



4th International Conference on
Public Policy (ICPP4)
June 26-28, 2019 – Montréal

Panel T14-P20 Session 1

*Sustainable Development, Environment Governance and Urban
Policy*

**Climate change and coordination of public policies: challenges for
local governments in Brazil**

Authors

YOUNG, Carlos Eduardo Frickmann

Institute of Economics, Federal University of Rio de Janeiro (UFRJ)

young@ie.ufrj.br

CASTRO, Biannca Scarpeline de

Institute of Applied Social Sciences,

Rural Federal University of Rio de Janeiro (UFRRJ)

bianccastro2@gmail.com

Date of presentation

June 28, 2019



Abstract

There is a growing gap between scientific knowledge about the consequences of climate change and concrete adaptation measures adopted by governments to address the problem. This trend is global, but the situation is worse in developing countries, where adaptation to climate change remains at a very low of priority within public policies design and implementation. On the other hand, these public administrations are not prepared to deal with the increasing volume of problems expected as a result of climate change. These problems involve various dimensions of governance: civil defense, health, transport, construction and urban planning, etc. In addition, environmental problems mostly result in costs that will be fully expressed in the future, generating a bias for current governments to postpone adaptation measures. Most of the increased pressure will occur at the local level, because environmental issues are closely linked to local conditions. Floods, landslides, tornadoes and windstorms, droughts, epidemic diseases, and other difficulties arising from climate change generate social demands that are primarily directed to local governments. Public policies are necessary to deal with the complex set of problems expected from climate change, and it is also necessary to establish coordination between policies. In order to contribute to this debate, this article discusses the need for coordination of public policies to deal with problems associated to climate change in the context of Brazilian local (municipal) governments. Resilience to climate disasters is small, and the costs associated with disasters tend to increase over time. In addition, there is an aspect of inequality inherent in the process: vulnerability is inversely proportional to the degree of economic development of the states. Specific public policies are necessary, to be established, in a coordinated way. Environmental resilience policies, such as reordering cities to adapt to climate change, create opportunities for a new pattern of development with social inclusion. Unfortunately, the reality of Brazilian cities is far from this. Public policies aimed at generating resilience face considerable resistance in their implementation, given that they are generally seen as impediments to economic growth. In this way, realpolitik tries to use the common shortcomings of coordination as an excuse to ignore the growing popular demand for improved management of natural resources. Without planning and long-term vision, even the minimum demands for action, are not met and opportunities are wasted, while tragedies continue to occur repetitively.

Keywords

Climate change, urban policy, coordination of public policies, Brazil



Introduction

Even though the scientific evidence is more and more robust about climate change (STOCKER et al.; FIELD et al. 2014; PBMC, 2014), and disasters and other consequences of extreme events are increasingly frequent (UNISDR, 2014; YOUNG et al. 2016), concrete adaptation measures taken by public administrations to tackle these problems remain very minor.

The problem is worse in developing countries, where public administrations are very far from being prepared to deal with the increasing volume of problems that are already beginning to be generated as a consequence of climate change. Even though climate change denial is often present, the main argument used for this low level of response is usually the lack of financial and human resources available to invest in prevention and adaptation to climate change consequences. However, the growing incidence of manifestations of these problems, involving various dimensions of public management (civil defense, health, transport, works and urbanism), causes feedback effects in terms of worsening resources availability for the implementation of public policies: the negative impacts of climate change result in growing costs of public management, worsening fiscal conditions. In other words, today's decisions that induce environmental liabilities end up in the worsening of future fiscal and management capabilities of the public administrations that will be responsible to deal with the consequences of the problems expected from climate change.

The greater pressure should occur in sub-national governments, especially at the very local level, since environmental problems are strongly linked to urban public policies (BIDERMAN, 2012; SANTANNA, 2018). Abrupt or gradual flooding, landslides, tornadoes and windfalls, droughts, spread of epidemic diseases, displaced or displaced population, and other difficulties caused by climate change generate social demands that are first charged to local authorities. In order to deal with the complex network of expected problems, which are interdependent but have specific characteristics, there is a high necessity of coordination of the many different public policies and agents. The objective of this article is to discuss the need to coordinate public policies to make cities more resilient to the expected socioeconomic



problems with climate change. However, the literature on coordination of climate change policies remains relatively small if compared to the dimension of the problems that are expected to come.

This article aims to discuss the need for coordination of public policies to deal with problems associated to climate change in the context of Brazilian local (municipal) governments. Concerns about the resilience to climate disasters is small, but the costs associated with disasters tend to increase over time. In addition, there is an aspect of inequality inherent in the process: vulnerability is inversely proportional to the degree of economic development of the states.

