This is explicit in the MOU entered between the two states, which recognises that both São Paulo and California "are leaders in adopting policies related to climate change", California by establishing targets and leading governments to adopt policies related to climate change, and São Paulo by wanting to be recognised as the first subnational government from a developing country to adopt reduction targets.

6.7. Transnational networks and international recognition

Sao Paulo and California have been highly engaged in transnational networks of subnational governments. Such networks have three core functions: (i) exchanges, learning and best practices; (ii) fostering decentralised international cooperation; and (iii) representing regional governments in global forums (Setzer, 2013). This is the case of C40 Cities Climate Leadership Group (C40), the Network for Regional Governments for Sustainable Development (Nrg4SD), the Climate Group's Alliance of Federated States and Regions, and R20 Regions of Climate Action (R20).

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[6] Decision available at ttp://www2.bibliotecadigital.lex.com.br/bibliotecadigital/tjsp.dll/Infobase3/16da/1550?f=templates&fn=document-frame.htm&2.0

[8] Interview with a state official (Sao Paulo).
[9] Interview with a national official.

IECGN Conference – *Beyond 2015: Exploring the Future of Global Climate Governance,* Amsterdam, November 2014.

São Paulo was a founding member of the Nrg4SD, at the Rio+10 meeting in Johannesburg. In 2008 the state it was elected the co-chair for the South, and re-elected for this position in 2011.[10] São Paulo's environmental leadership motivates such active participation in this network. Literally: "We [the state of São Paulo] represent the southern hemisphere within the Nrg4SD because of our leadership in environmental policymaking".[11]

The R20 was founded in 2010 by Governor Arnold Schwarzenegger and other global leaders in cooperation with the UN (R20, 2013). It has as one of its aims to "push their respective national governments into more rapid actions and stronger commitments to fight climate change" (R20, 2013). It also explicitly advocates that subnational governments are laboratories for future national policy, which help to accelerate the implementation of international agreements. For example, affirming that: "Environmental policies and projects successfully implemented at the subnational level are often adopted by national governments. Subnational action will spur action at national levels".[12]

In California, the two most recent Governor's have established a firm international standing for promoting the work that the state is carrying out, as attested to by the following statements "Governor [Schwarzenegger] is very adept at state and national and international press events to publicize his commitment to this issue." Not only was Governor Schwarzenegger active in Copenhagen, but he also received a Climate Leaders Award at a reception held as a parallel event taking place in the city to coincide with the event. Such reinforcement of the positive messages coming from the sub-national level lends support to the notion that transformational leaders advocate the celebration of achievements (Northouse, 2013)

Before his recent re-election into office in November 2014, Governor Brown stated: *"California has the most integrated response and strategy to deal with climate change of any political jurisdiction in the world […] What happens here doesn't stay here, it goes all around the globe."* (Thompson, 2014). This demonstrate the value that the state places, not just on delivering against its goals, domestically, but in showcasing its efforts on an international stage.

São Paulo and California regularly participate of UNFCCC conferences.

São Paulo went to COP-15 of the UNFCCC representing the Nrg4SD because it had recently enacted its climate legislation.[13] SMA's International Relations Advisor further suggests that "it is crucial that we go [to international meetings] and present what we are doing.... If we don't, other regions won't know that we have a model that can be followed.[14] São Paulo's officials also want to influence the Brazilian position and eventually the outcome of international environmental negotiations. Representatives from the state of São Paulo speak as governmental representatives, with the bonus that they have a robust technical knowledge and great experience in environmental policymaking. São Paulo's international advisor gives a clear account of this motivation:

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[10] The two Chairs and Vice-chairs are elected by the General Assembly by simple majority (50% plus one) for a mandate of three years, renewable once (Nrg4SD, 2011).
[11] Interview with a Brazilian academic.
[12] See: http://ces.ucdavis.edu/ggcs3/index.cfm?fuseaction=app.R20.
[13] Interview with a state official (Sao Paulo).
[14] Interview with a state official (Sao Paulo).

> We want to promote the state of São Paulo as an international reference. It is a matter of image. But it is also important for us to have our own interests incorporated into the international legal frameworks. We don't want to be mere policy implementers. We want to make clear what is good for us and to inject São Paulo's view in the international debate in order to satisfy our own interests.[15]

Sao Paulo is also a member of the Regional Leaders Summit, a forum founded in 2002 to promote exchanges and to improve competitiveness within seven regions: Upper Austria, Bavaria, Western Cape, Georgia, Québec, São Paulo and Shandong.

