

Title: **Ostrom meets the urban global-south**¹

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Prepared for delivery at the Workshop on the Ostrom Workshop (WOW6) conference, Indiana University Bloomington, June 19–21, 2019. © Copyright 2019 Frey, K.

¹ Acknowledgement/Funding: The authors thanks to FAPESP - São Paulo Research Foundation - process number 2018/06685-9 and 2015/03804-9.

1. Introduction

Our paper is focused on the challenge of complexity in the age of uncertainty, emphasizing issues on planning and environmental governance in São Paulo Macrometropolis (Figure 1). Our approach has as its main framework of analysis the current trend in environmental governance towards amplifying polycentric and multilevel practices of governance, emphasizing interdisciplinary and intersectorality.

Considering that the São Paulo Macrometropolis concentrates large contingents of people, which depend on ecosystem services for their well-being, the paper emphasizes several questions arise regarding the requirements for planning and governance of highly integrated and ecologically interdependent urban agglomeration and its governance of interdependent and interconnected territories as to guarantee sustainable development within a democratically constituted State in view of the asymmetrical power relations that exist between the economic sector and the overall society, as well as within society itself.

By that, citizens and local communities, civil society and social movements could and should become, step by step, more relevant agents of change within broader multilevel and polycentric governance arrangements.

Elinor Ostrom's research related to the possibilities of cooperation, supported by commonly defined rules and institutional diversity, as an alternative or complementary tool to state and market mechanisms, has proved particularly convincing in governing collectively common-pool resources at the local level and in the rural world. The more complex "social dilemma situations" and political decision arenas are and exogenous variables have to be considered, the more difficult it is to explain why particular political behavior and outcomes occur. In this contribution, we argue that Ostrom's assumptions related to rational behavior, as the basis of game theory, only very

boundedly apply to the context of metropolises in the Global South, marked by extreme biophysical, institutional, and cultural diversity, as well as extreme asymmetrical power relations and, thus, political conflict structures, rendering a direct application of her framework difficult.

Considering the example of the São Paulo Macrometropolis, we point out some of these biophysical, institutional, cultural and political particularities/complexities in order to evidence the challenge of polycentric governance based on cooperation and commonly decided rules in an adverse sociopolitical context, concluding with some arising challenges the environmental governance of São Paulo Macrometropolis in the context of climate variability.

2. Theoretical concepts on polycentric and multilevel governance: potentialities and limits.

The aim of this section is to present the main ideas about two concepts of governance that have been adopted in studies on governance of metropolitan regions, (i) polycentric governance (PCG), based on the Indiana School and (ii) multilevel governance (MLG). The emphasis of this section is to look at the potentialities and the limits of these governance approaches in order to better understand environmental governance in metropolises in the Global South.

The recognition that users of common-pool resources at the local and communitarian level have the capacity for self-organization, being able to elaborate their own sets of rules and regulations, and to define how such resources can be used for their common benefit is a central element of Elinor Ostrom's theoretical approach, based on her extensive empirical studies. In opposition to Garry Hardin's (1968) solution for coping with the "tragedy of the commons", either by state ownership, or,

first and foremost, by the privatization of common-pool resources, research on common-pool resources didn't confirm Hardin's thesis of greater levels of socioecological responsibility to be expected from the part of private owners if compared with the management of the commons by local communities, as the competition conditions, inherent to capitalist market relations, tend to favor resource depletion (McCay & Acheson, 1987: 9). Against this backdrop, Ostrom (2005; 2010) develops her theoretical concept of PCG relying on local units as essential centers of decision-making related to the commons, which should be organized in several nested levels or arenas, operating as a system consisting of a set of different cooperating institutions and actors.

In the current literature, we find a wide variety of definitions of PCG (Heikkila et al. 2018). In general, PCG can be understood as a governance arrangement composed of multiple autonomous authorities with overlapping jurisdictions and, thus, involving multiple, diverse and interdependent actors, at different scales and levels, interacting continuously and performing sometimes more competitive, sometimes more cooperative relations (Ostrom 2010, 2005). These patterns of interaction and the corresponding outcomes "depend on the relationships among governance actors at different levels and the problems they are addressing" (Andersson and Ostrom 2008: 73).

In accordance to McGinnis and Ostrom (2012:15), a polycentric governance arrangement "requires a complex combination of multiple levels and diverse types of organizations drawn from the public, private and voluntary sectors that have overlapping realms of responsibility and functional capacities". Therefore, authorities managing specific local common-pool resources always have to interact and work together with other general-purpose authorities, acting at different levels and scales (Ostrom 2005: 283).

A polycentric arrangement does not have a predominant central authority (Ostrom 2005: 284), but each of the multiple centers used to enjoy relative autonomy to make its own decisions “within a circumscribed domain of authority for a specified geographical area” (Ostrom 2005: 283), though these decisions have to be in line with the overarching system of rules. Elinor Ostrom stresses that the continuous interaction between the different decision-making centers and the constant adjustment and information exchange processes can reduce possible shortcomings of governance practices related to common-pool resources (Ostrom 2005, 2010).