Specific public policies are necessary, to be established, in a coordinated way. Environmental resilience policies, such as reordering cities to adapt to climate change, create opportunities for a new pattern of development with social inclusion. Unfortunately, the reality of Brazilian cities is far from this. Public policies aimed at generating resilience face considerable resistance in their implementation, given that they are generally seen as impediments to economic growth. In this way, *realpolitik* tries to use the common shortcomings of coordination as an excuse to ignore the growing popular demand for improved management of natural resources. Without planning and long-term vision, even the minimum demands for action, are not met and opportunities are wasted, while tragedies continue to occur repetitively.

Climate change and socioeconomic impacts

Natural disasters are defined as "adverse events, natural or man-made, on a vulnerable environment, causing serious disruption to the functioning of a community or society, involving extensive human, material, economic or environmental losses and damages that exceed its ability to cope with the problem using their own means "(BRAZIL, 2012a). The advance of knowledge about climate change shows that natural disasters associated with extreme weather events will grow in the future, and there is strong evidence that such



phenomena are already occurring in the present (PBMC, 2014; YOUNG et al. 2016). The negative socio-economic effects of these disasters are manifested in various ways, such as:

- Direct costs incurred to social and economic infrastructure, including homeless and displaced persons, but also loss of productive fixed capital.
- Permanent or temporary loss of productive capacity and interruption of essential services
- Immaterial human losses, including deaths, disability and health problems (permanent and temporary).
- Public spending and indirect macroeconomic losses

Under the United Nations, the Sendai Framework for Disaster Risk Reduction 2015-2030 (UNSIDR, 2015) is the most important instrument for the implementation of disaster risk reduction, replacing the previous Hyogo Framework for Action for 2005 -2015. The Sendai Protocol establishes four priority areas for increasing the resilience of communities vulnerable to disasters in the context of sustainable development:

- Know and understand the risk of disasters.
- Strengthen governance on disaster risk, and the capacity to manage these risks.
- Invest in resilience for disaster risk reduction.
- Be prepared for an effective response, and to "better rebuild" recovery, rehabilitation and reconstruction actions.

However, in Brazil, as in the vast majority of developing countries, effective capacity to prevent or mitigate the impacts of natural disasters is much lower than necessary to achieve the four priority areas described above. The regulatory framework that establishes the National Policy for Protection and Civil Defense (PNPDEC) is Law No. 12,608, of April 10, 2012 (BRAZIL, 2012a). However, as the Brazilian Federal Government itself acknowledges, municipalities' capacity to respond to disaster-related actions is very low:

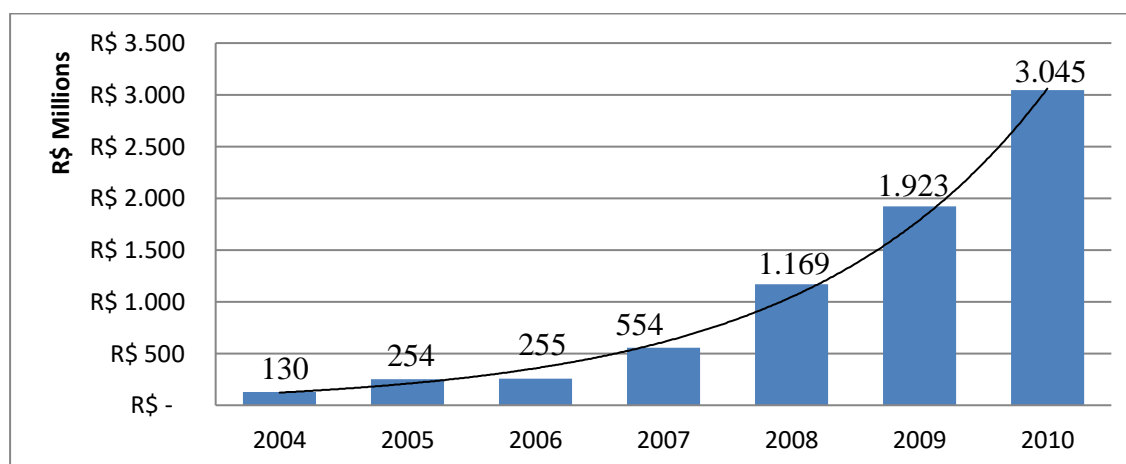
"(...) we can see the low implementation of municipal civil defense (less than 10% of Brazilian municipalities have civil defense agencies implemented and structured), which demonstrates

the need for policies aimed at the implementation and structuring of these bodies localities, especially in municipalities that are recurrently affected by disasters "(BRASIL 2011, p.4).

The economic dimension of these losses is significant. Considering only the effects in terms of federal public resources made available for disasters, the costs are in the order of billions of reais per year.

Figure 1, based on data from Annex X of the 2012-2015 Pluriannual Plan prepared by the Strategic Planning and Investment Secretariat (BRASIL, 2011), shows the evolution of resources passed on for Response and Reconstruction, which presented a markedly increasing performance in the period.