California has actively participated in many events taking part alongside the formal international negotiations at COPs since 2005. In 2006, in Nairobi, California EPA Secretary Linda Adams delivered a briefing to the Plenary calling on the delegates to recognize formally the important role that subnational governments have to play in the process and to open up the negotiations to actors below the national level. Such a platform has yet to be delivered, but acknowledgement of the important role that subnational actors can play is growing and lends support to the middle out conceptualisation which is helpful in representing the interactions at work and those that could be better facilitated in the future.

In 2009, at COP-15, in Copenhagen, Governor of São Paulo José Serra and the Governor of California Arnold Schwarzenegger organised a joint side-event. On his speech Governor Schwarzenegger stated "the world's governments alone cannot make progress, the kind of progress that is needed on global climate change. They alone cannot do it. They need everyone coming together, everyone working together. They need the cities, they need the states, they need the provinces and the regions…So ladies and gentlemen, let us regain our momentum, let us regain our purpose, let us regain our hope by liberating the transformative power beneath the national level…" (Schwarzenegger, 2009).

From intentions to practice

[Enacting legislation with mandatory targets for emission reduction, is not just a similarity between the states which sets them apart from other states as forerunners, it also offers an opportunity to investigate the extent to which these actions can be seen as a means to an end (i.e. are delivering tangible emission reductions as a result), or as an end in themselves (are not being implemented and emissions continue to rise).

[Describe limitations in the actions and policies since the laws were enacted and emissions data - considering the economic crisis].

Public support for the law is also important, demonstrating that leadership can be maintained and is dependent on a charismatic individual at the helm, without which action would falter.

What is the impact that these activities have had in terms of tangible emission reduction? The paper will also explore the role of mandated targets for addressing climate change at the sub-national level and the extent to which these laws have enabled climate change policy to become embedded in the broader policy and societal landscape.

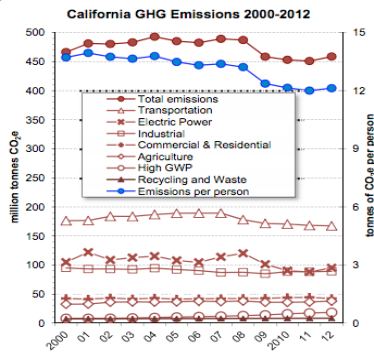[15] Interview with a state official (Sao Paulo).

Figure 3: California's latest GHG emissions inventory (ARB, 2014)

In California, actions are implemented and progress is underway towards 2020. Scoping plan review. Emissions have gone down, but up in 2012. Transportation emissions down, electric power down and up again, industrial, 3 years of cap-and-trade – limited impact yet.

Concluding summary of the comparison
Same size, working with same timeframes, constitutional framing
Difference Brazil – continuity and stability
Equally comprehensive
Cap and trade dominates in California
Investments in delivering the laws
Outlook for 2020 – achievable?
Monitoring and evaluation

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Annex 1

Climate legislation in the state of São Paulo (in chronological order)

- SMA Resolution 22, of 8/6/1995, establishes the Global Climate Change Program (PROCLIMA) as a permanent forum on climate change and biodiversity in the state of São Paulo.

- Decree 49,369, of 11/2/2005, created the state forum on climate change and biodiversity ('Forum Paulista'), the first of the type in the country. Among its responsibilities, the Forum should elaborate the state climate policy; promote synergies between the themes of climate change and biodiversity; and incorporate decisions made by the UNFCCC, the CBD and other MEAs into the state policy. It is chaired by the Governor, headed by 11 state Secretaries, and has representation from business, academic and civil society actors.

- Decree 51,736, of 4/4/2007, establishes the Special Commission of Bioenergy of the state of Sao Paulo

- Resolution SMA 030, of 14/5/2009, establishes guidance for voluntary reforestation projects for mitigating GHG emissions

- Law 13,798, of 9/11/2009, institutes the State Policy on Climate Change (SPCC). Sao Paulo's Law[16]. The SPCC has as its main objectives the promotion of socio-economical development with the protection of the climate system; the reduction of GHG emissions; the promotion of renewable sources in the energy matrix; the implementation of actions for the prevention and adaptation to climate change; the promotion of environmental education, social awareness, research and technology innovation. The Law established a mandatory global reduction target of 20% of the emissions of CO_2 to be reached by the state by 2020 related to 2005. The SPCC was regulated by Decree 55.947, of 24/6/2010

