

**A critical assessment of the implementation and governance of the  
Access and Benefit-Sharing policies in Brazil**

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**Abstract**

Brazil was one of the first countries to institute an access and benefit-sharing (ABS) policy, as advocated by the Convention on Biological Diversity (CBD). The policy, provisionally introduced in 2002, established a hybrid model for managing national genetic heritage and associated traditional knowledge. The Genetic Heritage Management Council (CGen), has the institutional power to coordinate the elaboration and implementation of this policy. Its original composition included only members from government and academia. Several changes occurred in the legislation over time, changing from provisional to permanent status and including the participation of new actors, such as business and the beneficiaries of the ABS policy (traditional communities and indigenous peoples).

This article presents the history of the ABS policy in Brazil, focusing on the role of CGen. The objective of the research is to show how changes in the interactions between government, business, academia, and policy beneficiaries have altered the policy's outcomes over time, especially after the implementation of Law n.13123 in 2015, which established new guidance on the subject.

The methodology is composed of the analysis of CGen management reports, available between 2003 and 2015, and the minutes of all council meetings held between 2016 and 2019, plus interviews with eleven members of CGen.

The analysis indicates that the claim and mobilization of different social sectors drove the changes that occurred over time in the composition of CGen. The inclusion of users (productive sector) and beneficiaries (traditional and indigenous communities) of the policy in CGen composition, nevertheless, has not helped to increase the effectiveness of the policy in terms of benefit-sharing.

There is a minimum of 40% of civil society members in CGen members (the remaining are representatives of the Federal administration). But there is an unequal involvement of hearers in public assemblies: in the 24 assemblies analyzed, there were at least 173 hearers from 33 different companies, in contrast with only five hearers linked to the beneficiaries. Even though hearers do not have the power to vote on the topics discussed in the meetings, they can pressure and influence decisions made by the assembly.

In summary, the policy, over time, has allowed for greater participation of different actors in its organizational and institutional structure. However, this hybridization has not translated into greater effectiveness. Different rationality, interests, and the unequal correlation of forces have been found to have contributed to the fact that no benefit-sharing agreement has been reached. In addition, recent changes in government ideology have sought to remove the protagonist role of CGen and return to centralized decision-making.

**Keyword:** Access and Benefit-Sharing policy; Brazil; Genetic Heritage Management Council; Hybrid organization.

### **Introdução**

The Convention on Biological Diversity, CBD, is a United Nations treaty, whose objectives are the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits derived from the use of genetic resources (MMA, 2000).

Signed by more than 160 countries, the CBD sought to combine the objectives mentioned above with the recognition that states have sovereign rights over their resources and that genetic resources have commercial value. This convention also initiated the negotiation of an International Regime on Access to Genetic Resources and Benefit-Sharing (ABS).

Brazil ratified the CBD with Federal Decree 2,519/98 and created its first ABS legislation through Provisional Measure 2,186-16/2001. This Provisional

Measure created the Genetic Heritage Management Council (CGen, acronym in Portuguese), a deliberative and normative body, whose objective was to coordinate the implementation of policies for the management of genetic heritage (GH) and associated traditional knowledge (ATK) in the country. This council was composed only of representatives from agencies and entities of the Federal Public Administration until 2015 when Law 13,123/2015 changed its composition and rules for ABS. According to the new Law, the CGen had its activities expanded, as well as began to be composed of a maximum percentage of 60% of representatives of the federal public administration and a minimum of 40% of representatives from industry, academia, and traditional communities (BRASIL, 2015).

The objective of the research is to show how changes in the interactions between government, business, academia, and policy beneficiaries have altered the ABS policy outcomes over time, especially after the implementation of Law n.13123 in 2015. These changes are observed mainly through the analysis of the activities of CGen, which, with the change in the composition of its members, has become a hybrid organization.

In the second section of this article, we present the history of the ABS policy in Brazil, focusing on the role of CGen. In the third section, we briefly discuss the literature that deals with hybrid organizations. In the fourth section, we expose the methodology of the paper, composed of a literature review, desk research, and interviews. In the fifth section, we analyze the changes in ABS policy outcomes due to Law n.13123/ 2015 and the establishment of CGen as a hybrid body, followed by the article's final considerations.

### **Historical Background**

As mentioned, the Provisional Measure (PM) 2,186-16/2001 was the first regulation on rights and duties regarding access to genetic heritage, associated traditional knowledge, and benefit-sharing. According to Souza et al. (2017), the main objective of MP was to prevent companies, entities, and individuals from taking possession of fauna and flora genetic resources through associated traditional knowledge to turn them into profitable products without generating any return to the country.

This Provisional Measure created, within the Ministry of Environment

(MMA, acronym in Portuguese), the Genetic Heritage Management Council (CGen) responsible for coordinating the implementation of ABS policy in the country. This body (the CGen) was composed exclusively of governmental actors: nine representatives from ministries, five federal research institutions, and five governmental agencies. This PM fulfilled an important role in combating biopiracy, focusing on command and control. According to Eimer and Donadelli (2022), the regulation also succeeded in allowing indigenous groups to control the use of their genetic resources or traditional knowledge and was able to link biodiversity regulations with intellectual property law.