Figure 1 - Resources Destined for Disaster Response and Reconstruction, R \$ Million 2004 - 2010.



SOURCE: Brasil (2011).

The World Bank conducted a series of studies evaluating the costs of climate disasters in the states of Rio de Janeiro, Santa Catarina, Alagoas and Pernambuco (BANCO MUNDIAL, 2012, a, b, c, d). In these reports, the costs of these disasters were estimated, including an extensive estimate of direct and indirect losses and damages, as well as data on human damages. The losses and damages were calculated from official data, considering four sectors: infrastructure (subdivided into transport, telecommunications, water and sanitation and energy), social



**4th International Conference on
Public Policy (ICPP4)
June 26-28, 2019 – Montréal**

sectors (subdivided into housing, health and education), productive sectors (subdivided into agriculture, industry, trade and tourism) and the environment.

The study carried out for Rio de Janeiro referred to the tragedy in Serra Fluminense in January 2011, with about 1,000 dead or missing, and more than 300,000 people affected. The World Bank estimate was of losses of R\$ 4.8 billion (at 2010 prices), considering only the replacement cost in the affected sectors, besides the cost in readjustment measures and reduction of vulnerability (for example, rental assistance for homeless families or slope restraint). However, the report draws attention to the fact that some sub-sectors, especially health and education, do not have detailed information about their respective losses and damages and therefore their final calculation has underestimation bias.

Based on this study, Young et al. (2014) estimated economic losses for the state of Rio de Janeiro for the period 2001-2010 with disasters related to heavy rains - floods, floods and mass displacement.¹ The methodology of the study was the crossing of coefficients of average losses (per homeless person, displaced or affected) with the occurrence data of these natural disasters contained in the Brazilian Atlas of Natural Disasters (CEPED, 2013). The Atlas uses official primary disaster data obtained from the National Center for Risk and Disaster Management (CENAD) of the National Secretariat of Civil Defense (SEDEC), linked to the Ministry of National Integration.

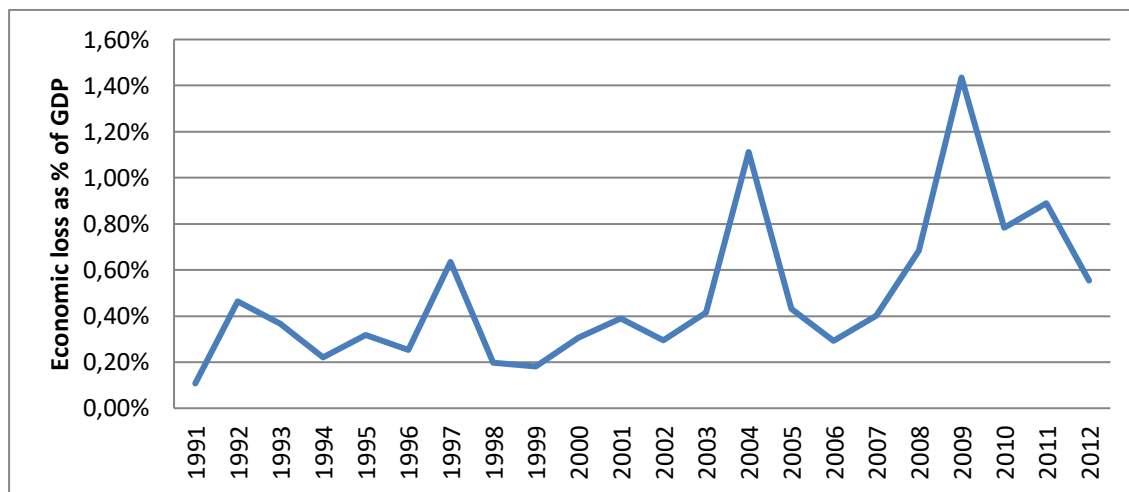
The mean value of the loss estimates presented in Young et al. (2014) was R\$ 46.5 billion for the period 2001-2010, or R\$ 4.5 billion per year in average. In relative terms, these values fluctuate between 0.5% and 1.6% of the 2010 GDP of Rio de Janeiro, with an average of 1.1%, values that are possibly much higher than the expenditures on prevention - the absence of aggregate statistics on prevent a more accurate analysis. Even more serious is the fact that more than 90% of the records (520 of 557) were concentrated in the second half of the period

¹ Mass movements are soil / rock breaks, which include landslides, debris / mud races, and rock block falls. Flushed are disasters associated with high velocity and energy runoff, triggered by intense and concentrated rains.

analyzed (2001-2010), and that in the last decade the trend of the incidence of disasters is sharply increasing.