For the Indiana School a monocentric model of governance is thus not compatible with the complex challenges we are confronted with in dealing with the commons. The PCG concept confronts the usual argument, highly appreciated by traditional urban planners, that action by centralized governments tends to be more effective. PCG involves multiple actors, opinions, scales and levels, and complexity is considered a fundamental, positive and necessary governance characteristic (Ostrom 2010, 2005). Institutional diversity is the central guarantor for “the extent to which complementary back-up institutions exist at higher or lower levels of governance that can help offset some of the imperfections at any one level” (Anderson and Ostrom 2008:73).

It is important to clarify that PCG is a “theoretical construction” and that “in the real world, no polycentric system exists” (Anderson and Ostrom 2008:77). However, the Workshop in Political Theory and Policy Analysis at Indiana University unites the conviction that multiple decision-making centers at multiple scales and levels are critical for solving collective-action problems effectively.

Parallely and – as we believe – complementarily to the development of the theory of PCG, the concept of multilevel governance has gained prominence in the

discussions on how to cope with increasingly complex problems which used to affect different jurisdictions concomitantly. However, whereas there are strong similarities and convergences between these approaches, both highlighting the need to enhance cooperation between the different governmental levels and scales, they start from different perspectives. The concept of PCG is starting from a specific societal and economic challenge with which traditional systems of political decision-making showed to be unable to deal with effectively: the definition and implementation of appropriate rules for preserving the commons in the context of a profit-oriented capitalist economic system. By contrast, the theory of multilevel governance, originating in political and administrative science, looks primordially at already existing organizational structures and how they evolve and adjust their interactive practices in order to better coordinate political action across different governmental levels, thus, trying to diminish implementation deficits (Benz 2007).

If compared with concepts from research on organizations and federalism, the theoretical gains of multilevel governance lay, in accordance to Benz (2007), in not limiting its focus on the structural dimension of multilevel organizations, but expanding its view towards the understanding of the general patterns of interaction and the coordination mechanisms, which derive from differentiation processes of organizational systems. Whereas multilevel structures are always present “when competences and mechanisms to reach binding decisions are divided between territorial delimited central and decentral organizations” (Benz 2007, p. 298), the concept of multilevel governance is primarily concerned with the political processes and coordination mechanisms which occur between the different levels, in order to better understand how these governmental structures deal with existing interdependencies.

Multilevel coordination has to be envisaged as happening in quite complex institutional settings. The challenge consists in coordinating different modes of governance existing within a given level with those existing between different governmental levels. Consequently, different regulatory frameworks or systems have to be combined, aligned and made compatible engendering proper interaction and coordination mechanisms.

This analytical perspective is supplemented by rather normative stands, similar to what we already know from the discussion on decentralization; in contrast to the economies of scale argument, which favors consolidated centralized structures, and the public choice scholars who used to stress the presumably major efficacy of market-like behavior of local governments (Kübler & Pagano 2012, p.123), decentralization as well as multilevel governance allow to better take into account specific local demands and proper contributions in public policy-making. As Hooghe and Marks (2003, p. 236) put it: “multi-level governance allows decision makers to adjust the scale of governance to reflect heterogeneity” (Hooghe and Marks 2003, p. 236). Moreover, research has shown that besides these gains in responsiveness related to diversity and complexity, enhanced cooperation in service provision might imply in gains concerning flexibility and even in cost effectiveness (Kübler & Pagano 2012, p.123).

The term multi-level governance gained prominence initially related to governance in the European Union (Marks 1993; Bache 2012), having structural policy, according to Marks (1993 p. 403), “provided subnational governments and the Commission with new political resources and opportunities in an emerging Multi-level policy arena”; and that in a way that let Piattoni (2012 p.764) affirm the uniqueness of the concept to “characterize European nation-states and the process of European integration”. However, subsequently the concept entered in international and global

politics as “the logical response to the process of societal denationalization” (Zürn 2012, p. 741), gained importance in the field of intergovernmental relations, above all, but not exclusively, in the context of federal states (OECD, 2017), and finally, reached the area of metropolitan governance and regionalism as a result of the common tendencies of governmental fragmentation regarding the metropolitan or regional level of governmental action (Mitchell-Weaver et al. 2000; Kübler & Pagano 2012). In the European context, the application of MLG, even as related to urban politics, is frequently envisaged as part of global governance and as connected to the European scale. This is the case of Jon Pierre, who refers to MLG as a “contextually defined, non-hierarchical governance, where trans-national and sub-national institutions engage each other without considering necessarily the nation state level” (Pierre 2011, p.128).

Notwithstanding the different perspectives due to different institutional conditions, in general, we can state that MLG focuses, as one of its main features, on the links that connect different governmental levels as part of an overall policy and decision-making process and as a result of the mutual dependencies that exist between the involved actors. These actors perform intertwined activities devoid of clear relations of hierarchical subordination, thus, favoring network governance practices (Kübler & Pagano 2012, p.123). “MLG implies engagement and influence – no level of activity being superior to the other – and, therein, a mutual dependency through the intertwining of policy-making activities” (Stephenson 2013, p. 817).

