Auditoria Operacional

Governança de Solos Não Urbanos

TCU

NON-URBAN SOIL AND LAND GOVERNANCE
PERFORMANCE AUDIT REPORT

TC No. 011.713/2015-1 **Fiscalis No.** 210/2015

Rapporteur: Minsiter Walton Alencar Rodrigues

Modality: Performance Audit

Originating act: Order issued on May 11, 2015 (TC 5,760/2015-1)

Objective of the Audit: Evaluating aspects of the governance of soils in non-urban areas in Brazil based on the following components: "Institutionalization", "Plans and Objectives", "Coordination and Consistency" and "Monitoring and Evaluation", as indicated in the TCU Public Policy Governance Manual (TCU's Ordinance 230 of August 25, 2014). We intend to submit the results of this audit to Congress to inform and support legislative discussions on the subject.

Designation act: SECEXAMB Audit Ordinance No. 459 of June 8, 2015.

Audit Period: June 6, 2015-July 17, 2015.

Team composition in the Planning, Execution and Reporting stages:

Name of the Federal External Control Auditor (AUFC)	Registration Number	Department	Period
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Audited units: Ministry of Agriculture, Livestock and Supply (MAPA); Ministry of Environment (MMA); Ministry of Agrarian Development (MDA); National Water Agency (ANA); National Institute for Colonization and Agrarian Reform (Incra).
Liaison with TCU: Secretariat for External Control of Agriculture and the Environment.
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Amount of audited funds: R$ 1,732,393,334.47 settled in 2014.

SUMMARY

Why TCU performed this audit?

One of TCU's strategic objectives is that of “improving governance in public and political organizations”. SecexAmbiental has in turn three main objectives related to the performance of control actions: “contributing (Contribute) to food production in sufficient quantity and quality to ensure food security to the Brazilian people and generate exports”; “contributing to the organization of rural areas and to the development of family agriculture”; and “contributing to economic and social development and to preserving a healthy environment”. All of these objectives are strongly linked to the topic of soils. The audit work on non-urban soil and land governance conducted by TCU/SecexAmbiental was aimed at evaluating the governance of initiatives designed to regulate soil occupation and use, in addition to actions designed to ensure soil and water sustainability.

What are the main proposals?

Based on the audit findings, it was proposed that laws to regulate soil occupation and ensure the sustainability of soil and water use should be consolidated and that the competences of the institutions involved should be appropriately defined, without overlappings or gaps; that long-term soil and water plans should be drawn up; that territorial information should be consolidated and collated and the scale of availability of information on soils and soil mapping should be increased; and that a consistent dynamic of monitoring and evaluation should be institutionalized with systems integration, development of indicators and consistent rules for measuring the results of policies according to their goals.

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The establishment of a public soil and water policy defining the Brazilian Government's priorities in this area, as well as of an integrated governance system addressing issues related to occupation and use of the Brazilian territory and to the use and preservation of biodiversity, soil and water are fundamental to ensure Brazil's sustainable development.

What were the findings of TCU?

As audit findings, it should be particularly mentioned that the Brazilian State must set its priorities for soil use and occupation and also for its actions to promote sustainable soil and water use, as there are many laws dealing with these topics and a wide range of scattered and not integrated governmental institutions whose roles have not been clearly defined. In addition, although they are inseparable, soil and water resources are dealt with in different laws that are not integrated among them. It is also noteworthy that the government imposes costly obligations on farm owners, even though the available information has limited reliability, due to the various objectives of such information, limiting its use for public policy making in connection with soil and water conservation. With regard to the planning, coordination and consistency of soil and water policies, there is a need to formalize a logic for government interventions that is consistent with the problems diagnosed for soil and water issues. A long-term, integrated planning for public policies is also necessary, coordinated between the various institutions involved. As for knowledge, the audit findings show that Brazil has little baseline knowledge both on the occupation of its territory and on soil use capacity and mapping according to its type, making it difficult to establish specific policies. Finally, it can be concluded based on the results of the analysis that there is a need to establish a dynamic for inter-institutional evaluation and monitoring to improve the quality of decisions and promote transparency and social participation in the making of public soil and water policies.

What are the expected benefits?

It is expected that the adoption of these measures by Government will lead to the outlining of an integrated public policy designed to deal with land occupation issues and to promote the sustainability of soil and water resources in Brazil. It is also expected that a more effective long-term planning will be developed based on the results of analyses and specific objectives for solving identified problems that will be fed back by the results of monitoring actions and periodic evaluations.

List of Acronyms

ABC	Low-Carbon Agriculture
ANA	National Water Agency
Anater	National Agency for Technical Assistance and Rural Extension
APA	Environmental Protection Area
ASD	Area Susceptible to Desertification
Ater	Technical Assistance and Rural Extension
Bacen	Central Bank of Brazil
BNDES	National Bank for Economic and Social Development (the Brazilian Development Bank)
Cafir	National Registry of Rural Properties
CAR	Rural Environmental Registry
CCIR	Rural Property Registration Certificate
CCZEE	Coordinating Committee for Ecological-Economic Zoning of the National Territory
Ceplac	Executive Committee for the Cocoa Farming Plan
CF	Brazilian Federal Constitution
CN	National Congress
CNIR	National Registry of Rural Properties
Codevasf	Sao Francisco and Parnaiba Valleys Development Company
Conacer	National Committee for the Sustainable Cerrado Program
Condraf	National Council for Sustainable Rural Development
CTF	Federal Technical Registry of Potentially Polluting Activities and/or of Activities that Use Environmental Resources
Dnocs	National Department of Works Against Drought
Embrapa	Brazilian Agriculture/Livestock Research Company
US	United States of America
FAO	Food and Agriculture Organization of the United Nations
Funai	National Foundation for Indigenous People
GHGE	Greenhouse Gas Emissions
WG	Working Group
Ha	Hectares
Ibama	Brazilian Institute for the Environment and Renewable Natural Resources
IBGE	Brazilian Institute for Geography and Statistics
ICMBio	Chico Mendes Institute for Biodiversity Conservation
IC	Certified Rural Properties
IN	Normative Instruction

Incra	National Institute for Colonization and Agrarian Reform
INDE	National Spatial Data Infrastructure
Insa	National Institute for the Semi-Arid Region
ITR	Rural Property Tax
MAPA	Ministry of Agriculture, Livestock and Supply
MDA	Ministry of Agrarian Development
MDS	Ministry of Social Development and Hunger Combat
MI	Ministry of National Integration
MMA	Ministry of Environment
MPA	Ministry of Fisheries and Aquaculture
MPOG	Ministry of Planning, Budget and Management
NATs	Auditing Standards of the Brazilian Federal Court of Audit
UNO	United Nations Organization
PA	Settlement Project
PAN-Brasil	National Action Program to Combat Desertification
PBV	*Bolsa Verde* (Green Grant) Program
PGFN	National Treasury Attorney's Office
PNGATI	National Policy for Territorial and Environmental Management of Indigenous Lands
PNRA	National Land Reform Plan
PPA	Multi-Year Plan
PR	Office of the President of the Republic
PSA	Payment for Environmental Services
Radam	Amazon Radar Project
RCA	Soil and Water Resources Conservation Act
RFB	Brazil's Federal Revenue Department
RL	Legal Reserve
SAP	Early Warning System Against Desertification
SD	Area Without Assigned Purpose
SDC	Secretariat for Agriculture and Livestock Development and Cooperativism
SFB	Brazilian Forest Service
SGT	Territorial Management System
Sicar	National Rural Environmental Registry System
Sigef	Land Management System
Sipra	Information System for Agrarian Reform Projects
SIT	Information System for Rural Territories