In a subsequent study, considering the entire country, Young et al. (2016) estimated that the economic losses associated to extreme rain events (landslides and floods) reached between R\$ 180 billion and R\$ 358 billion in the period 2002-2012. They also found that the economic costs of disasters grow with time (figure 2). The problem is relatively worse in the North and Northeast regions (the poorest in Brazil), where the estimates of the annual losses are around 1.5-1.6% of the regional GDP.

Figure 2 – Economic loss due to extreme events (floods and landslides) as % of GDP, Brazil, 1991-2012



Source: Young et al. (2016)

Santanna (2018) assessed the effects of public policies on the occurrence of natural disasters related to extreme rainfall. By using a geolocated database on natural disasters in the state of Rio de Janeiro, Brazil, he tested whether variables related to public policies - e.g. forest cover and urban infrastructure - affect the occurrence of natural disasters, conditional on the existence of extreme rainfall. Results pointed to a significant role for public policies in order to mitigate effects of extreme weather events, especially for urban infrastructure (as proper



sewage and waste collection) and forest cover in reducing the impacts of extreme rainfall. These results reinforce the idea that adaptation policies to disasters are essential in reducing local vulnerabilities and can yield distributional and fiscal benefits.

Therefore, it is clear that the number and severity of problems associated with climate disasters will increase in time, including socioeconomic losses. But cities' responsiveness does not evolve at the required pace. Therefore, it is urgent that public policies be established to ensure greater resilience to these impacts. However, these policies must be implemented in a coordinated way to ensure their effectiveness and efficiency - the coordination of these public policies is discussed in the next section.

Resilience and coordination of public policies

Castro and Young (2017) elaborated a model to discuss the coordination of public policies, improving the scheme originally proposed by Silva (2011). In this model, the management units of the social programs (government portfolio responsible for the program) have the challenge of obtaining cooperation in six dimensions:

- I. Challenge of coordination between management units and productive agents
- II. Challenge of coordination between management units and civil society
- III. Challenge of coordination between management units and other powers (republican cooperation)
- IV. Coordination challenge between management units, Union, States and Municipalities (federative coordination).
- V. Coordination challenge within the management unit itself (horizontal coordination)
- VI. Coordination challenge between management units and international institutions.

This section discusses issues related to each of these challenges in the context of public policies focused on resilience to climatic disasters in Brazilian cities.



I. Coordination with the market (productive agents)

The main economic reason that hinders coordination between the management unit and the productive sector is the private cost of implementing the policy: although there is consensus about the importance of public policy, the productive sector reacts negatively when the restrictions are established in the private sphere and the more private costs, the greater the resistance to politics.

In the case of climate events, an obvious example is the failure to meet safety standards using arguments of negative impacts on productive activity. The occupation of risk areas for construction, the continuity of activities in this area (for housing, services or industry) and the agricultural use of areas that should be permanently preserved are usually defended under the motto that the cost of relocating these areas activities is too high to be borne by affected agents - however, the cost of inaction is never considered, i.e. the potential cost in case the risk materializes in a disaster.

Failure to comply with disaster prevention policies is also the result of "top-down" enforcement, often without evidence to the population at risk of the consequences of disasters, including in socio-economic terms. Improved communication and greater social participation in the discussion of actions to be taken may also increase the likelihood of population acceptance of the need for relocation and other measures involving costs.

On the other hand, the investment needed to deal with risk involves the generation of employment and income, especially in construction activities. These job opportunities can be used as a way of occupying the affected populations themselves, many of them characterized by low employability. In other words, Green Economy strategies can flourish within policies aimed at ensuring greater resilience to cities (YOUNG, 2015).

From the point of view of financing these actions, it is important to create adaptation funds that can be generated by the potentially affected economic sectors. The socialization of risks is a common practice in the business sector, quite accustomed to the concept of insurance payment. The creation of adaptation funds, both for emergency and preventive needs can be an instrument, can contribute to the costs required to ensure greater resilience to cities are



not only borne by the public sector. The discussion of redefinition of taxes and subsidies in order to distribute the costs of adaptation to climate change among economic agents can also contribute to the financing of the necessary public policies.

II. Coordination with society: social organizations

The coordination of the management units that implement a public policy with civil society must be carried out from two main groups: the public policy groups and the actors who participate effectively in the elaboration or monitoring of public policy through councils and other forms of popular participation in the decision-making process.

With regard to target groups, the implementation of the public policy will depend on the political and economic resources available to them. In the case of climate disasters, there are socially more fragile groups, such as communities living in areas of risk, which have less resources to take the necessary measures to reduce risks, especially when it comes to relocation. The active participation of these communities in the formulation of public policies, as already discussed above, can facilitate the acceptance of the measures to be implemented, so that the actions are also implemented endogenously.