In the case of multilevel metropolitan governance, the main idea is that in contrast to the so far dominant forms of decision-making in metropolitan governance, either by hierarchic imposition or competitive relations, there is need for a third way based on negotiation, where emphasis is given on “voluntary cooperation and joint-decision systems as a means to coordinate policymaking across territorial state levels in

a context of increasing interdependencies” (Kübler & Pagano 2012, p.122), and where consequently nongovernmental stakeholders gain importance in formulating and implementing public policies.

Hooghe and Marks have published a very influential article in the growing MLG literature in 2003, making a distinction between two types of MLG, which they labeled simply as Type I and Type II. Whereas both types represent a “radical departure from the centralized state” (Hooghe & Marks 2003, p. 241) and therewith the strengthening of the local sphere, they stand for different forms of how power is being decentralized or diffused. Type I is characterized by a limited number of “general-purpose jurisdictions” – in a federal state typically the municipalities, sometimes an intermediate regional governmental level (very often institutionally weak), then the states and the Union – with “durable boundaries that are nonintersecting at any-particular level” and with a systemwide institutional architecture (p.237). This approach, where “smaller jurisdictions are nested within a larger jurisdiction(s)” (Paavola, 2016, p. 145), is usually defended by scholars engaged in strengthening the role of regional over local governments (Piattoni 2012, p.769). This planning tradition is still very strong in Brazil, where the local government has been characterized by the term “autarchic municipalism” (Daniel 2001), thus, identified with an inward-looking political system, unable to cope adequately with the regional challenges.

These “Federal (Type I MLG) solutions” are opposed by “Functional (Type II MLG) solutions” (ibid.), characterized by the predominance of overlapping “task-specific jurisdictions”, without numeric limitation of jurisdictional levels, therefore allowing more flexible institutional designs better adapted to the specific tasks to be performed (Hooghe & Marks 2003, p. 237), and thus, being more in line with the idea of a “self-regulating society” (Piattoni 2012, p.769). Whereas the European literature

identifies a stronger alignment of the Type I MLG with unitary states, as these allow to better control these emerging structures in both political and economic terms (Piattoni 2012 p.769-770), there is certainly an ongoing general trend towards the expansion of task-specific jurisdictions, basically as a result of differentiation processes and of the complexification and diversification of state functions. These require not only new technical qualifications, but also clear political strategies in order to overcome the customary stalemate caused by veto players in formalized political structures, more common for the Type I MLG (Benz 2007, p.308).

In fact, what current research indicates is the coexistence of Type I and II MLG (Hooghe & Marks, 2003, p. 238; Piattoni 2012, p.769) in most governance contexts, “a continuum of horizontal dispersion of authority from monocentric to polycentric solutions, with hybrid solutions lying somewhere in the middle” (Paavola 2016, p. 145).

Without doubt, in the field of environmental governance and policy there has always been a permanent coexistence of, on the one hand, consensualist approaches guided by the principles of negotiation and cooperation, and on the other, conflictive clashes between growth coalitions and environmentalists, where extremely antagonistic worldviews seem to make impossible any agreed solutions. Particularly concerning the global agenda, the major global conferences, Agenda 21, the Millennium and the recent Sustainable Development Goals, among others, have all been inspired by the central idea that only by amplifying cooperation, democratic participation, and the involvement of all stakeholders, the necessary adjustments could be pushed forward to bring our societies on the sustainability path. However, this point of view tended to ignore the immanently political nature of most decisions related to the environment, where we frequently deal with incompatible values and interests, which “cannot be satisfied

simultaneously – a choice has to be made regarding which interests to affirm and which to block, and to what degree is their balancing possible” (Paavola 2016, p.144).

Therefore, on the one hand, there has to be considered the current trend in environmental governance towards amplifying polycentric and multilevel practices of governance, which seem more in line with the necessity to consider the multiple economic, social, territorial, political and environmental interdependencies, the principles of interdisciplinarity and intersectorality, the plural values and interests existent in our complex societies, and the long-term view to handle adequately with sustainability issue. On the other hand, it has to be taken into consideration that all these emergent institutional structures change only gradually, due to institutional path dependence, may imply in situations of non-decisions as a result of strategic mutually blocking behavior (Benz 2007, p. 308), and finally, incur problems of democratic legitimacy in so far as decisions are increasingly taken in not democratically legitimized – that is, by electoral vote – governance arenas with limited political control by the people. As a consequence, this may lead to enhance political apathy, a condition observed in the context of the EU where exactly MLG has most powerfully prospered.

3. The challenge of complexity in the age of uncertainty: planning and environmental governance in the urban global south

We live in a confused and confusedly perceived world (Santos 2003), in which the transformations of our era have reached a degree of complexity that obliges us, from the point of view of scientific procedure, to search for new tools, concepts, theories and references to seek understanding and action in a world in metamorphosis (Beck 2015). Climate change, and its impacts, is one of the most critical issues that nature, citizens, corporations and governments are facing worldwide, with never-before-seen

commitments to global natural resources, including the production of goods and commodities for the circulation of capital, but also for the very subsistence of human civilization.

