

Subnational Climate Policies: a proposal for monitoring in Rio Grande do Sul, Brazil

*Políticas Climáticas Subnacionais: uma proposta de monitoramento
no Rio Grande do Sul, Brasil*

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ABSTRACT

The climate change policy for Rio Grande do Sul, adopted in 2010, lays out an ambitious range of plans, projects and programs to be implemented in an integrated way by the state government. Essentially, it proposes a reorientation of the regional economy, reducing policies for development and economic growth that are not in line with climate change mitigation and adaptation. On the eve of completing one decade in force, this article proposes the adoption of a tool for monitoring climate initiatives developed within the Open Climate Network to assess this public policy in the state of Rio Grande do Sul. To this end, the main mitigation and adaptation initiatives in the state, from 2011 to 2017, are recorded and described in a systematic format. According to this tool, Rio Grande do Sul stands in the second phase of action, that is, adoption and testing of instruments to guide and control economic agents to reduce greenhouse gas emissions. In short, until now it represents more a policy of an administration, than a state policy. Based on the actions and policies implemented so far, it does not seem realistic it will achieve the reduction targets set forth in the state legislation until 2025.

Keywords: Monitoring of climate policy. Subnational governance. Rio Grande do Sul.

RESUMO

A Política Gaúcha sobre Mudanças Climáticas, sancionada em 2010, elenca ambiciosa gama de planos, projetos e programas setoriais a serem instituídos de forma integrada pelo Executivo. Essencialmente, propõe uma reorientação da economia regional, coibindo políticas de fomento e crescimento econômico que não estejam em linha com a mitigação e a adaptação climática. Às vésperas de completar uma década em vigor, o artigo propõe a adoção de ferramenta de monitoramento de iniciativas climáticas, desenvolvida pela rede Open ClimateNetwork, para acompanhamento dessa política pública no estado do Rio Grande do Sul. Para tanto, as principais iniciativas de mitigação e adaptação climática no estado, no período de 2011 a 2017, foram registradas e descritas no formato sistemático composto tanto por quadros, como por memorial descritivo. Segundo a classificação por essa ferramenta, o Rio Grande do Sul encontra-se no segundo estágio, qual seja, adoção e teste de instrumentos de fomento e controle dos agentes econômicos para redução das emissões de gases de efeito estufa. Em síntese, trata-se de uma política de governo, ainda não uma política de Estado. Com base nas ações e políticas instituídas até o momento, não parece realista que sejam alcançadas as metas de redução previstas na legislação estadual até 2025.

Palavras-chave: Monitoramento de política climática; Governança subnacional; Rio Grande do Sul.

1 INTRODUCTION

Under discussion since 2012, the National Adaptation Plan (NAP) became law in May 2016. During the elaboration of the NAP, the Getúlio Vargas Foundation (FGV) was in charge with systematizing contributions to “the dilemma of bringing coherence to the articulation of the federal government with states and sectors of the economy” (FGV, 2014, p. 4). One of the conclusions of this project was the recognition that climate adaptation presents a challenge for state executives, requiring an effort to knowledge management. The final report lists monitoring and evaluation actions as a source of knowledge for the improvement of sub-national climate policies.

In this sense, the Civil House of the Presidency and the Ministry of the Environment (MMA) established the Center for Federal Articulation for Climate. This commission instructed the Nucleus of Socio-Environmental Economics of the University of São Paulo to carry out a diagnosis on subnational climate policies between 2013 and 2014, pointing out the challenge of harmonizing federal initiatives with state governments (INSTITUTO ETHOS, 2012), since the cycle of preparation, adoption, and implementation cycle of federal policies rarely occurs in a coordinated manner or exactly as planned.

In addition, federal policies have different regional reception, according to the capacity of access and implementation by the subnational entities (SILVA, 2013, RESENDE, 2014). The NAP is apparently no exception to the rule, since mitigation and adaptation programs are being created, as territorial coalitions of specific interests are established, obtaining regionally differentiated impacts. The Low-Carbon Agriculture (ABC) Plan, launched in 2010, has achieved larger targets in the Midwest and Southeast regions, which together concentrate 53% of the total funding available. Goiás and Minas Gerais are the states that most accessed financial resources, both in the 2015/26 and the 2016/17 farming period (VENDRAMINI, ROCHA and PEIRÃO, 2017).