SNCR	National Rural Registry System
SNIF	National Forest Information System
SPU	Federal Heritage Secretariat
SRF	Brazilian Internal Revenue Service
STI	Secretariat for IT Solutions
Sudam	Office of the Superintendent for the Development of the Amazon Region
Sudeco	Office of the Superintendent for the Development of the Mid-West Region
Sudene	Office of the Superintendent for the Development of the Northeast Region
TCFA	Environmental Control and Inspection Fee
TI	Indigenous Lands
TCU	Brazilian Federal Court of Audit
TL	Legal Land
UC	Conservation Unit
UM	Area for Military Use
USDA	United States Department of Agriculture
ZAE	Agroecological Zoning
ZARC	Agricultural Zoning for Climate Risk
ZEE	Ecological-Economic Zoning

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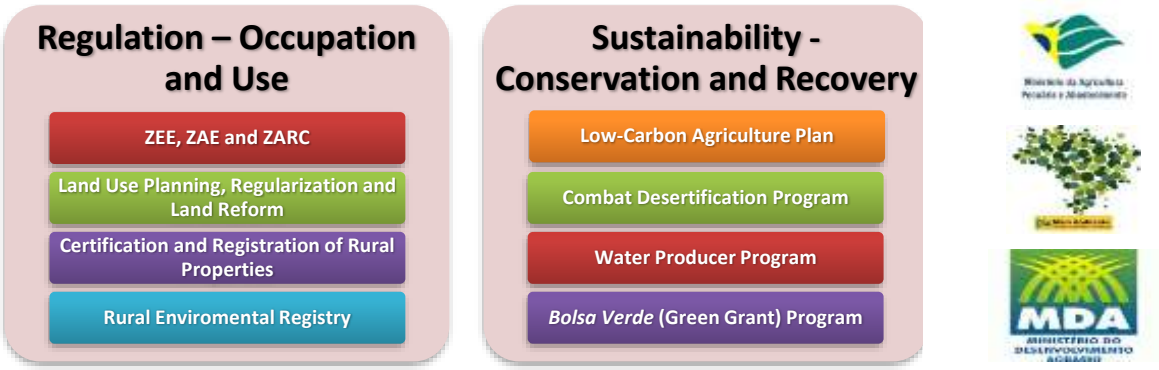
I.Introduction

1. This report is on a performance audit into soil and land governance actions in non-urban areas taken by the Brazilian Federal Government, based on an audit survey of soil and land governance in non-urban areas (TC 021.212/2014-7) carried out by this Court of Audit.

2. The purpose of this audit was to evaluate soil and land governance in rural and forest areas in Brazil in terms of the aspects of "Institutionalization", "Plans and Objectives", "Coordination and Consistency" and "Monitoring and Evaluation". The evaluation criteria used were defined by TCU in the document *Referencial para Avaliação de Governança em Políticas Públicas* (Framework for Public Policy Governance Evaluation).

3. Due to the lack of a comprehensive public policy specifically designed for managing soil resources in Brazil, initiatives of the Federal Government listed in the following figure were used as reference for defining the scope of this audit.

Figure 1 – Scope of the Audit into Non-Urban Soil and Land Governance.



Source: Prepared by TCU.

4. The methodology used in this audit was applied according to the Auditing Standards of the Brazilian Federal Court of Audit (NAT) and to TCU's Performance Auditing Standards. The audit procedures were applied in the states of Parana, Sao Paulo, Rio de Janeiro, Mato Grosso do Sul, Para, Ceara, Paraiba and Pernambuco, as well as in the headquarters of Ministries in Brasilia. At these federal entities, the main actors involved in the implementation of policies and initiatives related to the organization, use, conservation and recovery of soils were heard. Details about the methodology that was used can be found in Annex II.

5. This audit does not cover permanent preservation areas, which were the object of a recent audit carried out by TCU under TCs 034.496/2012-2 and 006.762/2014-0. This inspection was not intended to evaluate in detail each of the initiatives included in its scope, but rather to evaluate soil governance in more general terms, contemplating institutional and legal arrangements applied by the Federal Government to government actions designed to regulate soil and land use – comprising property, territory and management – and to ensure the conservation and recovery of soils based on the limits imposed on the initiatives mentioned in Figure 1.

6. This report is organized into three main sections: detailing of strategic areas, addressing aspects related to regulation, institutional arrangements and competences; information about plans and objectives and degree of knowledge of Brazilian soils by the Federal Government, coordination of stakeholders and coordination of their actions; issues related to systems for monitoring and evaluating the selected public policies and to the use of performance and feedback indicators, as well as to the integration of Information Technology (IT) systems. At the end, conclusions and proposed solutions are presented and an index is presented in Annex III that lists all the documents and analyses that supported the conclusions of the audit.

II. Overview

7. Soil is the basis for producing food, fuel and fiber and it is essential to ecosystem functions. The United Nations Conference on Sustainable Development (Rio + 20) recognized the economic and social importance of sound land management and highlighted the key role played by the soil, particularly in promoting economic growth, biodiversity, sustainable agriculture and food security, poverty eradication, the fight against climate change and improved water availability. The official document resulting from the Conference, "The Future We Want", deals specifically with the issue of desertification, land degradation and drought, emphasizing that these are global challenges that continue to pose serious difficulties for the sustainable development of all countries.

8. At the "Global Soil Partnership" conference held in Rome by the Food and Agriculture Organization of the United Nations (FAO) in 2014, it was highlighted that 33% of the global soil is undergoing moderate to high degradation. Degraded soil is a result of the loss of physical and chemical capacity (fertilizers) to continue to be productive, making it impossible for soil to retain carbon dioxide (CO_2). Environmental degradation imposes high costs on society, besides impoverishing farmers.

9. In 2015, the United Nations (UN) declared 2015 as International Year of Soils with the aim of making society aware of the importance of soils as a key element of the environment and as a resource for ensuring food security. December 5 was declared the World Soil Day.

Figure 2 – The UN declared 2015 the international year of soils and December 5 the world soil day.

Source: FAO, 2015

10. Therefore, it is undisputed that soil is extremely important to humanity. So much so that in the proposed Post-2015 Development Agenda of the Sustainable Development Goals being discussed at the United Nations (UN), which will replace the Millennium Development Goals, the goal 15 states the following: "protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss".

11. Few areas in the world are as large and have as much arable land as Brazil. However, data from the Ministry of Environment suggests that 140 million hectares of Brazilian land are degraded, accounting for 16.5% of the national territory. Among these lands, about 30 million hectares of pastures are in some stage of degradation, with very low productivity for animal feed. In addition, Brazil has been facing the phenomenon of desertification, which has been affecting various regions such as the northeastern semiarid region, savannah (cerrado) regions in the state of Tocantins, and northern Mato Grosso and Minas Gerais, besides to a sand-spreading phenomenon that has reached the Pampas region in the state of Rio Grande do Sul (Pampas Gauchos). As a result of the formation of arid areas, the temperature rises and the air moisture drops, making the soil infertile, reducing food production, and increasing hunger and poverty.

12. The main initiatives taken by the Federal Government to address soil-related issues are listed in Figure 1, included in the introduction. The following figure briefly illustrates the main objectives of those initiatives.

Figure 3 – Summary of the main objectives of government initiatives related to territorial organization and soil and water sustainability, included in the audit scope.

Source: Prepared by TCU.

13. The main agencies in charge of these programs are the Ministry of Environment (MMA), the Ministry of Agriculture, Livestock and Supply (MAPA) and the Ministry of Agrarian Development (MDA), directly or through indirect administration agencies, state and local governments and landowners. In terms of governance, the National Congress and the Office of the President of the Republic are also responsible for these programs, as they are the highest-ranking bodies in charge of issuing normative guidelines in this area.