But does it have the potential to alter the social and political order of the world (Beck 2015)? Does it have the potential to alter governance and planning paradigms? The present stage of modernity has achieved characteristics distinct from those of the Illuminist project. Reflexivity consists in the incessant questioning of the conditions of existence of this modernity, and the simple process of accumulation of knowledge is no longer a guarantee of being right (Giddens 1991). In this sense a new rationality of planning and governing the common-pool resources is imperative. Answers are more difficult to attain than posing questions, and this is part of the process of building this new rationality, such as from trial-and-error learning, hindsight instead of foresight, heuristics, and the use of social instincts (Lubell 2013).

How to plan and govern common-pool resources in a complex system, in a world in metamorphosis, considering the global south particularities, or more specifically, the greater metropolis of the global south, São Paulo, and its expansion, the Sao Paulo Macrometropolis (SPMM)? In Ostrom's Work (1990) 'Governing the Commons: The Evolution of Institutions for Collective Action', the author devised a set of eight general principles of institutional design² that in order to characterize the effectiveness of multiple types of rules and sets of rules.

After three decades of her work, several studies test theoretical mechanisms and new themes of Ostrom's concepts. The principles of institutional design follow the proposal of institutional design as proposed by North (1990), as mechanisms for

² Cox, M., G. Arnold, and S. Villamayor Tomás (2010) reviewed the literature after Ostrom's book, systematizing the main criticisms, understandings and studies on established principles. It is Nagendra (2014, 2017, 2018) who seeks a greater interface between the assumptions of Ostrom's theory, and the governance of common resources, in urban environments

reducing uncertainty in complex and uncertain environments. Young (2002) contrasts the design principles approach with what he calls a diagnostic approach to analysis. He states, “Because design principles are framed as universal propositions, they should hold across all members of the relevant universe of cases” (Young 2002:170). In lieu of the design principles approach, Young (2002) favors a diagnostic process of subdividing environmental problems into subsets to tease out the institutional implications of different types of environmental problems.

3.1 Complexity in a global south metropolis/postmetropolis

In the São Paulo Macrometropolis (SPMM) case (Rezende e Ribeiro, 2017, Tavares, 2018), as in several other metropolises of the planet, the tensions/pressures on the natural resources have been increasing vertiginously, being catalyzed by increased climatic variability and, hence, more extreme weather events, be they excess of rains, or dry periods, affecting production and water supply as in the recent case of the water crisis of 2014-2015 (Jacobi et al., 2019).



Figure 1. São Paulo Macrometropolis (SPMM) location. Source: LaPlan/MacroAmb, 2018.

Cities or metropolises like the São Paulo Macrometropolis (Figure 1) concentrate large contingents of people, which depend on ecosystem services for their well-being. To understand and evaluate the provisions and demands for ecosystem services is fundamental to guide public policies at different territorial levels, from the local to the regional. Both the nucleus of cities, as well as their peri-urban and rural areas, can be considered adaptive complex systems, since socio-ecological relations are dynamic and pressure on the environment. There is a strong relationship between the dynamics of use and occupation of the urban land and its surroundings, with the

provision of essential ecosystem services such as water, food and energy. This integrated view of dynamic complex systems is fundamental to analyze sustainability (MEA 2005, TEEB 2010, IPBES 2018).

Integrated management requires an understanding of the existing interdependencies within socio-ecological systems in view of the growing scarcity of resources and the complexity of human organizations (Davidson-Hunt & Berkes 2002). Traditional fragmented and sectoral approaches are becoming less suitable under current conditions of reduced capacity of many ecosystems to provide the necessary resources and ecosystem services for social and economic development of our societies. These supportive ecological services for sustaining development can no longer be taken for granted (Folke et al., 2005).

The Atlantic Forest and the Cerrado are two of the main biodiversity-rich hotspots (Myers 2000), providing for watershed conservation, local and regional climate regulation, and carbon sinks. These ecosystem services are essential to meet SPM's demands for water, food and energy. Climate and vegetative areas increase SMMP's resilience to climatic events extremes, such as droughts and storms. In addition, urban and rural areas, both public and private, are part of the cultural identity of the territory.

Decision-making processes around the challenges of ensuring equity in the distribution of water in the metropolis and of reducing and equilibrating distortions, strengthening access for all to the public water supply system used to be conflictual (Lynn et al. 2000; Young 2009), as they confront highly organized economic interests. Transparency, conditions of accountability and a decisive role attributed to civil society are crucial elements, premises, for democratic public policy-making within an institutional framework of multilevel governance.

The extremely diverse, sometimes adversarial, stakeholders, institutions, interests, values, relations and issues involved in environmental governance of the Macrometropolis bespeak the strong interdependencies, and thus, the limitations of unilateral governmental action and the need of strengthening links with local governments, the private sector and social organizations. From a governance perspective, the fundamental challenge consists in the articulation and intermediation of interests, strategies and actions of the different public and private actors on the basis of public and inclusive deliberation forums, as foreseen in the federal and state legislations concerning the water resources policy.

Since 1950, seven periods of pronounced water shortages have occurred in the São Paulo Macrometropolis. This shows that reductions of the annual rainfall volume are not rare situations and have to be considered in the planning of the metropolitan public water supply system. It is interesting to verify, however, the behavior of the supply system between the two most recent crises. The penultimate dates back to 2004 and the last one started in 2013. These cycles are related to the El Niño-Southern Oscillation (ENSO) as shown by Côrtes et al. (2015). In periods of excessive rainfall, there were cases where the storage capacity of the reservoirs was exceeded. In those cases, the surplus volumes were released to the rivers downstream.