Within this context, Rio Grande do Sul (RS) has established a prominent position. At academic studies (ANTUNES and SANCHEZ, 2013; BARBI and FERREIRA, 2017), analyses by the Federal Government (ROMEIRO and PARENTE, 2011) or studies commissioned by the World Bank (PAGIOLA, GLEHN and TAFFARELLO, 2013), the state has been recorded as reference of a proactive sub-national government in adapting to climate change. The Network of Regional Governments for Sustainable Development (NRG4SD) registers the state as a founding member.

In the early 1970s, RS was the country’s largest greenhouse gas (GHG) emitter due to irrigated rice farming and beef ranching. Due to the continuous deforestation of the Amazon Rainforest and the expansion of low technology cattle ranching, Mato Grosso and Pará states currently compete for this position (IMAFLOA, 2015). However, RS state occupies the third position in the national ranking of number of people displaced by natural disasters (ESTARQUE, 02/03/18).

The State Department for the Environment and Sustainable Development (SEMA) announced that it was awarded the seal of the Carbon Disclosure Program, in October 2017 (MILMAN, 10/12/17). In its annual report, the program reports that regional governments of several participating countries are moving towards achieving the goals of the Paris Agreement: “states and regions around the world are setting increasingly stringent targets for reducing greenhouse gas greenhouse effect [...] favoring transparency” (TCG, 2017, p.1).

This article argues that, similar to the national level, projects and programs for mitigation and adaptation to climate change are being established in RS (yet) in an uncoordinated way. It represents an opportunity to promote a debate about the potentials, limits and also the lessons learned by the implementation of the State Policy on Climate Change (PGMC).

This paper proposes elements for an evaluation of the degree of implementation of the PGMC, using a reference framework developed within the Open Climate Network (OCN) - a network that integrates research institutions and civil society organizations from leading countries in this debate on climate change, with funding mostly from the Netherlands, Sweden, Germany and Denmark. The Brazilian experience is represented through the participation of two national

organizations, FGV and Instituto Centro de Vida. The tools of the OCN establish the analysis of public governance as a priority, in order to contribute to the interpretation of the effectiveness of climate policies.

Data for this paper were collected between March 2016 and December 2017. Primary sources, such as studies, plans and reports from the state government were collected and analyzed. In parallel, telephone consultations were organized, followed by interviews, with specialists and managers in five state agencies. Technical visits were made to the six companies that run adaptation initiatives and seven farms in the central region of the state. The selection of interviewees took as criteria their role, both in the implementation of public policies and in leading innovation in production processes that reduce GHG emissions. The opinions gathered by the interviews were related to data from other sources, informing the three Tables presented in this article.

The article is organized in four sections besides this introduction. The first aims to present the selection process of climate policy monitoring tool proposed within the OCN network in the context of the international debate. The second section presents the goals and objectives of the PGMC. The third section discusses, based on an OCN tool, the implementation stage of the PGMC for the period from 2011 to 2017. The fourth section presents final considerations and conclusions.

2 CLIMATE POLICY MONITORING

Sub-national climate policies are helping to foster economic innovations, with implications still scarcely recognized in the specialized literature, generally focused on the national sphere. To date, climate policy monitoring and evaluation initiatives in Brazil, have been carried out with the support of international cooperation:

- The mid-term evaluation of the national Climate Fund was coordinated by the Economic Commission for Latin America and the Caribbean, through technical and financial cooperation from the Government of Germany (TABOULCHANAS et al., 2016);
- The evaluation of the Brazilian Climate Policy was conducted by the World Resources Institute (WRI), through contributions from the Dutch, Danish and Swedish Governments (SPERANZA et al., 2017);
- Monitoring of the ABC Plan, maintained by FGV, is based on the support of the Climate and Land Use Alliance, with support from American foundations (GURGEL, 2017).

In the framework of the international debate, recommendations for monitoring and evaluating climate initiatives are mainly developed for systems at the national level (OLIVIER, 2015; CHRISTIANSEN et al, 2016). The first step for this paper was to identify, within the framework of the international and national debate, a tool for application with sub-national policies.