However, there has been pressure to reform the legislation linked to ABS. This pressure was reinforced after, in 2010, when the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA, acronym in Portuguese) imposed a series of fines on companies that used GH and ATK without proper authorization and without sharing the benefits (Eimer and Donadelli, 2022).

This situation led companies to initiate a dialogue with the relevant authorities, requesting changes in the legislation and reducing the bureaucracy to register the use of GH and ATK, whose average time for providing permits was more than three years (Tozato et al., 2021). During their debates, held without the participation of indigenous and traditional communities (knowledge holders), the business sector argued that the existing legislation had an "excessive command and control" structure. These latter actors also claimed that PM 2,186-16/2001 reduced the country's competitiveness because Brazil's regulations protecting indigenous groups put the country at a disadvantage vis-à-vis other biodiversity-rich countries (Eimer and Donadelli, 2022).

There was also criticism for the lack of participation of holders of traditional knowledge, who are the main beneficiaries of the policy (MMA, n/d; Saccaro Jr., 2011). These criticisms were strengthened when many representatives from Brazilian non-governmental organizations and indigenous groups were only informed about the ongoing debates between the government and the productive sector, and when the proposal was already underway to the deliberations in the Congress (Eimer and Donadelli, 2022).

Thus, this regulation was replaced by Law 13,123/2015, also known as the Biodiversity Law. This law established the concepts for genetic heritage,

traditional knowledge, and traditional communities; restructured the Genetic Heritage Management Council; and determined the benefit-sharing for conservation and sustainable use of biodiversity. It also created the National Fund for the Benefits-Sharing (FNRB, acronym in Portuguese) and the National Program for the Benefits-Sharing (PNRB, acronym in Portuguese).

According to this legislation, the manufacturer of the finished product or the producer of the protected reproductive material will be subject to benefit-sharing. The vehicle through which this sharing occurs can be monetary or non-monetary. If monetary, the one who used GH or ATK to manufacture goods must pay back 1% of the net annual revenue, which can be reduced to 0.1% according to the agreement established to ensure the competitiveness of the sector. If the modality is non-monetary, the sharing will occur through technology transfer, projects for conservation or sustainable use of biodiversity, and free distribution of products in social interest programs, among others.

There is a complex and controversial distinction in law 13,123/ 2015 regarding the identifiable and non-identifiable origin of associated traditional knowledge<sup>1</sup>.

In the first case, the agreement between knowledge holders and companies will be made directly and will be formalized through the signing of a Benefit-Sharing Agreement. It should be noted that half of the amount agreed upon with the knowledge holders must be destined to the FNRB for the other holders of the same knowledge<sup>2</sup>.

In the second case - when GH and ATK of unidentifiable origin are used - all indigenous populations, local communities, and traditional farmers existing in the country will be considered beneficiaries through the PNRB (Boff, 2015). The amounts from benefit-sharing in the latter case shall be fully deposited in the FNRB. In addition to these revenues, the Fund can rely on budget, donations, amounts collected from fines, and other sources. Table 1 shows the different forms of benefit-sharing

Table 1 - Modalities, responsible parties, and amounts of Benefit Sharing, according to law no. 13.123/ 2015.

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<sup>1</sup> See Moreira et al. (2017).

<sup>2</sup> Law 13,123/ 2015 assumes that in any case there are different holders of the same associated traditional knowledge.

<b>Access</b>	<b>Type</b>	<b>How?</b>	<b>How Much?</b>
Genetic Heritage	Monetary modality	Direct deposit to the FNRB	From 1% to 0.1% of the annual net revenue (NR) obtained from the economic exploitation of the GH
	Non-monetary modality	Benefit-Sharing Agreement with the Union to define the Benefit-Sharing Project	0,75% or 1% of the annual NR according to the defined project
Associated traditional knowledge of the unidentifiable origin	Benefit-sharing will be made in full to the FNRB	Direct deposit to the FNRB	From 1% to 0.1% of the annual NR obtained from the economic exploitation of the ATK
Associated traditional knowledge of the identifiable origin	Monetary modality	The user must negotiate with the ATK provider the amount between 1% and 0.1% of RL and must allocate half of the agreed amount to the other holders through the FNRB.	Negotiation (between 1% and 0.1% of RL), with 0.5 of the negotiated value going to the FNRB
	Non-monetary modality	The user must negotiate with the ATK provider and must allocate half of the agreed amount to the other holders through the FNRB.	

Source: Prepared by the authors based on Cappitelli et al. (2017).

The monetary resources deposited in the FNRB must be destined for the holders of traditional knowledge and/or for the ex-situ collections of genetic heritage samples. The PNRB also provides projects for environmental protection and conservation.