Rain below average contributed to the aggravation of water supply crisis. Several watersheds have been classified as critical, due to the low hydric availability in both quantitative and qualitative terms. In the SPMR hydric scarcity has become a structural problem due to increased deforestation around reservoirs and inadequate occupation of the watershed areas, by human settlements and pastures. But the water crisis is mainly caused by the pollution of waterways in the Alto Tiete basin, thus reducing significantly the water stock for domestic use. Relative scarcity constitutes a

secular reality of São Paulo, given that the city is located in the riverbed, with reduced water availability (Custodio, 2015).

Although the levels of the Cantareira System and climate forecasts indicated already in May 2013 the emergence of future water shortages, it is only at the beginning of 2014 that the Government of the State of São Paulo would acknowledge the existence of a water supply crisis. As the water outlet did not suffer a significant reduction, being above the water inlet in the System, the water level dropped rapidly. In May 2014, the levels of two reservoirs were very low, making it impossible to transfer them by gravity to a third reservoir. What remained in these reservoirs consisted of a volume intended to accommodate sediment and whose exploitation was not foreseen. Called "dead volume", this reserve has come to be called a "technical reserve" in a communication strategy aimed at smoothing the impacts of the crisis. The government tried to convince the population that this was a strategic reserve for times of crisis. Hence, it incorporated the "dead volume" (or "technical reserve") at the level of the Cantareira System, artificially increasing the supposed capacity of the overall supply system.

The crisis showed the fragility of the system of water governance in the Metropolitan Region. It evidenced inadequate practices of water management for decades. The main reasons were, first, the bad quality of the different waterways due to the delay in the conclusion of the main sewage treatment system, making it impossible to use these resources for public drinking-water supply; and second, the non-compliance with the legislation concerning decentralization, participation and policy integration. The water basin committees, the fundamental institutional arrangement of the Brazilian water policy, have been undermined during the crisis and the State Council of Water Resources was suspended as the main deliberative forum of the state water policy. The

lack of transparency on the part of the State government and the suspension of democratic practices have favored an authoritarian and autocratic model of governance during the water crisis in the SPMM.

One of the main reasons for this authoritarian and technocratic tendency, as identified by the literature (Jacobi et al. 2015) was the upcoming election at the State level. The government did not want to take an unpopular position promoting a preventive policy turn-over, notwithstanding the aggravation of the crisis. Peripheral neighborhoods and settlements suffered permanent interruptions of water supply, although the water management company affirmed that there were no supply shortfalls.

The main cause for the worst water crisis in the region, as emphasized by the State government of São Paulo and by the main means of communication, was the lack of rain in the summer 2013/2014. Therefore, the lack of transparency in the communication of the measures regarding the crisis and the constant denial by the State Government of the gravity of the crisis, hindered the involvement of civil society to confront it politically. The crisis itself, albeit contested its existence, served as justification to ignore and exclude NGOs and community organizations from governance, and to bypass the water basin committees, adopting authoritarian emergency strategies in conducting the crisis.

Not even the specifically created Crisis Committee had regular meetings and also did not produce the outcomes expected at the time of its creation, namely the development of a contingency plan and a communication plan to keep the population informed about the situation and the measures to be taken (Jacobi et al., 2015b)

3.2. Planning and Governance at the macrometropolitan level

From the previously outlined experience of the São Paulo water crisis, several questions arise regarding the requirements for planning and governance of highly integrated and ecologically interdependent urban agglomeration as in the case of the SPMM: How to govern such highly connected territories through socioeconomic and ecosystemic flows? How to promote a governance system able to combine or mediate contrasting interests, and also to guarantee sustainable development? These supra-urban new scales (Brenner, 2018) have become increasingly connected, creating socioeconomic and ecological interdependencies. However, our existing institutions have not been designed to lead with these kinds of interdependent and interconnected territories, and the different responsibilities used to be fragmented across multiple agencies, departments, governments, very often lacking coordinating and mediating governance mechanisms.

The great cities of the world have expanded unprecedentedly their boundaries, maintaining a joint and flowing core, with areas of industry influence (Magalhães, 2008, Soja 2013, Lencioni 2005). In São Paulo, the urban process followed the same pattern. And the invention of the São Paulo's Macrometropolis, by the State Government, is a concrete example of planning driven by economic interests.

In 2014 the Government of São Paulo launched the Action Plan for the São Paulo Macrometropolis (AP). It is the first policy and planning instrument having in focus the macrometropolitan territory as specific planning unit. The “Action Plan of the São Paulo Macrometropolis 2013-2040” (AP-SPMM) was published in 2014 by EMPLASA (the planning company of the São Paulo State Government³), in order to support the formulation and implementation of public policies for the sustainable development of SPMM, with targets set by 2040 (EMPLASA 2014). The AP-SPMM is

³ Recently, on May 15, 2019, the current governor of São Paulo passed a law at the Legislative Assembly to extinguish the planning company as part of his neoliberal state reform project.

an overall planning instrument structured in four different publications: “SPMM Development Policy”, “A Vision of the SPMM”, “Scenarios and Challenges of the SPMM” and the “AP-SPMM Project Portfolio” (EMPLASA 2014).