It should be noted that social organizations have a leading role in emergency actions, and mobilization at critical moments has very important results in supporting affected populations. However, this movement is usually characterized as a response to the sensitization of the drama experienced in extreme events, with much less intensity in popular participation in preventive actions. As municipal administrations have closer contact with the population precisely because they deal with everyday issues (urban planning, use of public space, garbage collection, local development actions, etc.), they have greater permeability and capacity for community engagement. Thus, the public policy management unit needs to develop coordination mechanisms with these civil society actors in order for public environmental policies to be carried out.

III. Republican Coordination



**4th International Conference on
Public Policy (ICPP4)
June 26-28, 2019 – Montréal**

Republican coordination refers to the organization of democratic regimes and the relationship between the Executive, Legislative and Judiciary branches. The difficulty of co-ordination between these powers is notorious, and it is usually manifested by the competition between these powers.

The relationship between executive and legislative is conflicting, among other reasons, because both have the prerogative to create laws (PALERMO, 2000). In addition, executive and legislative mandates in Brazil are fixed independently, and do not depend on mutual trust, reducing the bargaining power between them. The political system is defined by the need for coalitions through formal and informal agreements with different politicians. This makes it difficult to establish long-term goals, and the political routine is established mainly by the exchange of benefits of short-term interest.

However, natural disasters involve the need for emergency measures, and the exclusivity to Legislate on certain issues means that the Executive is able to control the Legislative agenda, both in terms of the timing of its decisions and its agenda, while the legislation has the power to bar the executive's proposals and, if not co-opted, to oversee its actions (BORGES, 2005). As a result, the Executive is left without effective control, and it is quite common for emergency resources, when released, to be applied without planning, including many cases of corruption.

Another important actor for the coordination of public policies is the Judiciary. A contemporary controversy is the tendency towards the judicialization of politics, understood as the expansion of the Judiciary in the decision-making process for domains previously reserved for other powers (SILVA & FLORÊNCIO, 2011). Regardless of the opposing or favorable arguments to this phenomenon, it is important to note that the decision that lent authority to the judiciary in order to resolve issues previously held by the other powers was political. That is, the politicians themselves, in the difficulty of making decisions, negotiating or implementing actions, have had the space of the judiciary to solve their issues, using this mechanism as a strategic institutional resource of government. These actors have also encouraged citizens to seek the judiciary to secure their rights and control public power.



To the extent that the Executive omits to resolve demands, there is an increasing demand for intervention by the Judiciary, especially the Public Prosecutor's Office, so that the established legislation is enforced. That is, the Judiciary has been increasingly activated by affected social groups to act as "inspector", which should be the role of the Executive.

The problem is aggravated by the poor knowledge of municipal managers and legislators about the seriousness of the expected consequences for the future. This debate should intensify in the coming years with the increase of extreme climatic events, and the relation of conflicts between powers will tend to be accentuated by the different positions taken by each one with respect to the policies to be adopted. This situation will increase the need for coordination between the management unit and the players that make up this dimension.

IV. Federal Coordination

Brazil is a federalist country, in which there is a sharing of sovereignty regarding the decisions and responsibilities between three distinct spheres of autonomous governments: Union, States and Municipalities. This allows that, in spite of the constitutional attributions, the federative entities establish their own agendas and priorities and they can administer themselves. Precisely because of these characteristics, coupled with the competition between the different levels of government, territorial inequality and the transfer of costs from the local to the national level, some authors consider the federal states difficult to coordinate, with national public policies being implemented as a minimum common point (ARRETCHÉ, 2006).

Federative coordination refers to the management of relations between the various levels of government, and it aims to balance the forms of cooperation and competition that exist between them. However, the characteristics of the Brazilian political system make it difficult to coordinate between federative entities, since even if the respective heads of government are from the same party, or are part of a coalition, they will not necessarily act together towards a goal common.

Due to the mentioned difficulties to coordinate public policies in a federation, authors such as Arretche (2006) highlight the advantages of the concentration of authority in the Federal



**4th International Conference on
Public Policy (ICPP4)
June 26-28, 2019 – Montréal**

Government: reducing the risk of conflicts between the different spheres; reducing the cost of implementing policies; reduction of policy overlap; and achievement of redistributive results. For the author, the best way to guarantee the coordination of actions among the federative spheres is to condition the monetary transfers of the states and municipalities to the adherence of the policies and objectives of the federal government or to use the legislation to constitutionalize charges, and these actions can only be carried out according to the institutional framework at the disposal of the government, defined historically.

On the other hand, the Federal Government's greater distance from the places where environmental issues are manifested, makes the argument for greater effectiveness through the centralization of public environmental policies questionable. There is strong pressure from experts and organized social groups, mainly NGOs, in addition to subnational governments, for greater decentralization of public environmental management. For this reason, the sensitivity of subnational governments, notably municipalities, is much greater to deal with the problems of natural disasters.