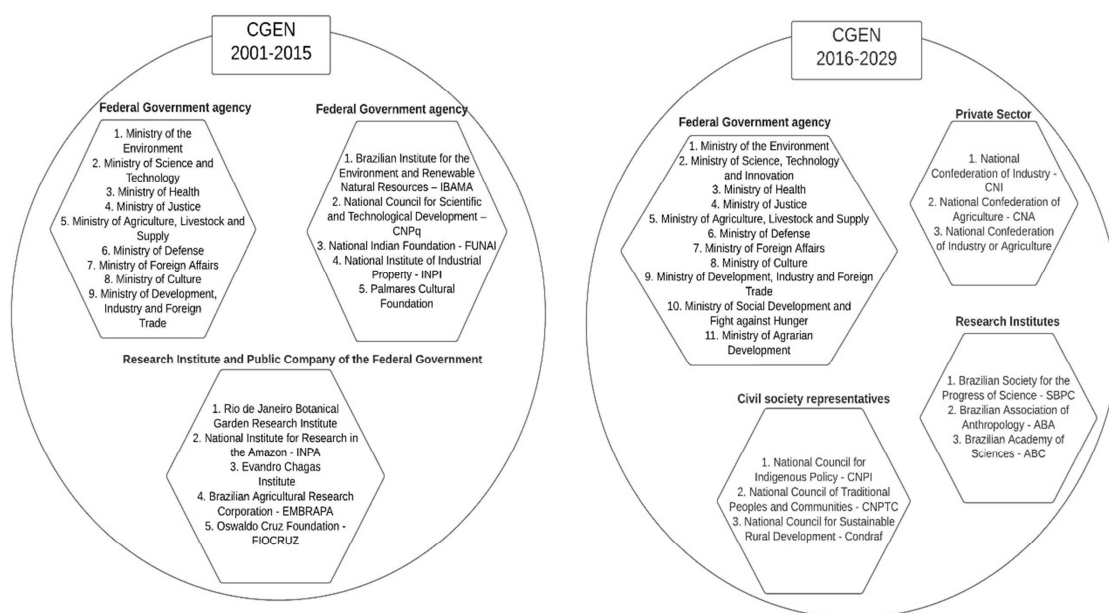
The Biodiversity Law was regulated by Decree 8,772/2016, which created the National System for the Management of Genetic Heritage and Associated Traditional Knowledge (SisGen, acronym in Portuguese). In this electronic system are made the access controls, permissions, and records of remittances, notifications of finished products or reproductive material of GH

and ATK.

The same Decree reestablished the operation and composition of the Genetic Heritage Management Council. This body had its functions expanded: besides being deliberative and normative, it also became an advisory and appeals body, responsible for coordinating the elaboration and implementation of ABS policy. The CGen is now composed of 60% of federal government representatives and 40% of civil society representatives, who are divided into the industry, academia, and traditional communities (Brazil, 2015).

That is, the new CGen now has 11 representatives of Ministries, three representatives of industry and agriculture, three representatives of research institutes, and three representatives of the providers and holders of traditional knowledge (main beneficiaries of the policy).

Figura 1: Composição do CGen 2001-2015 e 2016-2019



Source: Own elaboration.

The beneficiaries of the policy are indigenous peoples, traditional communities, and family farmers, who are also the providers and holders of traditional knowledge. The Federal Government is the provider of genetic heritage, responsible for managing and inspecting access and benefit-sharing. The users of the ABS agenda are researchers, the industrial and agricultural

sector (such as the biotechnology industry, pharmaceuticals, cosmetics, and agrochemicals) among others (Tozato et al., 2021).

The new configuration of CGen, established by the pressure of the different stakeholders in the ABS agenda, showed that, despite the advances, there is still an imbalance between such participants, because the main beneficiaries of the policy are fewer compared to its users.

According to Richerzhagen (2011), different actors that are part of the ABS policy have conflicting interests (economic, political, social, and environmental). Thus, to discuss the results and effectiveness of a national ABS policy over time it is necessary to establish criteria. For the author a national ABS regime is effective if it has the capability "(i) to set incentives for the sustainable use and conservation of biodiversity, (ii) to facilitate access to plant genetic material, and (iii) to enhance fair and equitable benefit-sharing, which implies preventing the misappropriation and unapproved use of genetic resources" (Richerzhagen. 2011, p. 2245).

In this article, we will analyze some results achieved in the implementation of the ABS policy in Brazil over time. We will compare the period before and after the enactment of the Biodiversity Law, which transformed CGen into a hybrid body, allowing the public, private and civil sectors to work together for the realization of the policy.

### **Hybrid organizations**

According to Skelcher and Smith (2015) global public management reforms, such as New Public Management (NPM), and changes in governance stimulated the creation of organizations considered hybrids. For Wood Jr. (2010) this phenomenon originated in the 1990s, with the limits experienced by the state in the provision of services to the population, which gave rise to the emergence and proliferation of non-profit organizations, with the increasing speed of organizational change processes, and the increase in merger and privatization processes of companies. However, Vakkuri et al. (2021b) state that hybrid organizations already existed in earlier periods and that it is not possible to attribute their existence only to this time.

The concept of hybridization originates from biology and refers to the crossing between two different species, or between two pure strains, whose

fusion generates a new organism with unique characteristics. In applied social sciences, the terms "hybrid" and "hybrid", still have multiple interpretations and inaccurate empirical examples but are associated with an existential quality, state, or condition of an organization (WOOD Jr., 2010).

Johanson and Vakkuri (2018) state that "hybridity refers to an impure existence between pure types," with the authors specifically addressing the joining of public and private organizations. For the authors, at a public-private interface, hybridity can take a variety of forms: entities with a particular organizational form, governance structures, and relationships between actors in a network (Johanson and Vakkuri, 2017, p. 5). Later, Vakkuri et al. (2021a) include civil society in their definition of hybridity. For them:

By hybridity, we refer to the interaction among public, private and civil society via distinct modes of ownership, parallel but often competing institutional logics, diverse funding bases and various forms of social and institutional control (Vakkuri et al., 2021a, p. 02).