To accelerate the implementation of sub-national climate policies in 2016, the United Nations Framework Convention on Climate Change launched the Marrakech Partnership. This initiative promotes transparency through two online platforms, the Non-State Actor Zone for Climate Action, and Climate Initiatives (UNCCS, 2017). Both platforms register government initiatives, as reported voluntarily by their representatives, therefore, without external validation.

Among the programs that carry out an external audit assessment of territorial emissions, the Climate Action Tracker, a network of European research institutes, which monitors emissions from major economies, should be mentioned on a global scale. And, in Brazil, the Greenhouse Gas Emissions and Removal Estimates System (SEEG), created by the Climate Observatory, a network of Brazilian civil society organizations. Both Climate Tracker and SEEG conduct land-based inventories to estimate the annual volume of emissions, promoting transparency. However, the fluctuations in the performance of the economy, and therefore of the emissions, depend (yet) more on the respective level of economic growth, than on regulatory milestones.

The municipality of São Paulo was considered a pioneer sub-national unit for adopting, in 2009, legislation to control GHG emissions. According to the second inventory of emissions of the municipality, coordinated by the Ekos Institute (2013), between 2003 and 2011 emissions rose from 15.7 million tCO₂e/year to 16.4 million tCO₂e/year, since in the same period the car fleet grew 51% and energy consumption grew 33%.

In turn, Rodrigues-Filho et al. (2015) demonstrate how the advance of illegal deforestation in the Amazon Region depends less on the adoption of plans or legislation than on the instability arising from periods of political transition at the national level. Both examples that reinforce the argument that the annual volume of GHG emissions of a territorial unit is an objectively verifiable indicator of the performance of the respective economy, but does not necessarily allow conclusions on the respective regulatory framework.

The Brazilian Climate Change Research Network represents the state of the art of national research on mitigation and adaptation. According to its most recent report (SOUSA NETO and SOARES, 2017), the Regional Development sub-network has its focus defined by biomes (Amazon, Cerrado, Pantanal and Caatinga) with priority for the perception of family farmers (BURSZTYN and RODRIGUES-FILHO, 2016). While the Public Policy sub-network has as its focus on the use of photovoltaic panels in the dry Northeast (CRUZ and LUEDEMANN, 2017) as well as the debate on environmental licensing (COSTA, KLUG and PAULSEN, 2017).

While the Observatory for Public Policies of Climate Change, located in São Paulo, is maintained by the Climate Forum: Business Action on Climate Change. It published, in 2015, mapping of the subnational climatic regulatory milestones, however, without proposal of monitoring or analysis regarding its implementation (SPERANZA and RESENDE, 2015). The Climate Network and the Climate Forum therefore offer scientifically-based information and dissemination regarding mitigation and adaptation in the country, but do not carry out monitoring of subnational initiatives.

In this context, this paper proposes a reflection based on the adoption of the Climate Policy Implementation Tracking Framework tool (hereinafter referred to as Framework), which integrates a set of tools developed within the OCN network. The Framework was developed under the coordination of WRI, with financial cooperation from the German Government and the ClimateWorks Foundation, based on tests in South Africa, Mexico and the USA (BARUA, FRANSEN and WOOD, 2014). Followed by evaluation of China's climate policies (SONG et al., 2015), and Brazilian policies (SPERANZA et al., 2017).

According to the authors, the Framework aims to support monitoring of national and subnational climate policies by civil society actors, in order to promote transparency and accountability for the reduction of GHG emissions. The scope of the Framework is to identify and monitor the degree of adoption and implementation of the respective climate policy. To do so, it differentiates three stages of policy implementation:

- Planning and testing - legislation being drafted, or submitted to the Legislative, in the analysis phase, debates, seminars and benchmarking;
- Adoption and validation - legislation has been sanctioned, but, regulations not yet approved, first tests in execution;
- Full implementation - legislation has been sanctioned, specific resources have been allocated in the public budget, human resources are available and activities are underway.

This analysis of the level of implementation, with priority for the role played of the executive, does not allow a value judgment to be made of the effectiveness or relevance of the process of selecting projects, programs and standards identified as priorities for the reduction of GHG emissions by the respective climate policy. It is a tool that seeks to contribute to the analysis of public governance capacity, in addition to the quantification of GHG emissions in the territory.