In practice, however, a number of problems of lack of federative coordination have contributed to the results being far below the desired one. In the first place, there is great heterogeneity in the technical capacity of states and municipalities. The problem is aggravated in metropolitan areas, where population problems - floods, epidemic diseases, lack of mobility, etc. - transcend administrative boundaries.

A second important issue for the Brazilian case concerns conflicts of competence. In many cases there are no clear rules as to which environmental entity is responsible for carrying out a given public policy, and the confusion created thereby creates serious problems: the role of each federative entity in natural disaster-related matters must be clearly defined, be passed on to the affected population.

The creation of metropolitan authorities, or intermunicipal consortia, can be an important tool for inserting resilience issues into long-term planning and action in times of crisis.

V. International Coordination



**4th International Conference on
Public Policy (ICPP4)
June 26-28, 2019 – Montréal**

There is a complex system of international institutions focused on cooperation in the area of natural disasters. The United Nations Office for Disaster Risk Reduction (<http://www.unisdr.org>) heads this system and is responsible for organizing the United Nations Conferences on Disaster Risk Reduction. Institutionally, the Sendai Protocol (UNSIDR, 2015), officially adopted in March 2015, is the main reference document, including for international cooperation in the area.

There are also continental initiatives, such as the Inter-American Committee for Natural Disaster Reduction, established within the framework of the Organization of American States, and initiatives of international cooperation agencies of developed countries. There are also cooperation agreements on specific issues, including institutions dealing with related issues (refugees, public health) and international networks of first responders.

However, most public administrations are not able to demand the resources made available by international cooperation. Problems previously mentioned lack of structure, knowledge or even political interest make dialogue difficult to dialogue with international institutions and regulations.

For this reason, there is an asymmetry in the ability of Brazilian municipalities and states to access international resources. The greater the availability of well-trained technicians in the administrative body, the greater the likelihood of such cooperation happening. For this reason, international cooperation may end up concentrating on municipalities and states with the highest human development index (HDI), despite the fact that the greatest needs are in the areas with the lowest HDI.

One example is the initiative of the Leading Cities Group on Climate Change (C40). This Group establishes a very important partnership among the largest cities in the world (including Rio de Janeiro, São Paulo, Curitiba and Salvador) on issues related to climate change, including resilience. However, for reasons of administrative boundaries, the outlying cities of the metropolitan regions of these same cities are excluded. Developing mechanisms of cooperation between federative entities, through federative coordination (with emphasis on metropolitan regions), is essential to overcome these obstacles.



VI. Horizontal coordination

Horizontal coordination can be characterized as the difficulty of articulating different actors and/or processes of the same management unit in the implementation of public policies. Differences of perspective between managers responsible for their implementation and planners, especially those linked to the promotion of productive activities, often result in inconsistencies between hierarchically equivalent bodies within the bureaucracy, resulting in uncertainties, delays and inefficiency.

The lack of horizontal coordination in the area of disasters is evident when one realizes that actions of a particular area of government ignores safety recommendations established by another portion of the administration, notably civil defense. A tragic example of this lack of coordination occurred at Bumba Hill, in Niterói (State of Rio de Janeiro), when 267 people died and about one thousand were affected by a landslide in 2010. The area was initially occupied by a dump, which was deactivated and the area would be destined for revegetation with native species. However, there was no restriction for occupation of the area by residents, and later administrations came to corroborate such occupation, establishing infrastructure (water supply, light supply and even paving a street) even knowing about the inadequacy of the place for residences. After the established occupation, the Civil Defense of Niterói condemned the area in 2004, precisely due to the instability of the soil as a result of tons of organic material accumulated during its use as garbage deposit. However, there was no enforcement of this order, and the final result was a tragedy, when the structure of the ground could not withstand the pressure of heavy rain, occurring the massive landslide. Sadly, several newspaper articles reported that families have returned to live in the same area, even without the completion of the soil stabilization work (O Dia, 2015).

But there are also advances. Integrated operation centers are examples where horizontal coordination is established in the routine of large cities. These are spaces where representatives of various bodies related to the most varied aspects of life in major cities (transit, security, essential services, etc.) are present in real time on all kinds of problems. This



type of initiative facilitates crisis management by streamlining and coordinating decision-making, and the COR in Rio de Janeiro is the best example in Brazil (PINTO, 2017).

However, it should be noted that operations centers are usually limited to reactions to emergency problems: the information and knowledge generated can contribute to the city's resilience, understood as a capacity for response in the long term, but decision making is far from being carried out in an integrated environment. Another problem is its cost of implementation and maintenance. The technological resources used to cover the city in real time (cameras, high-speed connections, staff made available for 365 days/24 hours, etc.) are difficult to obtain for smaller municipalities. Technologically simplified solutions should be designed for most Brazilian municipalities, while maintaining public management innovations that emphasize horizontal coordination in real time.