In the chapter "A shotgun marriage? Performance management in the hybridized government" Vakkuri et al. (2021b) state that institutional hybridism refers to contemporary institutional systems that combine features of both private and public management and governance. These institutional systems can occur in some ways:

mixed ownership between public and private actors; multiplicity of funding arrangements between public and private actors; goal incongruence and competing institutional logics that pit the logic of profit-seeking against the logic of effectiveness, with social impacts for society and citizens; public and private forms of financial and social control, including regulatory control of the markets, professional self-control, and customer-driven market control within a single system of service delivery (Vakkuri et al., 2021b, p. 4).

Several authors state that the term "hybrid" is used to designate organizations that simultaneously combine the creation of social and economic value. This dual mission (social/financial), represents conflicting institutional

logics and, affects the rationality, identities, and ways of functioning of organizations (Norato and Duarte, 2020).

When dealing with institutional logics it is relevant to point out the work of Skelcher and Smith (2015) who understand hybridization as a process in which plural logics and thus actor identities are in play within an organization, leading many possible organizational outcomes. The institutional logics approach is developed within the field of institutional theory as a way of explaining the interactions between plural normative frames, organizational forms, and individual multiple identities. These authors propose five types of hybrids based on combinations of distinct institutional logics: segmented, segregated, assimilated, blended, and blocked hybrids.

Segmented hybrid organizations have in their structure distinct institutional logics present in different parts of the organization in a compartmentalized way. The segregated hybrid types occur in interconnected organizations but are located in distinct spaces, which allow the existence of institutional logics in a greater degree of isolation. In the assimilated hybrid, the original logic remains but the organization adopts some of the practices and symbols of a new logic. In the mixed hybrid organizations, there is a combination of different institutional logics that become unique. The blocked hybrid refers to a situation where the inherent tensions between logics cannot be resolved or managed, leading to organizational dysfunction (Skelcher and Smith, 2015).

For Skelcher and Smith (2015) the methodology to analyze hybrid organizations and identify their institutional logic should contemplate observation, from texts and documents existing in the organization and from the behavior and identity of individuals. In analyzing institutional plurality, attention should focus on the “relationships between institutional orders, the organizations located within those orders, and the individuals within those organizations” (Skelcher and Smith 2015, p. 437).

Wood Jr. (2010) indicates that studies dealing with hybrid organizations consider them as specific contractual models or only as combinations between business organizations, public organizations, and nonprofit organizations. Thus, they do not apply the concept to a wide range of organizations that also have a hybrid nature and do not fall into these categories.

However, according to Johanson and Vakkuri (2018) hybrid may thus assume many forms: government-owned corporations, public-private partnerships, social enterprises, commissions, public procurement, purchaser-provider models, and contracting out (Johanson, Vakkuri, 2018, p.3).

This paper will analyze the results of CGen's institutional change from a Council formed specifically by governmental actors to a hybrid organization composed of governmental actors, the business sector, and civil society representatives. Following the classification of Vakkuri et al. (2021b) it is possible to state that CGen combines public and private forms of financing and social control. That is, it is a commission to establish the operating rules for the GH and ATK market. This council is responsible for coordinating the implementation of the ABS policy in Brazil, organizing the information and payment system related to this policy. It is understood that with this change, CGen now encompasses a plural logic with distinct interests and thus can be analyzed from the hybrid perspective.

### **Research methodology**

For this article, we conducted bibliographic research on benefit sharing in Brazil (presented in the second section) and hybridization (presented in the third section). We also identified documents, such as laws, decrees, and provisional measures that could provide information on the subjects.

We consulted the CGen management reports, available only between the years 2003 and 2015, to compose the historical context of its operation and identify the main results of the policy in the period. We also analyzed the minutes of all its meetings held between 2016 and 2019. This last period was selected because in 2016 CGen started its activities as a hybrid body and, until 2021 – the period when the data analysis started –, only the minutes of the meetings held until 2019 were available. The minutes were read, the information systematized and analyzed, identifying the main stakeholders in the policy and the main activities of the Council.

Following Skelcher and Smith's (2015) proposal, this research used interviews to capture the expression of identity and individual interests of CGen participants. The interviewees were selected from the analyzed minutes.

Thus, seven full or alternate members and four hearers of CGen were

selected to be part of the research, among those who most participated in the 24 meetings analyzed. These interviewees represented different sectors involved in the Council: four representatives from academia, two representatives of traditional communities, two government members, and three representatives of the business sector.

These interviews, conducted online between March and November 2021, seek to understand the functioning of the policy and the interdependent activities (of various actors and institutions) that need to be managed for the effectiveness of access and benefit-sharing. They also sought to identify the technical-administrative and political aspects that contribute to or hinder the operation of the policy. These interviewees signed a free and informed consent form and their names will not be disclosed in the research.

We used a semi-structured questionnaire, to direct the discussion without restricting the free expression of the interviewee. This questionnaire was divided into two parts. The first part contained questions about the personal and professional background of the interviewee, to understand his or her involvement in politics. The second part of the questionnaire was composed of nine questions that highlighted the results of the interactions between public power, private initiative, and civil society in the implementation of public policy.