The AP-SPMM is thus a guiding instrument for the elaboration and implementation of public policies and the creation of a new institutional arrangement considered necessary for the governance of the macrometropolitan territory. This analysis allows us to evaluate whether the existing proposals to govern this complex territory, plunged in uncertainties but already in an advanced process of metropolization in an environment of fragmented sectorial institutional arrangements, incorporate the necessary dimensions for the promotion of environmental governance.

The detailed reading of the four volumes of AP-SPMM revealed a strongly developmentalist orientation of the plan, although the discourse of sustainability is ever-present, as axes, vectors and projects, and as a general narrative. The prevailing view is of integration in favor of development and economic growth. The importance of ecosystem services is acknowledged, although its relevance to the well-being and quality of life is underscored. In general, this concept is mentioned as a means to guarantee the maintenance of the "environmental assets" and, as its consequence, to foster economic development (EMPLASA, 2014, vol2, p31).

There is recognition per se of the need to integrate the territory and traditional sectorial policies, and to establish multilevel and polycentric dialogues. This is demonstrated in the Strategic Vision of AP-SPMM, which aims "to formulate integrated public policies for the territory of the MMP and to involve the other levels of government, the private sector and society in the proposal and implementation of the actions and the metropolitan projects", specially regarding Climate Change and Water Security.

The greatest challenges of sanitation in the SPMM concern the public water supply, sewage and pollution control (EMPLASA 2014). The AP-SPMM argues that the SPMM is struggling with an increasing water demand, water scarcity, pollution of water sources and the depletion of its main water supply systems in the absence of adequate water management measures, the water shortages could impose serious restrictions on regional development (EMPLASA 2014). The resolution of the conflicts surrounding water resources is a key requirement for the environmental sustainability of the SPMM (EMPLASA 2014).

The AP-SPMM states that the dumping of untreated or only partially treated wastewater is still a major cause of water pollution in the state of São Paulo (EMPLASA 2014). The report "Quality of Surface Water in the State of São Paulo in 2017", published in 2018 by the Environmental Company of the State of São Paulo (CETESB), shows that 85% of the urban population of SPMM is served by sewage collection, and 57% of the urban population of SPMM is served by treated sewage (CETESB 2018). The data available in the report shows that the Basic Sanitation Company of the State of Sao Paulo (SABESP) is the concessionaire responsible for basic sanitation of 63% of the municipalities that are part of the SPMM (CETESB 2018).

It is noteworthy that AP-SMMP is indeed a pioneer document not only in relation to the planning scale (Tavares, 2018), but also in assuming the discourse of decentralized actions, polycentric, multilevel and intersectoral governance. However, it fails, on the one hand, due to its limited, technocratic and rarely inclusive governance conceptions, and on the other, from the point of view of innovation, by not recognizing the central role of natural resources for a sustainable regional development project.

4. Environmental governance of the SPMM – useful lessons for the Global South?

Trying to apply the lessons learned from this short literature review, we could deduce for the case of environmental governance in metropolises in the Global South, and specifically for the São Paulo Macrometropolis, the following: although there are reasonable expectations regarding the importance of institutional diversification in line with the fundamental principles of multilevel and polycentric governance, we have to recognize that the already existing severe socioeconomic conflicts (Torres and Ramos, 2019) in this vast urban agglomeration and the apparent aggravation of these conflicts being expected for the near future due to the worsened ecological crisis, particularly related to climate change, will require an enormous effort in upgrading our adaptive capacities. This not only applies to the improvement of the urban infrastructure and the restructuring of the urban economy in a sustainable manner, but, not less important, there is urgent need regarding the development of planning and governance mechanisms and political institutions, which allow for including de facto the “regional society” in decision-making processes about the development of the Macrometropolis, at least if we intent to preserve democracy in a context of increasing scarcity, societal conflicts, and climate change related risks.

Put in the perspective of the vast empirical research of the “Ostrom school” on experiences of common-pool resources governance, mostly carried out at the community level, we first and foremost have to recognize the different scale we are dealing with on a metropolitan or macro-metropolitan level in a Global South Metropolis as in the case of São Paulo. What unites the “communities of individuals” (Ostrom, 1990:1), the common interest of these communities to govern their commons in behalf of the collectivity, very often lacks in such complex institutional, social and economic settings as we find in the São Paulo Macrometropolis and in other

metropolises of the Global South. Social, economic, and territorial inequality tends to hinder collective and consensual solutions related to the shared use of ecosystem resources. The prevalence of a developmentalist, growth-oriented, short-term profit seeking paradigm in the foral institutional governance regimes, as manifested for instance in the Action Plan for the SPMM, tends to suppress any communitarian bottom-up initiative trying to take control of common ecological resources.