Conclusion

This article sought to present the different dimensions of public policy coordination that should be considered to ensure greater resilience to cities in dealing with the effects of climate change. Socioeconomic aspects have been emphasized, but this does not mean that immaterial losses are less relevant - the most important thing, above all, is to guarantee the protection of human life.

It has been shown that the cost of the lack of resilience to climate disasters is high, with a tendency to increase over time. In addition, there is an aspect of inequality inherent in the process: vulnerability is inversely proportional to the degree of economic development of the states.

Ojima and Marandola Jr (2012) understand vulnerability as the reverse of sustainability - in this sense, the promotion of concrete urban management actions aimed at reducing environmental vulnerability also creates new opportunities for development. Investments in re-modeling cities to deal with the impacts of climate change are also sources of effective demand and employment generation for the Green Economy, perceived as a path of economic



**4th International Conference on
Public Policy (ICPP4)
June 26-28, 2019 – Montréal**

development, where social inclusion and environmental conservation act as engines rather than obstacles, to higher levels of well-being and productivity (Young, 2015). This strategy can allow the productive sector to benefit from actions aimed at reducing vulnerability through a virtuous cycle of growth.

However, the transition to a Green Economy does not happen spontaneously: specific public policies need to be coordinated in order to bring about the separation between production and demand of natural resources, through resource-intensive and resource-saving innovations. Spatially, these investments have to be located in specific areas, and the city is the locus par excellence where these investments are realized. Therefore, environmental resilience policies, such as reordering cities to adapt to climate change, create opportunities for a new pattern of development with social inclusion.

Unfortunately, the reality of Brazilian cities is far from this type of vision. Public policies aimed at generating resilience face considerable resistance in their implementation, given that they are generally seen as impediments to economic growth. In this way, realpolitik tries to use the common shortcomings of coordination as an excuse to ignore the growing popular demand for improved management of natural resources. Without planning and long-term vision, even the minimum demands for action foreseen in PNPDEC are not met. Opportunities are wasted, and tragedies continue to repeat themselves as more and more announced farces.

References

- ARRETCHE, M. (2006). Federalismo e Políticas Sociais no Brasil: Problemas de Coordenação e Autonomia. In: SARAVIA, E. & FERRAREZI, E. (ed.) Políticas públicas; coletânea. Brasília: ENAP.
- BANCO MUNDIAL (2012a). Avaliação de Perdas e Danos: Inundações Bruscas em Santa Catarina - Novembro de 2008. Relatório elaborado pelo Banco Mundial com apoio do Governo do Estado de Santa Catarina. Brasília: Banco Mundial.



**4th International Conference on
Public Policy (ICPP4)
June 26-28, 2019 – Montréal**

BANCO MUNDIAL (2012b). Inundações Bruscas em Pernambuco - Junho de 2010. Relatório elaborado pelo Banco Mundial com apoio do Governo do Estado de Pernambuco. Brasília: Banco Mundial.

BANCO MUNDIAL (2012c). Inundações Bruscas em Alagoas - Junho de 2010. Relatório elaborado pelo Banco Mundial com apoio do Governo do Estado de Alagoas. Brasília: Banco Mundial.

BANCO MUNDIAL (2012d). Inundações e Deslizamentos na Região Serrana do Rio de Janeiro – Janeiro de 2011. Relatório elaborado pelo Banco Mundial com apoio do Governo do Estado do Rio de Janeiro. Brasília: Banco Mundial.

BIDERMAN, R. (2012). Mudanças Climáticas Globais e Políticas Públicas no Nível Subnacional. Cadernos Adenauer (1):121:132.

BORGES, A.S. (2005). Papel do Poder Legislativo na Produção de Políticas Públicas no Maranhão. II Jornada Internacional de Políticas Públicas. São Luís – MA, 23 a 26 de agosto 2005.

BRASIL (2011). Ministério da Integração Nacional. Plano Plurianual 2012-2015 Anexo X – Programas Temáticos Programa 2040 - Gestão de Riscos e Resposta a Desastres. Brasília: Ministério da Integração Nacional. Available at: http://www.integracao.gov.br/c/document_library/get_file?uuid=e008bc1e-64bb-4eab-ac09-50451032c336&groupId=10157 (acesso em 01/06/2015).

BRASIL (2012a). Law nº 12.608, 10 April 2012. Institui a Política Nacional de Proteção e Defesa Civil (PNPDEC); Dispõe sobre o Sistema Nacional de Proteção e Defesa Civil (Sinpdec) e o Conselho Nacional de Proteção e Defesa Civil (Conpedec); Autoriza a criação do Sistema de Informações e Monitoramento de Desastres; e á outras providências.