The Framework establishes five stages for its operationalization:

1. Identification and characterization of public policy;

2. Identification of legislative and executive frameworks for policy adoption;
3. Selection and elaboration of indicators for the adoption of the policy;
4. Elaboration of the monitoring plan;
5. Monitoring and evaluation in the policy process.

Given the current degree of implementation of climate policy in RS, the present work proposes an operationalization for stages 1 to 3 of the Framework, aiming to contribute to stages 4 and 5 in future studies.

3 OBJECTIVES AND GOALS OF PGMC

The object of analysis of this work is the Rio Grande do Sul State Policy on Climate Change (PGMC), sanctioned by Law No. 13,594, of 12/30/2010. Article 2 sets out the objective of “establishing the conditions for necessary adaptations to the impacts [...] to contribute to reducing the concentration of greenhouse gases”. And Article 8, establishes a voluntary commitment “to reduce total emissions at the state level, proportional to that established at the national level”, which means that by 2025 the RS should reduce its total emissions by 37%, taking as base the year 2005.

To achieve this goal, Article 5 defines a set of 14 specific objectives in the areas of mitigation and adaptation:

1. Integrate mitigation and adaptation within development policies;
2. Promote projects to reduce GHG emissions;
3. Encourage changes in habits and patterns of consumption, economic activities, transportation and land use in rural and urban areas;
4. Prevention and adaptation to the impacts of climate change;
5. Promote environmental education and social awareness;
6. Stimulate research and dissemination of scientific knowledge;
7. Promote public engagement and participation;
8. Apply indicators and performance targets on GHG emissions in the economy;
9. Value assets and reduce environmental liabilities in RS;
10. Preserve and expand existing carbon stocks in the RS;
11. Create economic, financial and fiscal instruments for implementing this law;
12. Promote a sustainable urban planning system;
13. Promote the competitiveness of environmental goods and services from RS;
14. Increase the share of renewable sources in the energy matrix.

This set of specific objectives is complemented by Article 7, guideline No. II, on regional development: “Formulate, implement, publish and regularly update regional programs that include measures to mitigate climate change, as well as measures to allow adequate adaptation to climate change. “ Given the scope, or even overlap, of this wide range of objectives, for the purpose of this analysis we follow Speranza et al. (2017) and synthesized six PGMC guidelines:

- Promote projects to reduce emissions and sequester GHG;
- Increase the share of renewable sources in the energy matrix;
- Stimulate research and dissemination of scientific knowledge;

- Encourage changes in habits and patterns of consumption, economic activities, transportation, urban and rural land use;
- Create economic, financial and fiscal instruments;
- Create a State System for Climate Change Management.

It is important to emphasize the validity of the legislation, since between the Transitional and Final Provisions, Article 4. Paragraph one, concludes with the definition: "Following the state inventory on GHG and the State Plan on Climate Change, the state government is prohibited from granting incentives of any nature to economic activities indicated in the inventory and by the State Forum on Climate Change as a contribution to greenhouse gas emissions."

From its sanction, therefore, PGMC provides two conditions to promote the changes provided for in Article 4, changing incentives, financing, exemptions and policies that support the state's economic growth. As a first step, the realization of a state inventory of GHG emissions, and then the implementation of the State Plan on Climate Change.

To achieve these objectives, SEMA requested cooperation from the Government of France in a project coordinated by the French Agency for Environment and Energy, which also included the states of Paraná and Minas Gerais. RS state government started adopting the methodology of territorial planning integrating climate, air and energy, the Schéma Regional Climat-Air-Energie, established by French subnational governments since 2007 (CHARENTENAY, LESEUR and BORDIER, 2012). The project aims "to establish a global and integrated territorial strategy for air quality management and reduction of greenhouse gas emissions in RS, with focus on the metropolitan region of the capital Porto Alegre and the industrial zones of the cities Caxias do Sul and Rio Grande" (ENVIROCONSULT et al., 2011, p.2).

The cooperative project conducted the first GHG inventory in the state, conducted by a consortium of companies from France and Rio Grande do Sul (ENVIROCONSULT et al., 2010). Total GHG emissions from RS was estimated at 58.7 million teqCO₂ in 2005, corresponding to emissions of 5.6 teqCO₂ percapita. Agriculture was the largest emitter, accounting for 67.8% of emissions, followed by energy/ transportation with 27.2% of emissions in that year. Among the different greenhouse gases, methane accounted for 46% of the total emissions, from both beef and dairy farms, and also irrigated rice farms.