Therefore, having in mind expectations regarding de facto transformational change in the Global South, there can't be any doubt of the necessity of a decisive intermediating role to be exercised by a democratically constituted State in view of the asymmetrical power relations that exist between the economic sector and the overall society, as well as within society itself. That is, improvements in this relation depend on the politicization of planning and governance (Randolph & Frey, 2019), and on the creation of the global city region or the macro-metropolitan scale as a real political arena (Frey, 2019), open to the overall public, especially the generally marginalized interests in such governmental spheres, where these political disputes can be effectively fought out and resolved.

This doesn't mean that there are no opportunities for communities of individuals taking their fate into their own hands, struggling for improvements and the shared use of common goods in the macrometropolitan context. And many such efforts are taking place day by day in the cities of the Global South, albeit frequently in highly adversarial political and institutional conditions. However, more far-reaching changes depend on the confrontation of the asymmetrical power relations and the unequal and exploitative material conditions, and thus, on the capacity of local communities to access and change the overall power structures which define and limit their development opportunities on the local level. By that, citizens and local communities, civil society and social

movements could and should become, step by step, more relevant agents of change within broader multilevel and polycentric governance arrangements. Much more research, however, is necessary in order to better understand if and how these kinds of interactions between institutional and extra-institutional processes and struggles could indeed converge towards effective transformational change.

References

- Andersson KP, Ostrom E. 2008. Analyzing decentralized resource regimes from a polycentric perspective. *Policy Sci.* 41:71-93.
- Bache I. 2002. Multi-level governance in the European Union. In: Levi-Faur, D. (ed.). *The Oxford Handbook of Governance*. Oxford: Oxford University Press, p.628-641
- Benz A. 2007. Multilevel governance. In: Benz, A. et al. *Handbuch Governance. Theoretische Grundlagen und empirische Anwendungsfelder*. Wiesbaden: Verlag für Sozialwissenschaften, 297-310.
- Cetesb. 2018. Qualidade das águas interiores no estado de São Paulo 2017 - Apêndice C - Dados do saneamento básico dos municípios paulistas. São Paulo : CETESB, 2018
- Cox M. G. Arnold, and S. Villamayor Tomás. 2010. A review of design principles for community-based natural resource management. *Ecology and Society* 15(4): 38.
- Daniel, C. 2001. Autonomia municipal e as relações com os estados e a União. Federalismo na Alemanha e no Brasil. In: Hofmeister, W.; Brasiliense Carneiro, J.B. (eds.) *Fundação Konrad Adenauer*. São Paulo.
- Davidson-Hunt, I. and F. Berkes. 2003. Learning as you journey: Anishinaabe perception of social-ecological environments and adaptive learning. *Conservation Ecology* 8(1): 5.
- Derkzen, Marthe L.; Nagendra, Harini; Van Teeffelen, Astrid J.A.; Purushotham, Anusha; Verburg, Peter H. 2017. Shifts in ecosystem services in deprived urban areas: Understanding people's responses and consequences for well-being. *Ecology and Society*, volume 22, issue 1.
- Emplasa. 2014. Plano de Ação da Macrometrópole Paulista 2013-2040. 1. ed. São Paulo.
- Emplasa, 2019. Macrometrópole Paulista. www.emplasa.sp.gov.br/mmp
- Folke, C., Hahn, T. Olsson, P., Norberg, J. 2005. ADAPTIVE GOVERNANCE OF SOCIAL-ECOLOGICAL SYSTEMS. *Annual Review of Environment and Resources* Vol. 30:441-473
- Frey, K. 2019. Global City Region. In: Orum, Anthony M.. (Org.). *The Wiley Blackwell Encyclopedia of Urban and Regional Studies*. Wiley.
- Giddens, Anthony. 1991. *As conseqüências da modernidade* /Anthony Giddens; tradução de Raul Fiker. - São. Paulo: Editora UNESP.
- Haase, D.; Larondelle, N.; et alli. 2014. A quantitative Review of Urban Ecosystem Services Assessments: Concepts, Models, and Implementation. *Ambio*, 43:413-433.
- Hardin, G. 1968. The tragedy of the commons. *Science*, 162: 1243-1248.
- Heikkila T, Villamayor-Tomás, S, Garrick, D. 2018. Bringing polycentric systems into focus for environmental governance. 28(4): 207-211.
- Hooghe, L.; Marks, G. 2003. Unraveling the central state, but how? Types of multi-level governance. *American Political Science Review*, 97:2, p. 233-243.
- IPBES. 2018. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. <https://www.ipbes.net/>
- Jacobi, P., Torres, P., Gresse, E. 2019. Governing shallow waters: SDG 6 and water security in São Paulo. *GWSI Series*, UNESCO.
- Kübler, D., Pagano, M.A. 2012. Urban politics as multilevel analysis. In: Moosberger, K. et al. (eds.). *The Oxford Handbook of Urban Politics*. Oxford: Oxford University Press, p. 114-129.
- Lencioni, S. 2005. A Emergência de um Novo Fato Urbano de Caráter Metropolitano em São Paulo. *Boletim Paulista de Geografia*, São Paulo, v. 82, p. 45-64.