### **Results and discussions**

Between 2001 and 2015, when the CGen was composed mainly of governmental actors, 126 ordinary meetings and three extraordinary meetings were held, in which an average of 43 representatives (between holders and hearers) participated.

Since the change in the Council's Composition, when it became a hybrid body, until 2019 there were 24 meetings (21 ordinary and three extraordinary) held by CGen, in which an average of 51 representatives (among holders and hearers) participated - which highlights the number of stakeholders in the policy.

Three bodies participated in all CGen meetings from the moment it became a hybrid (between 2016-2019): the Ministry of Environment (MMA, acronym in Portuguese), the Ministry of Agriculture, Livestock and Supply (MAPA, acronym in Portuguese), and the National Confederation of Industry (CNI, acronym in Portuguese). MMA needs to attend all meetings since it holds

the Council's presidency seat. MAPA and CNI representatives' full participation points toward the commercial importance of decisions made in CGen's forums. Overall, the frequency of representatives from other organs is high, with an average attendance rate of 80%.

It was verified that, between 2016-2019, there was little change in the holder and substitute members of each of the bodies that make up the CGen plenary. Among the 20 bodies that have participated in the Council's plenary since 2016, seven did not make any changes and 10 changed their holder or substitute members only once over time. In only one body (the Ministry of Foreign Affairs) there were more than two changes of representatives (Castro and Santos, 2022).

This is probably due to the complexity of the policy in question, which requires familiarity with topics such as genetic engineering, property rights, valuation of biodiversity, etc.

Since CGen's assemblies are public, hearers were also taken as relevant for the analysis. These agents do not have the power to vote on the topics discussed in the meetings. However, they can pressure and influence the decision made by the assembly. Among the hearers who participated in the CGen in 2016-2019, members of different federal agencies appear in the first place and consulting firms appear in second place as those who most referred representatives to participate in the meetings. In third place are companies, which had 173 hearers from 33 different companies at the 24 CGen meetings (Table 2). It is also worth noting, in smaller numbers, the participation of Associations, Institutes of Science and Technology, Governmental and Class Councils as hearers in CGen. The groups that least participated as hearers in the Council meetings were members of the legislature, non-governmental organizations, and representatives of traditional communities - who were present in only five meetings.

Table 2: Hearers in CGen meetings between 2016-2019.

<b>Organs' classification</b>	<b>Number of hearers</b>	<b>Percentage</b>
Federal governmental organs	216	30.5%

Law offices and consultancies	214	30.2%
Companies	173	24.4%
Associations	44	6.2%
Science and Technology Institutions	29	4.1%
Federal Prosecutor	20	2.8%
Social organizations and movements	5	0.7%
Governmental and class councils	3	0.4%
Without information	3	0.4%
Legislative members	2	0.3%
Total	709	100.0%

Fonte: Castro and Santos, 2022.

It was not verified the participation of representatives of states and municipalities, neither among the full members of CGen nor among the hearers. The Union is responsible for "managing genetic heritage and access to associated traditional knowledge, respecting the sectorial attributions" (Complementary Law No. 140/ 2011). However, this situation is problematic, because even if the policy and the competence of its inspection are national in scope, it applies in the local space, where the genetic heritage and associated traditional knowledge are found. In this way, the partnership of the different state and municipal inspection agencies would be welcome to guarantee the accomplishment of the ABS policy.

It is known that CGen's decisions are impacted by the negotiations between the different agents that compose it, however, other factors restrict or stimulate its decisions. As an example, the interviewees point to the Nagoya Protocol, ratified by the National Congress through the Legislative Decree 136/ 2020. This protocol establishes international rules for research, access, and

benefit-sharing of GH and CTA-based products. With the ratification of the Nagoya protocol, Brazil will participate in the future deliberations of the Conferences of the Parties of the Convention on Biological Diversity, and CGen is one of the bodies that should be involved in these negotiations.

The interviewees also pointed out the need for greater mobilization of organized civil society and the policy beneficiaries (traditional and indigenous communities). Some interviewees even emphasized the reduced space for participation of these actors within the council (with only three reserved seats). Additionally, they mentioned their little participation as hearers in the meetings held, in comparison with the participation of representatives from industries and consulting firms.

Interviewees linked to policy beneficiaries emphasized the financial, technical, and legal inequality between representatives of academia, the business sector, and traditional communities on the council. For them, such inequality does not favor social pressure for the full implementation of the policy and is an obstacle to the Sharing of Benefits.

When dealing specifically with the activities carried out at CGen, it is possible to mention that between 2004 and 2015 the body authorized just over 2,300 requests for research, bioprospecting, and technological development (Tozato, et al. 2021). As of 2016, a large part of these authorizations is given directly by SisGen, from the completion of a self-declaratory form, especially when it comes to research. The Term of Prior Informed Consent<sup>3</sup> is only required from the researcher or company that uses Traditional Knowledge of identifiable origin and can be obtained by different means, at the discretion of the knowledge providers (Brazil, 2015).

With the extinction of the need for prior authorization for research by CGen, the possibility of control over access was removed from the knowledge holders. On the other hand, the CGen, which before 2015 occupied much of its time authorizing access and/or sample shipment of GH and/or ATK components, could dedicate itself to other activities.