**4th International Conference on
Public Policy (ICPP4)
June 26-28, 2019 – Montréal**

BRASIL (2012b). Ministério da Integração Nacional. Secretaria Nacional de Defesa Civil. Centro Nacional de Gerenciamento de Riscos e Desastres. Anuário brasileiro de desastres naturais: 2012 / Centro Nacional de Gerenciamento de Riscos e Desastres. - Brasília: CENAD.

CASTRO, B.S., YOUNG, C.E.F. (2017). Problemas de coordenação de políticas públicas: desafios para a gestão ambiental no Brasil. Síntese (Revista do TCE – RJ), v. 12, pp. 32-53.

CEPED - Centro Universitário de Estudos e Pesquisas sobre Desastres (2013). Atlas Brasileiro de Desastres Naturais: 1991 a 2012. Florianópolis: CEPED/UFSC. Available at: <http://150.162.127.14:8080/atlas/Brasil%20Rev%202.pdf>.

FIELD, C.B. et al. (2014) "Summary for policymakers." Climate change 2014: impacts, adaptation, and vulnerability. Part A: global and sectoral aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press. pp. 1-32.

O DIA (2015). Cinco anos após tragédia, moradores voltam ao Morro do Bumba, em Niterói. 07/04/2015. Available at: <http://odia.ig.com.br/noticia/rio-de-janeiro/2015-04-07/cinco-anos-apos-tragedia-moradores-voltam-ao-morro-do-bumba-em-niteroi.html>.

OJIMA, R., MARANDOLA JR, E. (2012) O desenvolvimento sustentável como desafio para as cidades brasileiras. Cadernos Adenauer (1), pp.23-36.

PALERMO, V. (2000) Como se governa o Brasil? O debate sobre instituições políticas e gestão de governo. Dados [online], vol.43, n.3, pp. 521-557.

PBMC - Painel Brasileiro de Mudanças Climáticas. Impactos, vulnerabilidades e adaptação às mudanças climáticas (2014). Contribuição do Grupo de Trabalho 2 do Painel Brasileiro de Mudanças Climáticas. *Primeiro Relatório da Avaliação Nacional sobre Mudanças Climáticas* [Assad, E.D., Magalhães, A.R. (eds.)]. COPPE. Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ, Brasil. ISBN: 978-85-285-0207-7.



**4th International Conference on
Public Policy (ICPP4)
June 26-28, 2019 – Montréal**

PINTO, J.A.S. (2017) A gestão municipal no enfrentamento e adaptação dos riscos e desastres climáticos: Centro de Operações Rio e a Coordenação de Políticas Públicas. Dissertação (Mestrado em Mestrado Acadêmico em Administração) - Universidade Federal Rural do Rio de Janeiro.

SANTANNA, A.A. (2018) Not So Natural: Unequal Effects of Public Policies on the Occurrence of Disasters. *Ecological Economics*, Vol.152 (Oct), pp. 273-281.

SILVA, J.A.; FLORÊNCIO, P.L. (2011). Políticas Judiciárias no Brasil: o Judiciário como autor de políticas públicas. *Revista do Serviço Público*. Brasília 62(2), pp.119-136.

SILVA, L.A.L. (2011) A emergência da intersetorialidade como tema chave na análise de políticas sociais. *Anais do II Fórum Brasileiro de Pós-graduação em Ciência Política*. São Carlos.

SILVA, L.A.L. (2012) Gestão de políticas sociais: desafios contemporâneos de cooperação e coordenação. *Temas de Administração Pública*, v. 4, n. 7.

STOCKER, T. (2014). *Climate change 2013: the physical science basis: Working Group I contribution to the Fifth assessment report of the Intergovernmental Panel on Climate Change*. Cambridge University Press.

UNSIDR (2015). *Sendai Framework for Disaster Risk Reduction 2015-2030*. UNSIDR: Sendai. 2015.

YOUNG, C.E.F.; AGUIAR, C.; POSSAS, E. (2014) Perdas Econômicas dos Desastres Climáticos no Estado do Rio de Janeiro, 2001-2010. *Cadernos do Desenvolvimento Fluminense*, vol. 5, pp.19-30.

YOUNG, C.E.F. (2015). *Green growth and social inclusion: possibilities and challenges for the Brazilian economy*. REDLATN Working Paper n.176. ISSN 2222-4823

YOUNG, C.E.F. et al. (2016) Valorando Tempestades: Custo Econômico dos Desastres Climáticos Extremos no Brasil nos anos de 2002- 2012. In: Valéria da Vinha; Liandra Caldasso;



**4th International Conference on
Public Policy (ICPP4)
June 26-28, 2019 – Montréal**

Simone Madalosso. (Org.). Meio ambiente e políticas públicas no Brasil: uma abordagem multidisciplinar. Rio de Janeiro: PoD Editora, pp. 13-24.