- Lubell, M. 2013. Governing Institutional Complexity: The Ecology of Games Framework. *Policy Studies Journal*. Volume 41, Issue 3. Pages 537-559.
- Magalhães, F. N. C. 2008. Da metrópole à cidade-região: na direção de um novo arranjo espacial metropolitano?. *Revista Brasileira de Estudos Urbanos e Regionais*, [S.l.], v. 10, n. 2, p. 9, nov.
- McCay, B. J. & Acheson, J. M. 1987. Human ecology of the commons. In: McCay, B. J. & Acheson, J. M. (eds.). *The question of the commons: the culture and ecology of communal resources*. Tucson: The University of Arizona Press, pp. 1-34.
- McGinnis M.D., Ostrom E. 2012 Reflections on Vincent Ostrom, Public Administration and Polycentricity. *Public Administration Review*. 72(1): 15-25.
- Marks, G. 1993. Structural policy and multi-level governance in the EC. In: Alan Cafruny and Glenda Rosenthal, eds., *The state of the European community*, New York: Lynne Rienner, p. 391-410.
- MEA, 2005. United Nations. <https://www.millenniumassessment.org/en/index.html>
- Mitchell-Weaver, C., Miller, D., & Deal, R. 2000. Multilevel Governance and Metropolitan Regionalism in the USA. *Urban Studies*, 37(5-6), 851-876.
- MYERS, N. Mittermeier, R., Mittermeier, C. Fonseca, G., Kent, J. (2000). Biodiversity hotspots for conservation priorities. *Nature* volume 403, pages 853-858.
- Nagendra, Harini and Elinor, Ostrom. 2014. Applying the Social-Ecological System Framework to the Diagnosis of Urban Lake Commons in Bangalore, India. *Ecology and Society*, 19 (2). pp. 1-18. ISSN 1708-3087
- Nagendra, H., Bai, X., Brondizio, E., Lwasa, S. 2018. The urban south and the predicament of global sustainability. *Nature Sustainability* volume 1, pages 341-349.
- OECD. 2017. Multi-level governance reforms: overview of OECD countries experiences. *OECD Multi-Level Governance Studies*, OECD Publishing: Paris.
- Ostrom, E. 1990. *Governing the commons: the evolution of institutions for collective action*. Cambridge University Press, Cambridge, UK.
- _____. 2007. A diagnostic approach for going beyond panaceas. *Proceedings of the National Academy of Sciences* 104(39):15181-15187.
- _____. 2009. A general framework for analyzing sustainability of social-ecological systems. *Science* 325(5939):419-422.
- _____. 2010. A long polycentric journey. *Annual Review of Political Science*. 13:1-23.
- _____. 2005. *Understanding institutional diversity*. Princeton, NJ: Princeton University Press.
- Paavola, J. 2016. Multi-level environmental governance: exploring the economic explanations. *Environmental Policy and Governance*, 26, p. 143-154.
- Pierre, J. (2011). *The politics of urban governance*. Houndsmill/New York: Palgrave McMillan.
- Tavares, J. 2018. Formação da macrometrópole no Brasil: Construção teórica e conceitual de uma região de planejamento. *EURE (Santiago)*, 44(133), 115-134.
- TEEB, 2010. <http://www.teebweb.org/>
- Ulrich, B. 2015. Emancipatory catastrophism: What does it mean to climate change and risk society?
- Randolph, R., Frey, K. 2019. Planning and Governance: Towards Radical Political Approaches. In: Eraydin, A.; Frey, K. (eds.). *Politics and Conflict in Governance and Planning. Theory and Praxis*. New York: Routledge, 26-39.
- Rezende C. H.; Ribeiro S. J. W. 2017. A expansão da macrometrópole e a criação de novas RMs: um novo rumo para a metropolização institucional no estado de São Paulo? *Cadernos Metrôpole*, vol. 19, núm. 40, septiembre-diciembre, pp. 703-720

- Santos, M. 2003. Por uma outra globalização: do pensamento único à consciência universal. 10. ed. Rio de Janeiro: Record. 174 p.
- Silva, T. S. 2015. Aguas e Saneamento na macrometropole paulista. Revista Iberoamericana de Urbanismo nº12. p-137-156.
- Soja, E. W. 2013. Para além de postmetropolis. rev. ufmg, belo horizonte, v. 20, n.1, p.136-167.
- Stephenson, P. 2013. Twenty years of multi-level governance: ‘Where does it come from? What is it? Where is it going?’. Journal of European Public Policy, 20:6, p. 817-837.
- Tagnin, R. A. 2015. A natureza e o espaço da água e sua presença na macrometrópole paulista. São Paulo. 255 p. PHD Thesys. FAUUSP. University of São Paulo.
- Torres, P H C., Ramos, R. Conflitos Ambientais na Macrometrópole Paulista. Revista Ambiente & Sociedade, 2019.
- Young, O. R. 2002. The institutional dimensions of environmental change: fit, interplay, and scale. MIT Press, Cambridge, Massachusetts, USA.
- _____. 2019. Constructing diagnostic trees: A stepwise approach to institutional design. Earth System Governance. <https://doi.org/10.1016/j.esg.2019.02.001>
- Zürn, M. 2012. Global governance as multi-level governance. In: Levi-Faur, D. (ed.). The Oxford Handbook of Governance. Oxford: Oxford University Press, p. 730-744.