As part of the French cooperation project, two organizational inventories were also conducted as a learning space for state employees. The emissions of a public agency, the State Foundation for the Environment, and a private company, CMPC Celulose Riograndense (CMPC, 2010) were inventoried. In addition, the project shared information so that the State Foundation for the Environment could prepare the Vehicle Pollution Control Plan in the State of Rio Grande do Sul (RS, 2010).

The final report of the project, the PACE Plan, integrates three partial proposals:

- Air Quality Management Plan;
- Climate and Territorial Energy Plan;
- Integration with development policies of RS.

The PACE Plan sought to contribute to: "reduce the influence of the federal structure in order to regionalize the policy of coping with climate change" (ENVIROCONSULT et al., 2011, p.4), establishing, thus, the first version of a State Plan of Climate Change.

4 PROPOSAL FOR MONITORING PGMC INSTRUMENTS

Along the process of debate and drafting of the law some objectives were transformed into instruments, that is, plans, programs or new funds to be integrated into the public budget. Still others depend on the creation of an institutional framework with definition of management organizations and new revenue sources, as presented in Table 1.

Three years after the PGMC sanction, Decree No. 50,590, dated 08/26/2013, instituted the ABC Plan in RS. In its preamble, the decree lists as justification both federal and state laws on climate change. In the same year, representatives of the government of RS participated in the first workshop organized by the Center for Federal Articulation for Climate, held in São Paulo, and reported that: “The climate change policy in Rio Grande do Sul exists, but is not yet regulated. There have been no targets established because it is not yet an effective policy” (BRAZIL, 2013, p.2).

Two years later, State Decree No. 52,751, dated 12/4/15, signals a change in the executive’s priorities. This standard establishes the State Policy for Soil and Water Conservation, relating as justification both the National Policy on Climate Change and Decree No. 50,590 that establishes the ABC Plan in RS, however, fails to mention the PGMC.

Seven years after the enactment of the PGMC, it remained unregulated. Table 1, elaborated according to the Framework model, thus presents a proposal recording the instruments provided by law for the adoption of a state monitoring and evaluation system. The major challenge, therefore, will be to transform the PGMC into a state policy, transversal to state development policies.

Table 1 - proposal for tracking PGMC instruments.

| Policy Instrument | Tracked? | Policy or Plan | Data Source | Policy in practice |
|--|----------|------------------------------------|-----------------------------------|-------------------------|
| Plans | | | | |
| State Plan on Climate Change | Yes | PACE Plan Final Report | fepam.gov.br | Notregulated |
| Economic Ecological Zoning | No | N/A | Law 12.651 May 25/2012 | Running |
| Regional Adaptation Programs | Yes | Budget 2020-2024 Agenda RS 2030 | planejamento.rs.gov.br | Not started |
| Assistance plans for municipalities | Yes | Prevention PAC | metroplan.rs.gov.br | Initial phase I |
| Control of urban land use | No | N/A | N/A | N/A |
| Control of rural land use | Yes | Environmental Registry up to 2032 | Federal Law 12.651 May 25/2012 | Initial phase |
| Watershed Management Plans | Yes | 17 elaborated plans | Decree 53.885 Jan. 18/2017 | Suspended collection |
| State Plan of Solid Waste | Yes | Evaluation of sanitary landfills | Law 14.528 Apr. 16/2014 | Running |
| Financing | | | | |
| Promotion of GHG emissions reduction | Yes | Revisionofstate policies | Law 13.594 Dec. 30/2010 | Not started |
| State Fund for Climate Change | Yes | Disbursement volume | Law 13.594 Dec. 30/2010 | Not started |
| Incentives | | | | |
| PromoteCDM projects | No | N/A | N/A | N/A |
| Reduction of GHG emissions in companies | Yes | Reduction of annual volume | Law 13.594 Dec. 30/2010 | Not started |
| Emission reduction GHG public agencies | Yes | Annual volume reduction | Law 13.594 Dec. 30/2014 | Not started |
| Tracking | | | | |
| State GHG Inventory | Yes | PACE Plan Inventory 2010 | fepam.res.gov.br | Realized base year 2005 |
| Strategic Environmental Assessment | Yes | Revisionofsectoral policies | Law 13.594 Dec. 30/2010 | Not started |
| Public Register of Emissions | Yes | Publication of registration | Law 13.594 Dec. 30/2010 | Not started |
| Governance | | | | |
| Rio Grande do Sul ClimateChangeForum | Yes | Minutes of the meetings | Decree 45.098 Jun. 15/2007 | Inactive |
| Intersectoral Committee of State Departments | Yes | Minutes of the meetings | Law 13.594 Dec. 30/2010 | Inactive |
| PGMC Executive Secretariat | Yes | Administrative Acts | Law 13.594 Dec. 30/2010 | Inactive |