14. The beneficiaries are society at large as consumer of food, water and other natural resources associated with the soil and farmers either directly (incentives and payments) or indirectly (soil fertility and water availability). Total funds invested in these programs amounted to R$1.73 billion in 2014. The main features of these policies, such as main deliverables, relevance, performance indicators, targets, budget-related aspects, decision-making processes, control systems and IT systems are described in document 26.

15. With regard to the risks associated with these initiatives, it is worth clarifying that the entire study was carried out under TC 021.212 / 2014-7, entitled *Levantamento de Governança de Solos* (Soil Governance Survey), which this report is derived from.

III. Defining Brazil's priorities for using its territory, soil and water is critical to the success of public policies designed to promote sustainability.

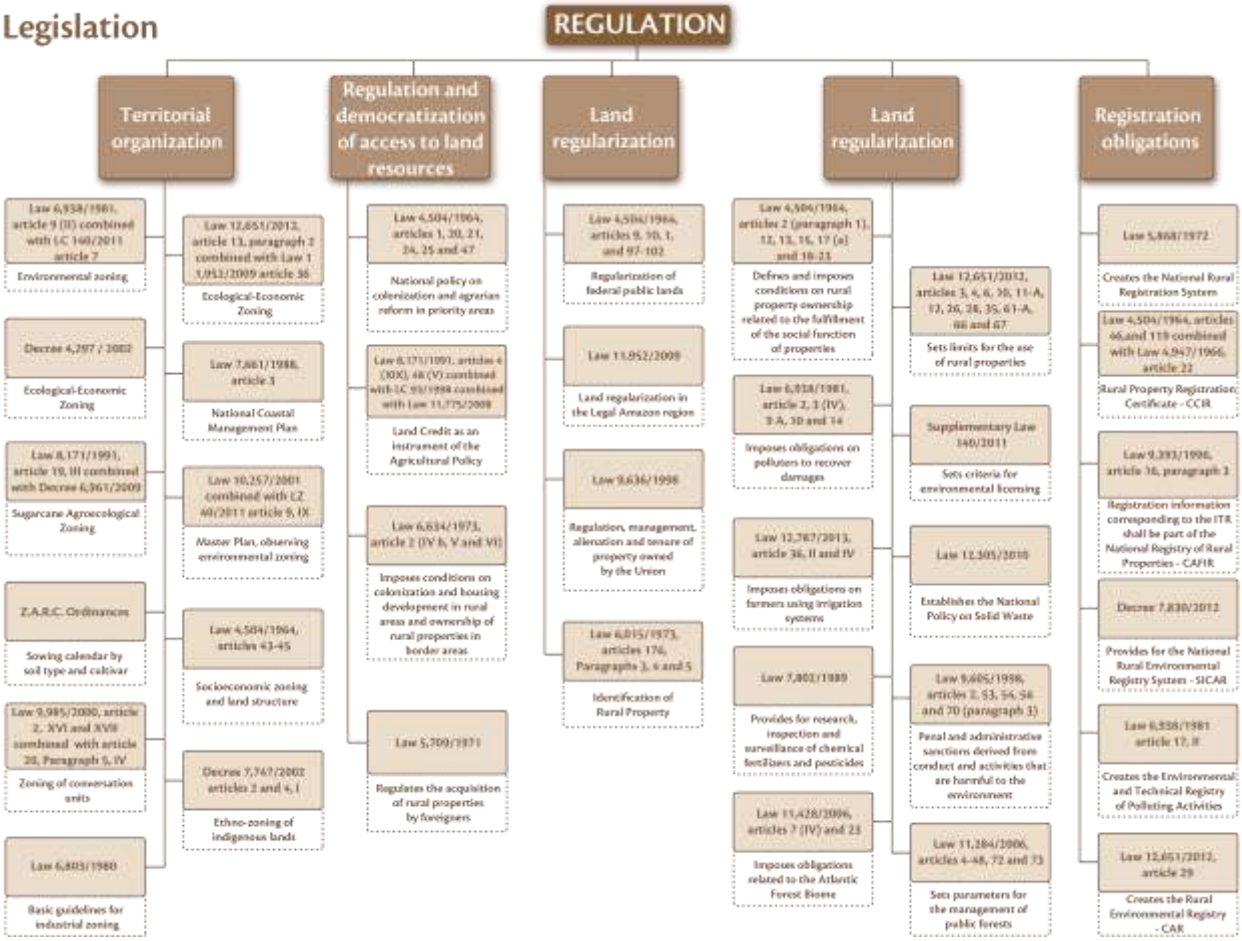
16. Several government initiatives designed to regulate the occupation and use of the Brazilian territory and to promote soil and water sustainability were located and cataloged, but it was not possible to identify an institutional definition of the priorities set by the Brazilian Government to regulate land occupation and use or to promote soil and water sustainability in non-urban areas.

17. With regard to the institutionalization of the surveyed initiatives, the following situations were identified: i) complexity and scattered nature of Brazilian legislation governing the occupation and use of the territory and the sustainability of soil and water use; ii) overlapping and gaps between the institutional responsibilities of the different government agencies involved; iii) inconsistency between different soil and water laws; and iv) imposition of several legal obligations on landowners without actually using the information derived therefrom in public policy.

Consolidating laws governing the occupation and use of the territory can reduce their complexity and scattered nature, thus contributing to guide public policies better.

18. The analysis of the legal framework that supports the federal government's role in actions to organize and develop an appropriate planning for the Brazilian territory showed that there are several scattered regulations governing soil occupation in terms of territorial organization, land tenure, property, possession and access to land.

Figure 4 - Systematized legislative framework that regulates aspects of territorial organization, land tenure and access to land.



Source: Prepared by TCU.

19. As negative effects of the complexity and scattered nature of legal provisions, the following can be mentioned: instability of objectives and strategies; unpredictability of funds; lack of clear-cut competences; insufficient consistency between public programs and actors; lack of formal instruments for coordination; lack of dedicated monitoring and evaluation systems; and difficulties for implementing public policies on rural and territorial development. Moreover, private investors and agricultural and industrial production projects tend to stay away from regions in which land issues are more critical and that are marked by Brazil's worst human development indicators (north and northeast regions).

20. In addition, there are recurring conflicts and disputes among the various actors interested in occupying non-urban soil, such as landless rural workers, family farmers, settlers under the land reform program, indigenous people, large and medium food producers and government, with several implications, including public safety ones.

21. Finally, it should be stressed that the current territorial legislation contributes directly to the inefficiency of public policies on soil and water use conservation and sustainability, since the characteristics of occupation and use of Brazilian land are closely related to risks involved in managing land and water resources.

22. The causes found for this situation include the fact that the legislature has not given priority to the need for reviewing and consolidating regulatory provisions dealing with the organization of the territory and access to land resources with the aim of reducing the legal uncertainty faced by the various actors involved in the occupation of non-urban soils in Brazil. The efforts made by the Executive Branch to address this matter jointly with Congress have not been sufficient either to review or to consolidate legal provisions dealing with the organization of the territory and access to land resources.

23. With the aim of addressing the causes that were found, we intend to submit the report of this audit, as well as our vote and judgment, to Congress and to the Office of the President of the Republic to inform them on the situation that was found and issue recommendations to the Office of the President of the Republic to undertake efforts and work jointly with Congress to review and consolidate legal provisions dealing with the organization of the territory and with the ownership, possession and access to land resources in Brazil.

24. The expected benefits of consolidating the above-mentioned legislation are stability in objectives and strategies, predictability of funds, definition of competences, consistency between public programs and actors, establishment of formal coordination instruments and availability of dedicated monitoring and evaluation systems. It is also expected that conditions will be created for Brazil to ensure a stable legal environment that is favorable to investment and to the development of projects in non-urban areas in Brazil.