- Decision 254/2012/V/I, of 22/8/2012, of the Environmental Agency of São Paulo (CETESB), obliges companies from a series of industry sectors to submit an annual GHG inventory, for monitoring the developments in emission levels and the results of mitigation actions. The rule establishes the criteria for the submission of the inventories by 23 industries, including those producing aluminium, cement, steel, iron, glass, oil refineries and the petrochemical industry. ABNT NBR ISO 14.064-1- GHG, GHG Protocol or similar accounting methodologies are accepted. The information disclosed on the inventory may be verified by CETESB or a third party, at the discretion of the Agency. The inventories should be submitted annually, by April 30th, with information covering the period covering the previous January to December, starting with data consolidated in December 2012. The deadline for submission of these inventories was postponed first to July 2013 (Decision 149/2013/V/I, of 29/4/2013), and again to August 2014 (Decision 082/2014/V/I, of 28/3/2014). [check what happened]

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[16] English translation available on http://www.cetesb.sp.gov.br/userfiles/file/mudancasclimaticas/proclima/file/legislacao/estado_sp/lei/lei_13798_09nov_09_ingles.pdf

- Decree 59,038, of 3/4/2013, establishes the State Biofuel Programme. This Programme aims at promoting the participation and use of renewable fuel in the public administration, local authorities and foundations of the State of São Paulo. It defines biofuel as a renewable energetic input originated from biomass or animal fats, including, hydrate ethanol, biodiesel, biogas, bio methane and biodiesel obtained from sugar cane [note: this Decree was signed by the Governor on the opening event of the Regional Leaders Summit – more about it in the networks item]

Annex 2

Climate legislation in the state of California (in chronological order)

- In 2000, SB 1771 required that the Resources Agency and the California Environmental Protection Agency work jointly to establish and administer a registry through which any organisation in California could voluntarily register greenhouse gas reductions that had been delivered since 1990. The 'California Climate Action Registry' became operational in 2001. This bill has been instrumental in setting out the cap-and-trade approach to emission reduction in the state that has followed.

- The Pavley Bill (or AB 1493) 2002, directs CARB to adopt regulations to achieve feasible and cost-effective GHG emissions from new vehicles after 2009. The law requires a 30% reduction by 2016 (Anderton, 2010).

- Governor Schwarzenegger signed Executive Order S-3-05 in 2005, this established a long-term, non-binding emission reduction target for California of 80% by 2050. Subsequent strategy documents designed for implementation have both binding medium-targets and this non-binding long-term target in mind (see below).

- AB 32, the Global Warming Solutions Act was passed in 2006. It requires the state to lower its greenhouse gas emissions to 1990 levels by 2020 and reduce them by 50% on 1990 levels by 2030.

- In 2007, both Executive Order S-1-07 (the Low Carbon Fuel Standard -LCFS) and AB 118 (Alternative Fuels and Vehicles) were introduced to reduce emissions through providing investment in fossil fuel alternatives for cars. LCFS requires a carbon intensity reduction of 10% in the state's transportation fuels by 2020, although it is not legally binding. AB 118 authorizes $130 million investment in low carbon fuels and vehicles over seven years (2008-15).

- In 2008, the 'Scoping Plan' which laid out the strategy and set of actions to deliver the targets set in AB32 was produced. Amongst the measures it outlined were the establishment of state-wide cap and trade scheme, achieving a statewide renewable energy mix of 33% by 2020 and establishing targets for transportation-related GHG emissions for regions throughout California (EDF, 2014).

- As a part of these transportation-related measures, SB 375 was also passed in 2008. It was described as the "first-in-the-nation bill to link greenhouse gas reduction to transportation and housing planning".

- During the 2010 state election, one of the measures on the ballot was Proposition 23, this was an attempt to halt the implementation of AB 32 until state unemployment figures dropped to 5.5% or less for full year (California Secretary of State, 2010). Proposition 23 was voted down, representing a major triumph for climate change policy in the state

- In 2012, Governor Brown signed Executive Order B-16-12, ordering California's state vehicle fleet to increase the number of its zero-emission vehicles so that at least 10% of fleet purchases of light-duty vehicles be zero-emission by 2015 and

25% by 2020. The Action Plan to implement this was released in 2013. The statewide cap and trade scheme also began in 2012, with trading mandatory from 2013.

In 2014, the first update to the Scoping Plan was released, outlining plans to move towards the 2050 target.