Source: prepared by the author. Note: N/A not applicable

It should be noted that the items presented in Table 1 do not exhaust the scope of the PGMC. They were listed for analysis because they were proposed in the drafting process of that legislation.

We propose that the commitment to establish Sustainable Urban Plans should not be a priority for monitoring, insofar as the federal law Estatuto da Cidade establishes goals, targets and procedures for urban planning in the country. In the first Monitoring and Evaluation Report of the National Adaptation Plan, the Ministry of Cities confirms that it is responsible for advising Municipal Land Use Plans, as well as providing the Urban Planning Manual (BRASIL, 2017).

We also do not prioritize the monitoring of the Economic Ecological Zoning, since this tool has been adopted by other states since the 1980s, especially in the Amazon and Caatinga biomes. In none of these states was the study adopted as normative for territorial planning, with the exception of Acre, where, for reasons of local politics, zoning renewed a social pact that allowed the adoption of a new development strategy (BRASIL, 2008; ANDERSEN and KÄSSMAYER, 2012).

A third item of Table 1, the promotion of CDM projects, should not be a priority of monitoring, since the experience with this kind of shows that they guarantee profitability and return to the investor, but do not promote poverty reduction (BROSE, 2009; GULLEN, 2010).

Table 1 summarizes that the PGMC still has gaps and limits for its full implementation. The Framework monitoring tool values analysis based on governance principles, however, we argue that responsibility does not rest solely on the state executive. In view of the proactive and voluntary action of social actors in the RS, outside the PGMC sphere of governability, we recommend the inclusion of related initiatives, such as the examples of municipal actions listed in Table 2. It presents four pioneering projects in the management of water resources in line with mitigation and adaptation to climate change, but without finance or control by the state executive.

Table 2 - Climate adaptation instruments under implementation by local actors.

| Item | Tracking? | Policy or Plan | Milestones | Data Source |
|--------------------------------------|-----------|-------------------------|----------------------------|-------------------------|
| PES municipality Vera Cruz | Yes | Water Protector Project | Disbursement Beneficiaries | veracruz.rs.gov.br |
| PES Rio Ibicuí Basin | Yes | Pilot Project PES | Disbursement Beneficiaries | otinga.com.br |
| IPTU Progressive Venâncio Aires | Yes | Greenurbantax | Targets Discounts | venancioaires.rs.gov.br |
| Storage of rainwater in São Leopoldo | Yes | Law 8.665 Aug. 16/2017 | Objectives Results | saoleopoldo.rs.gov.br |

Source: prepared by the author.

4.1 INSTITUTIONAL ARRANGEMENT OF PGMC

Table 2 seeks to reinforce the argument that the impacts of climate change do not limit themselves to the administrative delimitations of the territory, even less to the sectoral divisions of the state executive. Their coping depends on interdisciplinary and intersectorial effort. The governance structure for implementing climate policy therefore depends on a cross-cutting approach instead of to the usual organizational logic in the public sector. Consistently, Article 27 establishes that the objectives and instruments of the public policies in RS should be compatible with the PGMC, beyond the limits of the environmental sphere and establishing the PGMC as the guiding axis of socioeconomic development in the state.

In addition to the intersectoriality and integration between state policies, these should be linked to federal policies. The National Policy on Climate Change represents a national commitment to reduce emissions that can only be achieved through articulation with the other units of the federation. The Federative Climate Arrangement Nucleus was established in 2013 to harmonize climate policies with state governments. Initially two working groups were created, the State Inventories WG and the Emissions Report WG. However, given the oscillations of the political transition in the federal government, the actions of the Nucleus were discontinued in 2015.