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<sup>3</sup> According to Art. 1 of Law no. 13,123/ 2015, prior informed consent is the formal authorization, previously granted by the indigenous population or traditional community according to their uses, customs, and traditions or community protocols of the use of their ATK.

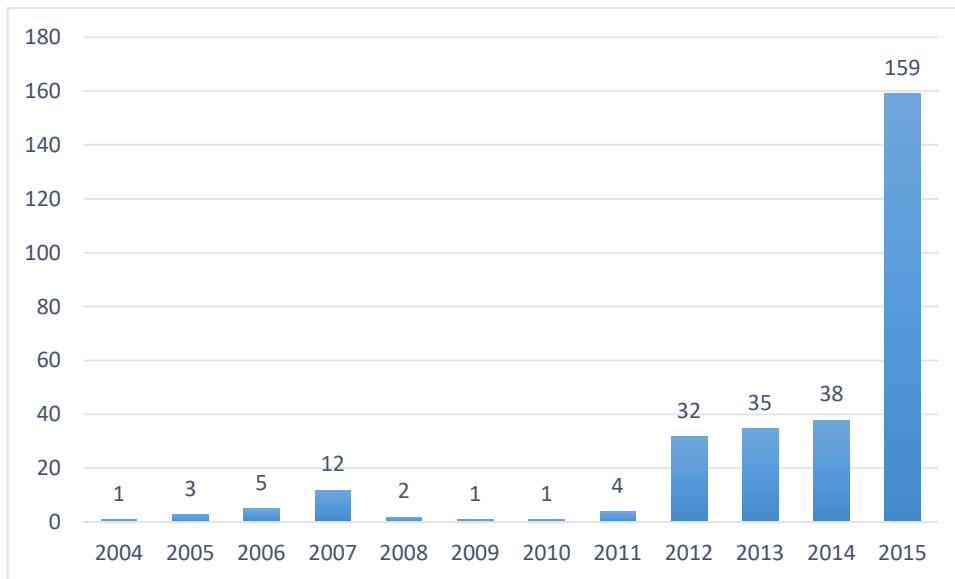
In the research conducted on the minutes of the meetings held between 2016-2019, it is possible to verify that most of the activities of the plenary referred to the discussion about the Thematic and Sectoral Chambers, fines, SisGen, and regulations.

The Chambers serve as an instance for councilors to consult with experts, other government, and civil society representatives on specific topics before they are submitted to the Plenary. Discussions about these Chambers include their creation, nominations of representatives, deliberations, and reports on the work of each one (CASTRO and SANTOS, 2022).

The infraction notices are related to irregularities committed by the applicants for access to GH and/or ATK. In these cases, CGen acts deliberating on the notices and establishing fines. The discussions about SisGen approached its functionalities and improvements. The regulations dealt with the creation and alteration of norms on benefit-sharing and rules for the functioning of CGen itself.

The contracts made between GH and ATK explorer and supplier until 2015 required the registration and approval of the CGen plenary to ensure the appropriate use of resources and benefit-sharing. According to the CGen activity report for the year 2015 (Genetic Heritage Department, 2015), between 2001-2015, 293 Benefit Sharing Instruments were established (figure 2). The 2014 CGen Activities Report, points out that the increase in the approval of benefit-sharing instruments occurred due to the measures developed by the council to facilitate and clarify the procedures to be followed by the public using the System (MMA, 2014, p.16).

Figure 2: Benefit Sharing Instruments and Contracts



Source: Department of Genetic Heritage, 2015

Souza et al. (2017, p. 4155) analyzed 103 CURBs officially registered in Brazil between 2004 and 2013, most of them referred to the exclusive use of the National Genetic Patrimony (86.4%). These agreements were set with associations and cooperatives (61), with private natural and legal persons (52), and with indigenous communities (1). The actors also identified the global values of benefit sharing in these deals, which reached R\$ 8.3 million in values recorded for 2015.

As of 2016, benefit-sharing agreements did not need to be authorized by CGen (information received during the interview). The agreements established could be directly approved by the Minister of the Environment, as long as they followed the legal determinations of resource distribution (pointed out in section two of this paper). In this sense, as already mentioned, the FNRB should receive (part or all) of the monetary resources obtained by the economic exploitation of the products resulting from access to GH and ATK and allocate them to projects under the National Program for Benefit-Sharing (PNRB).

This Fund was regulated in 2016, but only in November 2019 the Brazilian Development Bank (BNDES, acronym in Portuguese) was chosen as the financial institution to manage it together with the MMA. In December 2021, the Fund had R\$ 3.9 million, in nominal values (BNDES, 2021), but as the MMA has not yet finalized and approved an operational manual to guide the application of its resources, with the definition of a roadmap for project

presentation, accountability, etc. this money is stopped. There is also no clarity regarding the members that make up the FNRB Steering Committee, and it is not possible to use the resources without such a definition.

In addition, Tozato et al. (2021) state that in 2021, R\$20.6 million was still owed for benefit-sharing contracts already established by different companies, but not yet paid. Part of these funds is on hold awaiting analysis by the Ministry of Environment.

Despite providing for the fair division of benefits, the ABS policy does not materialize without the functioning of the FNRB. This issue was pointed out by the vast majority of interviewees as an obstacle to the proper functioning of the policy. Industry representatives added that in some cases they have been making financial deposits to the Fund without any perspective of when the beneficiaries will start receiving the funds.