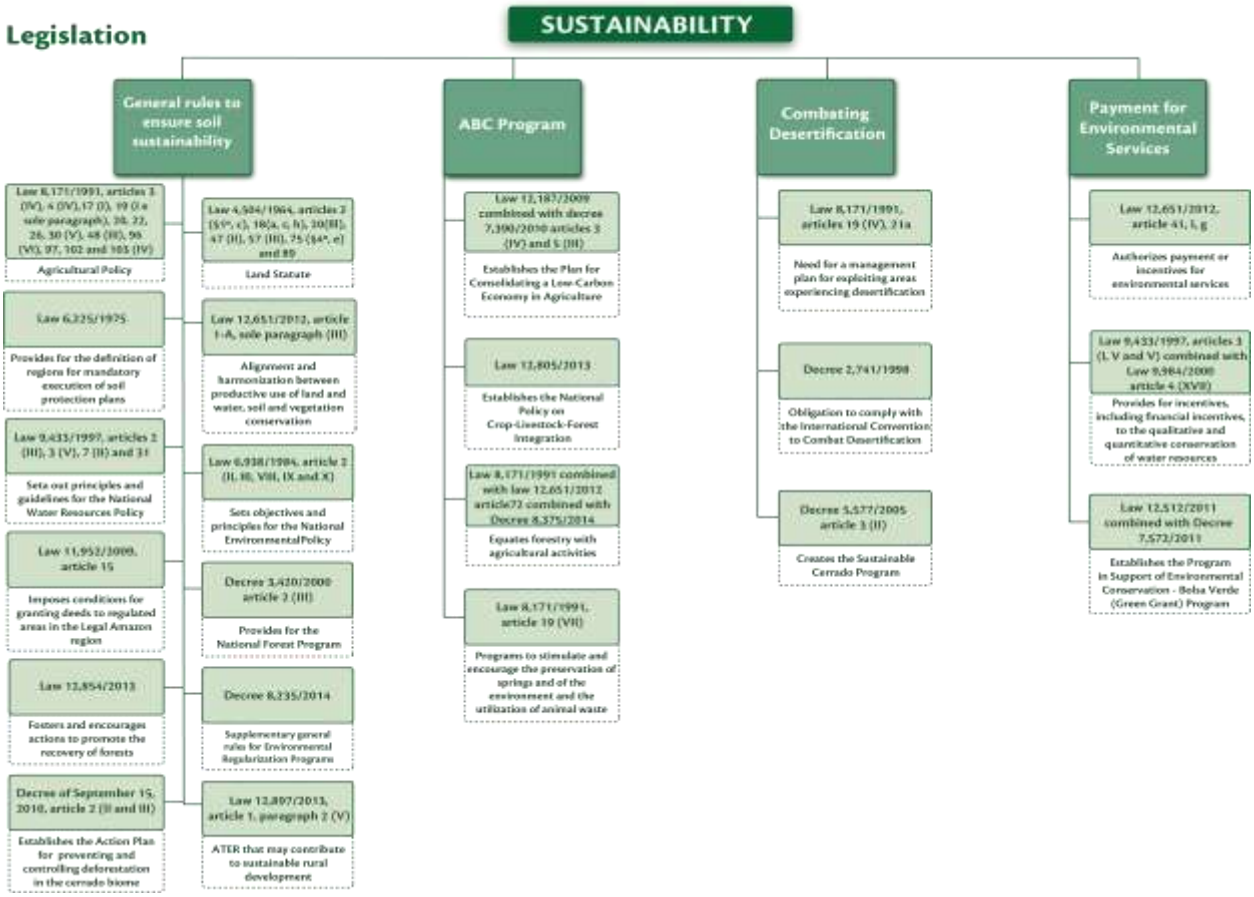
Legislation covering soil and water management in an integrated fashion can help reduce the existing gaps.

25. Although they are inseparable, soil and water resources are dealt with in different laws that are not integrated among them. While there is a National Water Act (Law 9,433/1997) at federal level, sustainable soil use is only mentioned in general terms in several different laws (Agricultural Policy, Land Statute, Forest Code, etc.). Thus, there is no specific law governing soil and water aspects in a comprehensive and integrated manner to enhance the efficiency of public policies designed to ensure soil and water conservation.

26. In addition, similarly to the legislation on occupation and use of the national territory, legal provisions governing the maintenance of the sustainability of soil and water resources are widely scattered, contributing to the existence of legal loopholes, such as: identification of the objectives, roles, responsibilities, resources and obligations of all stakeholders, approach to

settling disputes, identification and sharing of risks and opportunities and establishment of ways of reviewing, evaluating and monitoring the situation of soil and water resources jointly, as well as of the associated public policies. The figure below shows the normative provisions that were identified in the analysis.

Figure 5 - Legislative framework governing aspects related to the soil conservation, restoration and sustainable use.



Source: Prepared by TCU.

27. As effects of this situation, mention can once again be made of the instability of objectives and strategies, unpredictability of funds, lack of clear-cut competences, insufficient consistency between public programs and actors, insufficient formal coordination instruments, and lack of dedicated monitoring and evaluation, accountability and risk management systems, generating gaps, overlapping of leadership and other inefficiencies, making it difficult to establish a foundation for a sound governance of the sustainability of domestic soil and water resources.

28. The weaknesses arising from the lack of a legal framework for integrated soil and water management create increased risk of losing large amounts of soil resources every year, reducing the fertility of Brazil's agricultural areas and leading to the silting up of rivers and other water bodies and thus reducing the availability of water resources in urban and rural areas, with huge losses for food supply and production.

29. As causes of this situation, special mention should be made of the fact that the joint efforts made by the Executive Branch and Congress have not been sufficient for proposing and passing legislation to codify soil use with the aim of ensuring compliance with Article 97 of Law 8,171/1991. The Legislature, in turn, has not been giving priority to formally institutionalizing a policy designed to ensure the conservation and recovery of soil and water resources.

30. As a good practice and a basis to establish an integrated soil and water management framework, mention should be made of Law 9,343/1997, which established the National Water Resources Policy and contemplates most of the required items for establishing goals, actors, functions, a monitoring system and penalties for noncompliance, which currently constitute gaps in national soil legislation. The legislation of the state of Parana (Law 8,014/1984) is another example of a positive approach to aspects to be considered for ensuring sound soil management. As examples of legislation that integrates soil and water management in other spheres, special mention should be made of the legislation of the state of Sao Paulo (Law 5,005/1986) and, at international level, of the Soil and Water Resources Conservation Act of the US.

31. For addressing the causes that were identified, the proposed approach is to instruct the Working Group (WG) made up of representatives from MAPA and from the National Water Agency (ANA) to draw up a plan with measures to be taken to propose a Bill (PL) to Congress with the aim of ensuring compliance with article 97 of Law 8,171/1991, and recommend to the WG to consider, in such bill, the aspects contemplated in the legislation of the states of Sao Paulo and Parana and of the US, mentioned in the preceding paragraph, as well as the provisions of Law 9,433/1997.

32. As a benefit resulting from the implementation of the measures proposed here, we expect to see the formal institutionalization of a policy designed to ensure the conservation and restoration of soil and water resources as a basis for good governance of the sustainability of these important natural resources in Brazil.