Article 29 of the PGMC stipulates that the Rio Grande do Sul Climate Change Forum must be coordinated by SEMA and composed keeping a balance between the representation of academia, government and

civil society. The Forum should be the formal space for debate and position on climate change issues in the state. Additionally, managed by the Forum, the Climate Change and Environmental Disasters Fund should be created to finance the actions of the State Plan on Climate Change.

The state government should create and maintain the Public Emissions Register, establishing measurable criteria and transparent monitoring of the results of measures for mitigation of greenhouse gases. Registration will initially be voluntary for both private enterprises and public bodies. Participating companies of the registry will have priority in the concession of public financing with extension of terms and/or reduction of the interest rate.

4.2 ANALYSIS OF THE STAGE OF IMPLEMENTATION OF PGM C

The PGM C records in its Article 2 that it should guide the elaboration of "programs, projects and actions related to it directly or indirectly". With this generic formulation, the legislator at the same time opened a window of opportunity as he deferred to the future the details for the operationalization of this policy.

After seven years, we propose the inclusion in the future system of monitoring and evaluation of the climate policy those plans, programs and projects already implemented by the State Government, that is, included in the budget cycle 2012-2015 and 2016-2019, as recorded in Table 3.

Table 3 - Analysis of the stage of implementation of climate policy instruments in RS, as of Dec 2017

| Plan or Policy | Date | Legal Framework | Responsible Authority | Milestones | Implementation stage |
|--|------------|----------------------------------|---|--|--|
| State Water Resources Policy | 12/30/1994 | Law 10,350 | State Department for the Environment | Installation of basin management committees Charges for use of water | 25 committees working Not yet established |
| Pro-Irrigation/RS State Irrigation Program | 12/11/2008 | Law 13,063 (repealed Law 14.328) | State Department for Irrigation | 8,000 cisterns Dams: Arroio Jaguari; Taquarembó; S. Sepé 48,000 ha irrigated | 3,200 cisterns Public works suspended |
| State Plan for Control of Vehicular Pollution | 11/18/2010 | Decree CONAMA No. 418 | FEPAM DETRAN-RS | Reduction of air pollution Vehicle Inspection Introduction | Suspended |
| Irrigating Family Agriculture | 01/01/2011 | Article 47 Law 13,601 | State Secretariat for Rural Development | Subsidy up to 80% for cisterns and irrigation systems | 1,660 projects; 2,000 hectare irrigated; closed |
| Prevention PAC | 05/25/2012 | N/A | METROPLAN Ministry of Cities | BRL 258 million in investments in the Metropolitan Region for flood control | Basic studies for Rio Gravataí; Rio dos Sinos; Jacuí Delta |
| Pro-Energy /RS | 09/26/2012 | Law draft 354 in 2011 | State energy company; IADB; EU; ClimatePolicy/ France | BRL 483.5 million, 14 Substations; 19 transmission lines; increased efficiency for 66,000 km | Running |
| Program for the Expansion of Irrigated Agriculture | 05/27/2013 | Law 14.244 | State Secretariat for Agriculture | Subsidies and agility in granting to double area under irrigation in the state | Approximately 100,000 additional hectare; suspended |
| State Irrigation Policy | 10/23/2013 | Law 14,328 | State Secretariat for Agriculture | Increase water storage for multiple use Financing for Paralyzed Irrigation Systems | suspended |
| State Plan Low-Carbon Agriculture | 08/26/2013 | Decree 50,590 | State Secretariat for Agriculture | Livestock, crop and forest integration Expansion of reforestation | 4,000 credit agreements BRL 893 million financed |

| Plan or Policy | Date | Legal Framework | Responsible Authority | Milestones | Implementation stage |
|--|------------|-----------------|---|---|----------------------------|
| Soil and Water Conservation Policy | 12/04/2015 | Decree 52,751 | State Secretariat for Agriculture | Reduce erosion from 8 to 5t/ha/year state payment for environmental services for farmers 20% reduction in drought losses | Data not yet available |
| RS Renewable Energy Program | 08/03/2016 | N/A | Secretary of Mines and Energy BRDE/BADESUL | Subsidized financing for projects to generate clean energy | Initial phase |
| Disaster risk management policy | 09/13/2016 | N/A | Secretariat for the Environment/ Civil Defense | Disaster Risk Management Policy Situation room in operation | Situation room established |
| Incentive for small dams | 07/13/2017 | N/A | FEPAM | 91 new licensed projects; 480 MW installed; 12,000 jobs created | Data not yet available |
| Program for sustainable production and consumption | 01/03/2018 | N/A | BRDE FundClimate France | BRL 200 million funding for adaptation to climate change | Initial phase |