In other words, the changes in the legislation and CGen do not seem to have contributed to increasing the number of benefit-sharing agreements, nor did they increase the volume of resources obtained by this agenda. As pointed out, until 2015, 293 RB Instruments were approved in CGen and according to estimates by Souza et al. (2017), 103 of these agreements represented approximately R\$ 8.3 million, in 2015 values. As of the new legislation, benefit-sharing agreements are no longer approved by the CGen Plenary, but directly by the Minister of the Environment. According to information from interviewees, this change was made with the justification that the agreements would be approved more quickly. However, what we saw is that this change reduced the role of the CGen, now hybrid, at the same time that it reduced the approval of new RB agreements - given that no new agreements were closed from 2016 to mid-2021 (last data from the survey). Corroborating this information, it is verified that the amount of R\$ 3.9 million, available in the FNRB at the end of 2021, is still quite low and there is no forecast for its use in socio-environmental projects that favor the beneficiaries of the ABS policy.

According to Richerzhagen (2011), the value of the genetic resources traded in the market is still distorted, and the traded amount is lower than its real potential. Transaction costs of the trades are high and provide disincentives for investment in the use of genetic resources (TEEB 2009a apud). For that author, it is impossible to create or maintain a regime of ABS if the

implementing institutions are missing, too weak, or overloaded (in most cases, governmental departments are already operating at full capacity). The market for biodiversity functions well only if policies and institutions provide incentive structures to the agents and their transactions (Richerzhagen, 2011).

Tozato et al. (2021) point precisely to the financial capacity of the federal government for the implementation of the finalists' actions of the policy of access and benefit-sharing in Brazil, expressed in real values of 2020. During the period of effectiveness of the Provisional Measure 2.186-16/2001 (2001 to 2015), the expenditure was R\$ 20.3 million, and the annual budget expenditure was approximately R\$ 1.3 million in the finalists' actions. Between 2016 and 2020, already under Law No. 13,123/2015 and the new CGen, the expenditure of the ABS agenda was R\$1.1 million (approximately R\$224 thousand annually) (Tozato et al., 2021).

When considering personnel expenses (including permanent assets and/or temporary contracts) in these 20 years of ABS policy implementation, it is necessary to add approximately R\$ 25 million, an amount that reflects the approximate number of public servants (annual average of 15 active servants) involved with the policy in the country (Tozato et al., 2021).

According to Tozato et al. (2021), the expenditure of the MMA's finalists actions and active personnel expenses between 2001 and 2021 with the implementation of the policy of access and benefit-sharing in Brazil reaches R\$ 46.4 million (real values of 2020). This amount corresponds to 0.08% of the total budget executed by the MMA from 2001 to 2020, including all budget units of the agency.

Thus, spending on the final actions of the policy for access and benefit-sharing has been reduced considerably in recent years. According to the interviewees, this has meant fewer courses and diffusion of the policy in society, less legal advice from the government for traditional communities, and less administrative capacity of the Ministry of Environment for the implementation of the policy.

Some of the interviewees highlighted the role of the Executive Secretariat of CGen, under the MMA, as the body responsible for managing the ABS policy in the country and supporting the Council in its activities. However, the representatives from academia and the government point out that there is a

reduction in its capacity to perform such tasks. For them, the restructuring of the MMA has reduced the number of departments related to the theme and the number of employees working in the area.

Other interviewees emphasized the role of CGen itself with its function of coordinating the development and implementation of the ABS policy. In this sense, despite the market interests surrounding the policy and the greater capacity of GH and ATK users vis-à-vis policy beneficiaries, by 2019, interviewees claimed that policy coordination in the Council occurred from network building and negotiations among stakeholders (Bouckaert et al., 2010).

However, there was a unanimous position that, recently, hierarchy (Bouckaert et al., 2010; Mintzberg, 2008) better characterizes the functioning and management of CGen. This is a change that has been occurring over time, reducing the sharing of information among members and the Council's autonomy to make decisions. This change seems to be related both to the exceptional period of the Covid-19 pandemic, which caused the meetings to be held virtually, but also due to the change in the operating dynamics of the CGen itself. Until 2019, the plenary sessions of the Council were the space for discussion and decision-making. After that date, before the plenary, the CGen president has held individual meetings with the holders, to discuss the agenda and know the positions of the participants beforehand. The interviewees presented conflicting positions about this situation (some supported and others questioned). However, this situation can increase the power and influence of the president of the Council and of the MMA itself over decisions, despite the reduction in the administrative structure related to GH and ATK, as pointed out above.

When dealing specifically with the institutional logics present in CGen, most of the interviewees, except one interviewee linked to the productive sector and another from academia, recognized the Council as a space of political tension and intense conflict of interests.

In this sense, two situations should be emphasized. The first situation deals with the understanding of the objectives of the ABS policy. The interviewees linked to the beneficiaries, as expected, understand that the policy aims to fairly reward the traditional and indigenous communities that hold knowledge about the Brazilian fauna and flora, and have contributed to its

conservation. In this view, the benefit-sharing policy is capable of promoting social justice and inclusion, in addition to environmental preservation.