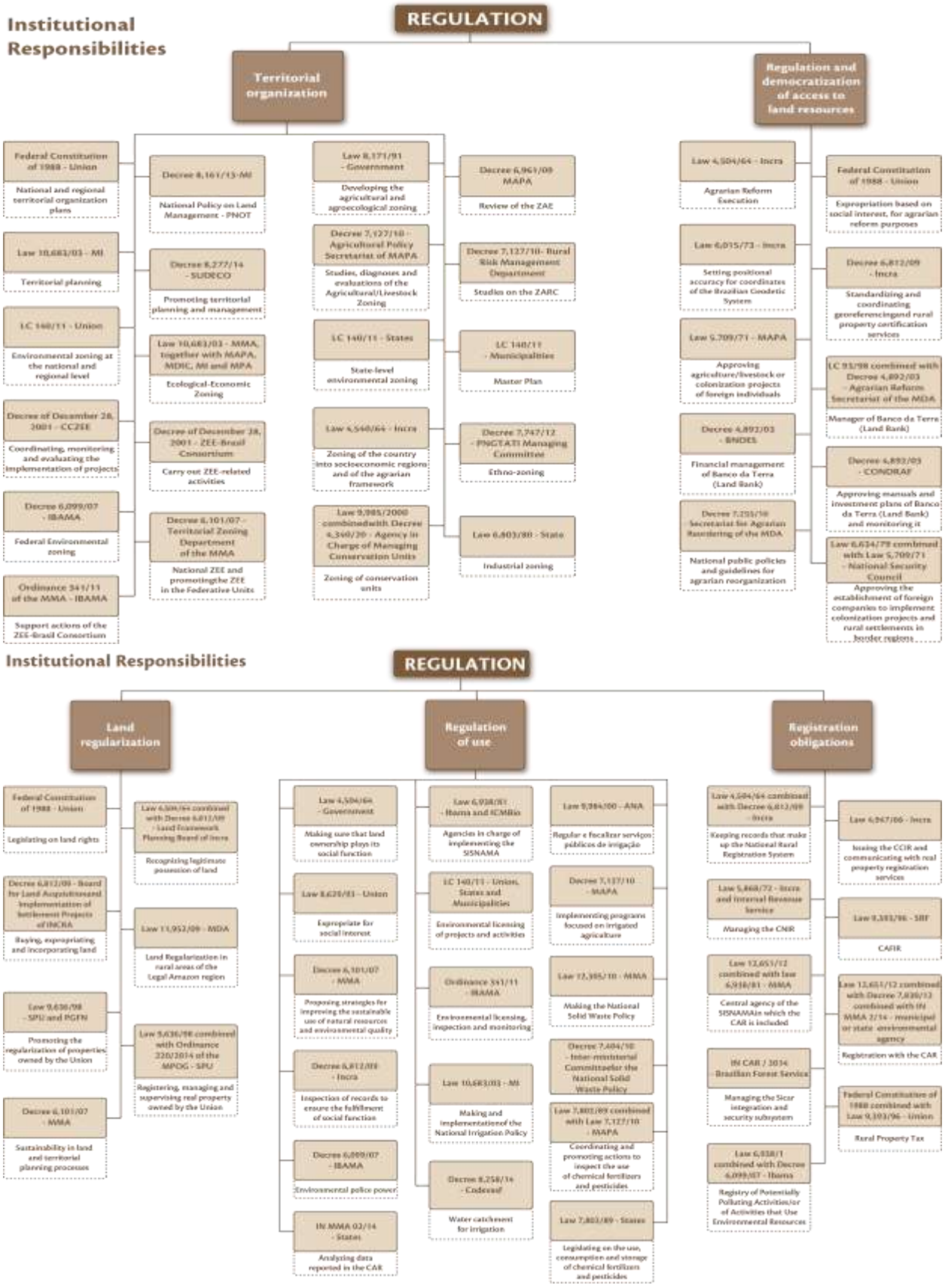
Establishing limits for the actions of the various institutions dealing with territorial organization in non-urban areas can avoid overlapping, conflicts and duplication of efforts.

33. The analysis made of the regulatory framework that supports the federal government's role in actions to organize and regulate the territory showed that there are no consolidated and formally established normative provisions defining the role of the different agencies, institutions and spheres working in these areas or establishing limits for their actions to avoid overlapping, conflicts or duplication of efforts. Many standards have been set in this area, but without consolidation and correlation among them, which would prevent conflicts of jurisdiction and facilitate the understanding of the policy in its entirety.

34. The audit could not identify an appropriate normative provision establishing a hierarchy or designating an official coordinating agency for soil use planning covering all non-urban areas in their various uses (agriculture, protected and indigenous areas, among others). Clear-cut jurisdictions are also lacking in relation to the agencies that have concurrent competences in organizing the territory, such as the Ministry of National Integration (MI) and the MMA, which are in charge of land use planning and Ecological-Economic Zoning (ZEE), respectively.

35. The law sets out responsibilities related to organizing the territory for the various agencies and institutions involved, such as the Ministry of National Integration, the Ministry of Environment, the Brazilian Institute for the Environment and Renewable Natural Resources (Ibama), the National Institute for Colonization and Agrarian Reform (Incra) and the National Foundation for Indigenous Peoples (Funai). However, there is no clear definition of limits for the actions to be taken among them, which can result in overlapping of responsibilities and actions, wasting of material and human resources and conflicts between different plans for non-urban areas. The following figure shows normative provisions that define the responsibilities of public agencies and institutions in relation to territorial planning.

Figure 6 - Institutional responsibilities related to soil use and occupation.



Source: Prepared by TCU.

36. As a result of the lack of a consolidated legal framework defining the jurisdictions and limits for the operations of the various agencies working in this area, there is an overlapping of competences in various aspects, with consequent wasting of financial and human resources. In addition, this situation makes it difficult for the Executive Branch to set rules defining how public policies are to be coordinated at federal, state and local level, as provided for in Decree-Law 200/1967. Moreover, it has negative effects on the requirements of transparency, accountability and social control over the policy, as it is not clear who should be held accountable for the results of the actions proposed by the Government.

37. It was seen that these situations are caused by the fact that the Executive Branch has failed to take the initiative and steps to institutionalize, through appropriate legal provisions, the activities of the various agencies and institutions involved in organizing the territory and developing an appropriate land use planning in non-urban areas, with clear-cut jurisdictions and limits for their operations.

38. Therefore, the audit proposes that a recommendation should be issued for the Office of the President of the Republic to define, in a consolidated fashion and through appropriate legal standards, pursuant to the provisions of section IV and paragraph “a” of section VI of the Constitution, competences and limits for the operations of the different agencies in charge of land use organization and planning at federal level.

39. The expected benefits are, the avoid of overlapping of responsibilities and actions, optimizing the use of public resources and enhancing the effects and impacts of public policies. A clear definition of limits for the operations of the different agencies engaged in activities in these areas could facilitate the coordination of federal public policies with state and local public policies.

Establishing limits for the operations of the different institutions working to ensure soil and water sustainability can avoid overlapping, conflicts and duplication of efforts.