Source: prepared by the author

The initiatives listed in Tables 2 and 3 were not included in the government platforms presented to the voters in the election campaigns. Thus, contrary to the spirit of planning and coordinating the directions of the economy that guides the PGMC, the current climate policy instruments are essentially ad hoc decisions taken during the exercise of government management.

In the 1980s and 90s, one of the central characteristics of the re-democratization of Rio Grande do Sul's political life was the long and conflictive process of establishing 28 Regional Development Councils and 25 Watershed Management Councils, contributing to transparency and civic participation. It should be noted that the instruments and initiatives presented in Tables 1 and 3 do not include these participatory bodies.

5 FINAL CONSIDERATIONS: ANALYSIS OF THE PRINCIPLES OF GOVERNANCE

This work simulates the application of a tool proposed by the Open Climate Network, coordinated by the WRI, to evaluate the degree of implementation in a subnational climate policy in the period 2011 to 2017. Due to the prominence it receives from the specialized bibliography, the state of Rio Grande do Sul was selected as case study.

Following the national commitment, the State Policy on Climate Change, sanctioned in 2010, proposes to voluntarily reduce state emissions of greenhouse gases by 37% by the year 2025, with 2005 emissions as the baseline. According to data from the SEEG, there was a drop in greenhouse gas emissions in the RS between 2008 and 2009, caused by the reduction in national economic activity, but since then they have grown again. The governance of Rio Grande do Sul's climate policy does not yet seem to guide the regional economy towards decarbonisation.

The analysis carried out in this paper comes to two conclusions. On the one hand, the gaps in the implementation of the PGMC, on the other hand, the diversity of proposed innovations. We found that in the period from 2011 to 2017, PGMC left the planning stage, being in the second stage of adoption and validation. The instruments originally envisaged by the legislation are partially active, others under test. Also in 2010, the first state inventory of greenhouse gas emissions was carried out. The first draft for the State Plan on Climate Change was presented to the public debate in the following year, but remains unregulated. Thus, the stages established by law to change the policies to foster private initiative in RS have not yet been completed.

One of the limiting factors for the effectiveness of the state climate governance is the absence of a monitoring and evaluation system that allows for transparency and social participation, especially through the different participatory forums, such as regional councils or basin committees.

An additional gap is the lack of integration with the regional economy. The PGMC resents a link between the objectives and goals of climate policy with the actions and projects of the private sector, especially in the sectors with higher emissions, the rural chains of livestock and irrigated rice, as well as logistics/transport.

The public sector has traditionally devoted more attention to formulating plans than pushing for inclusion of adaptation policies into the state budget. In addition, state public management adopted the single cash register as an emergency measure, which became routine, since the early 1990s. Thus budget constraint is no longer an exception to become the rule, which contributes to limiting the adoption of new instruments and the inclusion of climate policy in public budgeting cycle.

Since 2011, on the other hand, the state executive has been testing and establishing innovations through sectoral public policies. We did not detect a coordination between the new instruments, such as support to distributed energy systems, soil protection or risk and disaster management. In addition, the institutional arrangement of the state climate policy is (still) not operational. The State Climate Change Forum is not yet active, the State Fund and the Emissions Register have not yet been created.

We take this context to interpret that adaptation and mitigation programs in the state are initiated and tested in a fragmented way. The intersectoral articulation of state public policies has not yet occurred. A long history of disarticulated development policies will probably not be overcome in a decade of effort in climate adaptation. The PGMC still seems to be in the phase of a government policy, not having become a state policy.

NOTE

¹ State Department of Agriculture; Management Unit of the ABC Plan; State Foundation for Scientific Research; Rio Grande do Sul Rice Institute; State Department for the Environment.

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