The interviewees linked to the productive sector and part of the academia express that the objective of the ABS policy and CGen is to allow and guide the access to genetic heritage and traditional knowledge, with financial transfers in cases of commercialization being a secondary objective. These interviewees emphasize that the biodiversity law is not a populist policy of income transfer and that it is not able to finance traditional communities. For them, there are different ways to use the genetic resource, including the company could give it up if they can find a substitute (synthetic or not). For this reason, agreements for the use of genetic heritage and traditional knowledge need to be reasonable, considering the companies' costs and benefits so that everyone wins. The government representatives interviewed seem to oscillate between the two poles of understanding the policy's objectives, depending on their greater connection with the beneficiaries or users of the policy.

This disparity is close to what Skelcher and Smith (2015) called segmented hybrid organizations. This type of organization has in its structure distinct institutional logics coexisting in a compartmentalized manner. By itself, this disparity between the visions of the policy objectives expresses the interests of the members that make up CGen and hinders its coordination and effectiveness.

Another issue that has called into question the effectiveness of the ABS policy in Brazil is the weakening of CGen's role that has been occurring over time. That is, the change in the structure of the body, with the inclusion of actors from the productive sector, academia, and civil society, in addition to the government representatives that already participated in CGen, does not seem to have contributed to its results. Some interviewees pointed out that there is a lack of autonomy and transparency in the decisions about certain CGen activities, which are centralized in the hands of the Minister of the Environment (such as, for example, the authorization of benefit-sharing contracts, or the composition of the FNRB management committee). The emptying of CGen's decision power may be an attempt to stifle the political conflicts arising from the different logics and interests on the subject in the country, as well as to show that it is not enough to include new actors in the state's actions for them to work.

However, the interviewees manifested that despite the changes in the relationships and the CGen's decision power, the body maintains its importance, by defining rules, establishing standards, fines, etc.

Thus, the benefit-sharing policy needs to be improved. The results presented here seem to evidence that political issues impact its coordination and influence the effectiveness of the policy of access and benefit-sharing, crossed by the inequality of participation between users and beneficiaries, by the lack of peaceful understanding of the objective of the public policy, and by the recent expansion of the hierarchy in CGen, in the face of little technical capacity to do so.

It is necessary to find ways to balance the power differences between stakeholders, favoring those who have less capacity to act, as is the case of the beneficiaries of the benefit-sharing policy. The lack of empowerment of traditional groups to influence policy leads to unequal benefit-sharing outcomes. Since the policy is not effective in distributing resources to the holders of traditional knowledge, a vicious cycle is generated that rejects the legitimacy of both the policy itself and of CGen for traditional communities, who stop participating in it and end up not pushing for the payment of benefit sharing.

### **Concluding Remarks**

This paper aimed to show how changes in the interactions between government, business, academia, and policy beneficiaries have altered the outcomes of access and benefit-sharing over time. These changes were analyzed mainly from the alteration of the legal regulation that guides the policy (Law n.13123 in 2015), and the composition of the main body (CGen) responsible for coordinating the elaboration and implementation of the policy. The CGen is no longer a body composed mainly of representatives of the Federal Government, but a hybrid body, with government, companies, and civil society organizations working together to meet the guidelines and functions provided by law.

The transformation of CGen into a hybrid body met the interests of users (productive sector and academia) and providers (traditional and indigenous communities) of genetic heritage for more participation in policy decisions.

However, it was verified that this change in CGen and the inclusion of participation of these actors in the policy did not mean its improvement.

Considering the work of Richerzhagen (2011, p. 2245) that defines criteria to establish the effectiveness of a national ABS regime, it is possible to say that the change in legislation and the transformation of CGen into a hybrid body made the policy only partially effective. This is because the changes have facilitated access to plant genetic material. It is no longer necessary to request authorization from CGen, but only a self-declaration and registration of the user in the National System for the Management of Genetic Heritage and Associated Traditional Knowledge. This change favored the users of the policy but removed the control of access to knowledge from the knowledge providers. Thus, in the case of the transformation of CGen into a hybrid body, it was not relevant at this point, since the civil society agents lost the power over this authorization, even though they gained a voice and vote in the council.

On the other hand, advances are still needed when considering the other criteria of Richerzhagen (2011, p. 2245): to set incentives for the sustainable use and conservation of biodiversity, and to enhance fair and equitable benefit-sharing, which implies preventing the misappropriation and unapproved use of genetic resources

As we have seen, since 2016 no new contracts have been signed and the resources of the FNRB have not been allocated to any project for the sustainable use and conservation of biodiversity. This fund still lacks a management committee and rules for its use, besides having a very low amount of deposited resources. In addition, it is not possible to say that there is a fair distribution of benefits, given the potential use of Brazilian biodiversity.

By analyzing the institutional logics within the Council, this work suggests that CGen is a hybrid organization of the segmented type because different logics and understandings about the objectives of the policy coexist within its structure. It was understood that it was not a hybrid body of the blocked type, because in this case there would be an organizational dysfunction, probably with the paralysis of work. But this was not verified, since CGen kept its importance in the approval of rules, standards, fines, etc.

Finally, it was verified that the results of CGen's actions over time have had little effectiveness in terms of benefit sharing and this has undermined the

legitimacy of the Council and the Policy before its beneficiaries. This research did not delve into the discussion about the creation of values, but it is believed that this may be a good topic for future research that seeks to understand CGen as hybrid organization.

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