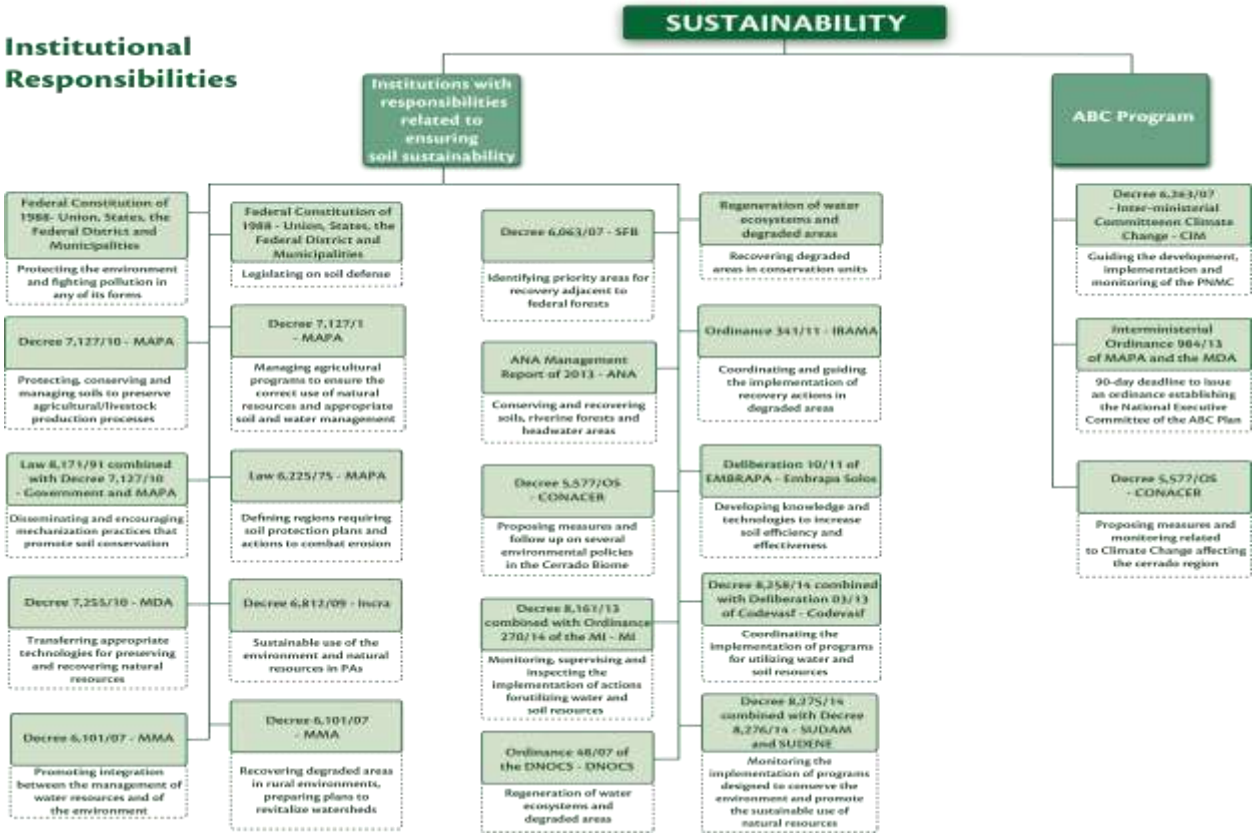
40. The analysis of the regulatory framework that supports the federal government's role in promoting soil and water sustainability showed that there are no consolidated and formally established normative provisions to define the coordination and operations of the different agencies and institutions working in this area, and neither to establish limits for operations among them to avoid overlapping, conflicts or duplications of efforts.

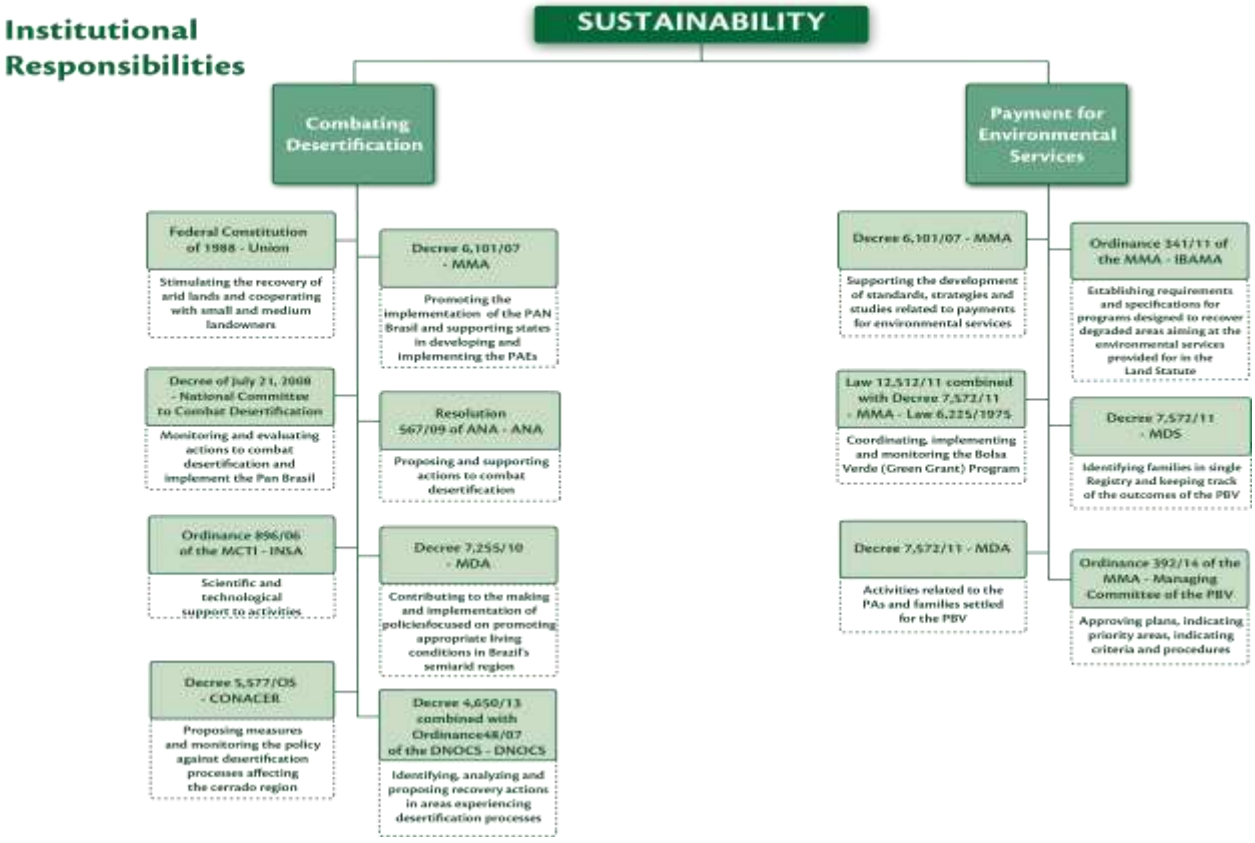
41. As an example, it should be highlighted that the audit identified various institutions with the competence to recover degraded areas and that this competence is delimited by region (Sudam - Amazon region, Sudene - northeast region) or purpose (Incra - settlements, ICMBio - conservation units). However, such delimitation is not sufficient to avoid clashes between final and regional competences. The responsibility for recovering degraded areas is shared among MAPA, the MDA and the MMA, as well as among other government agencies such as Ibama, the Chico Mendes Institute for Biodiversity Conservation (ICMBio), Incra, the Brazilian Forest Service (SFB), ANA, the Sao Francisco and Parnaiba Valleys Development Company (Codevasf), the Office of the Superintendent for the Development of the Amazon Region (Sudam) and the Office of the Superintendent for the Development of the Northeast Region (Sudene).

42. Another example of overlapping actions was detected in the coordination of technical assistance activities for rural areas (Ater), which is a key activity for conserving and recovering soil and water resources. The law assigns the responsibility for the Ater service to MAPA, the MDA and the newly-created National Agency for Technical Assistance and Rural Extension (Anater). It was seen that all the three institutions have competence to coordinate Ater services, but there is no clear definition of how this will be done or a clear-cut delimitation of the operations of each of them. Other agencies in charge of providing Ater services at federal level are SUDAM,

the SFB, and the Office of the Superintendent for the Development of the Mid-West Region (SUDECO). The following figures illustrate the found situation.

Figure 7 - Institutional responsibilities related to soil and water sustainability.





Source: Prepared by TCU.

43. As a result of the negative effects of a regulatory framework that does not define, on a consolidated basis, competences and limits for the operations of the different agencies that are active in these areas, and neither the competences, functions, objectives, responsibilities, rights and duties of each of the stakeholders, several overlapping competences are generated, with consequent wasting of financial and human resources and scarce possibilities for society to hold them accountable for results due to difficulties to identify who is responsible for what, thus reducing their accountability. In addition, this situation makes it difficult for the Executive Branch to set rules defining how public policies are to be coordinated at federal, state and local level, as provided for in Decree-Law 200/1967.

44. The identified cause for the reported occurrence is that the Federal Executive Branch has not taken steps to institutionalize, on a consolidated basis and through appropriate legal standards, the operations of the different federal agencies and institutions involved in actions designed to promote sustainable soil and water use in non-urban areas, delimiting competences and setting limits for their operations contemplating both natural resources in an integrated fashion.

45. To remedy this cause, the audit proposes that a recommendation should be issued for the Office of the President of the Republic to define, in a consolidated fashion and through appropriate legal standards, pursuant to the provisions of section IV and paragraph “a” of section VI of the Constitution, competences and limits for the operations of the different agencies in charge of promoting soil and water sustainability in non-urban areas of the national territory.

46. The expected benefits of establishing competences and setting limits for the operations of the different government agencies are those of avoiding an overlapping of responsibilities and actions, optimizing the use of public material and human resources and leveraging the effects and impacts of public policies. In addition, a clear definition of limits for the operations of the different agencies engaged in activities in these areas could facilitate the coordination of federal public policies with state and local public policies.

Simplifying the Brazilian legislation that imposes registration obligations on landowners can facilitate the use of the information generated by such records in public policies designed to promote sustainability.

47. The current normative framework that regulates land use and occupation and promotes soil and water sustainability in non-urban areas of Brazil imposes a series of obligations and restrictions on landowners and non-urban properties. However, it is not strictly necessary to consolidate these provisions to avoid jeopardizing the performance of public policy by excessive formalism and detailing.

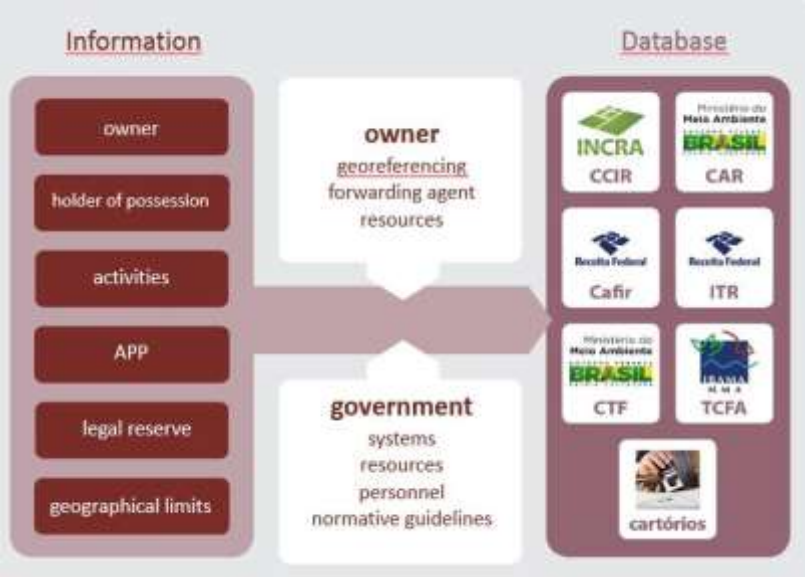
48. Among the rules that govern soil use in non-urban areas, especially agricultural and forest soil, ten provisions were analyzed that, among other obligations, condition land ownership to fulfilling a social role; provide for environmental restrictions and obligations; set out penal and administrative sanctions related to land use; require additional protection for certain biomes; and impose standards for economic exploitation of forests and protected areas. In addition, eight provisions were selected related to records which owners of rural properties are required to fill out and in which they must enter additional information periodically for purposes of notarial records, property succession and environmental licensing and which require the payment of fees or impose conditions for accessing agricultural loans.

49. Examples of registration, certification and tax obligations include the Rural Property Registration Certificate (CCIR) issued by Incra, the Rural Environmental Registry (CAR) of the MMA, the National Registry of Rural Properties (Cafir) of Brazil's Federal Revenue Department (RFB), the Federal Technical Registry of Potentially Polluting Activities and/or of Activities that

Use Environmental Resources (CTF), in addition to taxes and fees, such as the Rural Property Tax (ITR) and the Environmental Control and Inspection Fee (TCFA).

50. While on the one hand the government imposes obligations on landowners to provide costly information, on the other this information is not very reliable because of the various objectives of such information, which often end up being even contradictory, limiting its use in policy making. More information on the status of government information about landowners, tenants, rural properties and their activities will be provided later in the section on the information systems used by the Federal Government.

Figure 8 – Information flow on landowners, tenure holders and rural properties.



Source: Prepared by TCU.

51. A negative effect of this situation is that a financial and non-financial burden is imposed on private parties and government institutions to meet legal obligations without any evaluation of the possibility of simplifying and consolidating requirements according to their purpose. Furthermore, regarding how the information provided is used, it was noted that the operations of public officials of the Union, states and municipalities are inefficient because of difficulties faced to consolidate the information and carry out inspections required for the success of public policies designed to regulate and ensure sustainable soil and water use in non-urban areas.

52. Among the causes found for this situation, special mention should be made of the fact that the Legislature passed a series of laws that influence the regulation of soil use in non-urban areas without the necessary consolidation of such provisions to avoid jeopardizing the implementation of public policies due to excessive formalism and detailing. The Federal Executive Branch, in turn, together with the other entities of the federation, failed to take steps to simplify and streamline citizen access to public services and information and reduce formalities and requirements in the provision of public services.

53. For addressing the causes found in this audit, it is proposed to recommend to the deliberative council referred to in Decree 8,414/2015, which is in charge of simplifying and streamlining access to information and public services, to take on the additional task of simplifying these obligations imposed on owners of non-urban properties and on such properties and inform Congress and the Office of the President of the Republic on the harmful effects of the excessive legal and registration obligations imposed on owners of rural properties.

54. The implementation of the proposed recommendations is expected to reduce formalities and requirements in the provision of public services related to the regulation and sustainability of soil and water use in non-urban areas by simplifying and streamlining access to public services and information.

IV. Formalizing a logic of intervention and integrated planning for public policies related to soil use regulation and sustainability of soil and water resources is critical to actually implementing them for the benefit of society.

55. The analysis of government initiatives designed to organize the territory and promote sustainable use of soil and water resources showed that a general formula is lacking to define a intervention logic by plans that would actually make it possible to carry out necessary actions based on guidelines, objectives and goals. Moreover, the audit did not find any integrated planning involving all public organizations in charge of implementing the initiatives included in its scope.

56. With regard to the logic of intervention and planning of the analyzed initiatives, the following situations were found: i) lack of formalized and integrated plans for regulating land occupation and use and promoting sustainable soil and water use; ii) insufficient definition of basic elements for joint actions by the agencies that make up forums for implementing initiatives designed to regulate soil occupation and use and for promoting sustainable soil and water use; iii) inconsistencies and overlaps in official data on the occupation of the Brazilian territory; and iv) insufficient knowledge on Brazilian soils to be used for planning, implementing and monitoring public policies designed to promote sustainable land use in activities that combine agriculture, livestock, forage production and forestry (agrosilvopasture).

Formalizing a strategic planning that integrates territorial, soil and water use management is a requirement for successful policies designed to promote the sustainability of these resources.

57. No strategic plan of the Federal Government was found to coordinate the efforts undertaken through various government initiatives related to regulating soil and water occupation and use, and to promoting sustainable soil and water use aligning inputs, activities, deliverables, effects and impacts according to the problems to be addressed and with the required consistency among these various initiatives at all levels.

58. No consolidated federal or inter-federative plans were found in Brazil contemplating guidelines, priorities and general objectives for integrated soil and water management. No plans were found either indicating the existence of a long-term strategic vision contemplating government actions to regulate the use and occupation of non-urban soil or actions to promote soil and water conservation and recovery at national level.

59. In the absence of such long-term strategic plans, different federal government initiatives are being taken in a scattered fashion that on the whole lack a logical sequence to fulfill the purpose of ensuring sustainable occupation and use of the Brazilian soil, namely: ZEE, Agro-Ecological Zoning (ZAE), Agricultural Zoning for Climate Risk (ZARC), National Land Reform Plan (PNRA), Land Regularization, Rural Certification and Registration, Rural Environmental Registry (CAR), Low-Carbon Agriculture Plan (ABC), Water Producer Program, *Bolsa Verde* (Green Grant) and National Action Program to Combat Desertification.

60. As negative effects of this situation, it was seen, based on a comparison between the objectives and goals of such initiatives, that the actions and specific objectives of the interventions undertaken by different agencies are not aligned and that the common results expected from implementing such initiatives are not mutually reinforcing. In addition, overlapping and duplication of efforts were found, as well parallel actions among the studied initiatives.

61. Among the causes for the situation that was found, with regard to its obligations concerning non-urban soil, the Federal Executive Branch has not yet taken appropriate steps to establish a strategic plan for managing this resource in terms of regulating soil occupation and use, promoting the sustainability, conservation and recovery of this natural resource, fostering coordinated efforts among all the several actors involved, structuring clear goals and defining long-

term strategic objectives, and consolidating and detailing means to implement several related initiatives.

62. As good national practices related to implementing plans and objectives for actions to ensure soil and water sustainability, experiences of programs designed to promote sustainable management of watersheds were identified in the states of Parana, Santa Catarina, Rio Grande do Sul and Sao Paulo, it is highlighted a good strategic planning practice developed by Emater in the state of Parana for soil and water management in rural areas deserves.

63. As a good international practice related to identifying plans and objectives, the experience of the United States Department of Agriculture (USDA) in the strategic planning of actions to ensure land and water use conservation should also be highlighted. The strategic planning of the USDA has the long-term objective of ensuring that national forests and rural properties are conserved, recovered and made more resilient to climate change, improving the conditions of water resources. In addition, the USDA details, in an annual performance report, the results of the strategic goals and objectives defined in its strategic plan, besides demonstrating the results of the cooperation and concerted actions taken by different government agencies working in this area, as shown in the figure below.

Figure 9: Long-term soil and water sustainability planning of the United States.

Source: USDA, 2015. Available at www.performance.gov, accessed on July 14, 2015.

64. Considering the causes identified, as well as the good practices that were reported both domestically and abroad, it is necessary to recommend to the Office of the President of the Republic to coordinate the efforts of all the different actors involved at federal, state and municipal levels to draw up and publish a long-term strategic planning with strategic objectives that contemplate alignment and integration, at national level, of inputs, activities, deliverables, effects and impacts according to the problems to be addressed in connection with organizing the territory and promoting soil and water sustainability.

65. It is expected that the implementation of the proposed Recommendation will ensure logical consistency among government interventions and integration between the objectives and goals proposed by these interventions among all the government agencies concerned and that the expected results will be actually achieved and reinforce each other.

Defining basic elements for joint actions by all the government agencies working with issues related to the territory, soil and water could enhance the efficiency of government intervention.

66. The government initiatives listed in Figure 1 involve several agencies and institutions at the three levels of government. However, it is extremely difficult for them to actually work together, as the basic elements for the forums set up to ensure the implementation of those initiatives to work successfully have not been defined yet, such as: decision-making processes, criteria for joint government actions, priority areas for action and integration and monitoring guidelines.

67. In analyzing these forums, it was found that priority areas, criteria for joint government actions, and integration and monitoring guidelines have not been formalized so far. Decision-making processes in these forums are defined in such a way as to only set rules for how decisions are made, but these definitions do not include steps ranging from the identification of a situation posing a problem or opportunity to the choice and actual execution of an action or solution. Moreover, there is no clear and formal definition of mobilization, cooperation and coordination strategies between their members and of solutions for collective problems.

68. Many delays related to these forums were found, whether to approve their own internal rules, as in the case of the *Bolsa Verde* (Green Grant) Program, or to actually set them up, as found in the case of the ABC Plan. Another important issue is the number of meetings held by the forums, which are few and insufficient to define paths to be followed in public initiatives, as is the case of the National Action Program to Combat Desertification. Sometimes, regular meetings are not even held as required by law, as found in the case of the ZEE.

69. The forums in charge of the initiatives analyzed are structured in such a way as to address issues that are only internal to them, focusing only on each initiative in isolation. There is no communication between the different forums for them to jointly define integrated actions that can actually benefit all segments related to public policies and initiatives designed to regulate soil use, occupation, conservation and preservation.

70. Finally, it was found that there is no legal guideline to create a single forum to addresses issues related to soil governance. In the absence of such a forum to coordinate and bring together all public policies and initiatives in this area, those in charge of such policies and initiatives should devise other ways to align them to avoid overlapping and waste of resources. In the analysis of the forums in charge of the initiatives studied, it was found that the internal coordination among the members of each forum is deficient and that there is no record of external coordination with agencies and entities responsible for regulating soil occupation and use or soil and water sustainability.

71. As a negative effect of these facts, it should be highlighted that the inadequate joint operation of the agencies and entities that make up the forums in charge of implementing the initiatives make it difficult to mobilize them politically and administratively to work together and allocate resources and efforts to solve collective problems faced in the area in question.

72. It was found that the cause of this situation lies in deficient inter-ministerial oversight by the Executive Branch to make sure that deadlines and timetables are established for publishing instruments defining decision-making processes; criteria for joint governmental action; priority areas for action; and integration and monitoring guidelines as a product of the work of the forums responsible for implementing the government initiatives covered in this report.

73. Thus, it is proposed to recommend to the Office of the President of the Republic to set deadlines and timetables, as well as inter-ministerial oversight mechanisms, for the forums in charge of implementing government initiatives designed to regulate soil occupation and use and promote soil and water sustainability to publish instruments defining at least the following: i)

consistent objectives mutually agreed among all the organizations involved; ii) a governance framework, as well as roles and responsibilities, including guidelines on how the cooperative effort will be led; iii) coordination and horizontal relationship mechanisms between public and private actors; and iv) coordination, communication and collaboration mechanisms capable of aligning the strategies and operations of the organizations involved in cross-cutting and decentralized policies designed to achieve a common result.

74. It is expected that the implementation of the proposed recommendation will lead to improvements in the coordination and allocation of resources and efforts to solve collective problems already identified to regulate soil occupation and use, and promote soil and water sustainability.

Eliminating inconsistencies and overlaps in official data on the occupation of the Brazilian territory is critical to the management of territorial, soil and water policies.

75. In a survey carried out in the main georeferenced systems that identify areas in the Brazilian territory cartographically, which are included in a land database fed with data by the MMA, ICMBio, Funai, Incra and the MDA, several overlaps of federal areas nationwide were found, as shown in the table below.

Table 1 - Overlapping of federal land areas nationwide (ha).

	Settlement Projects (PA)	Indigenous Lands (TI)	Certified Rural Properties (IC)	No designation (SD)	Legal Land (TL)	Conservation Units (UC)	Military Use (MI)
PA	-	690,515.75	1,306,383.21	-	3,671,920.60	18,144,538.9	-
TI	690,515.75	-	-	-	941,419.27	6,882,025.56	-
IC	1,306,383.21	-	-	-	278,583.01	7,097,193.01	-
SD	-	1,049,595.50	-	--	-	1,049,595.50	-
TL	3,671,920.60	941,419.27	278,583.01		-	1,967,964.72	-
UC	18,144,538.9	6,882,025.56	7,097,193.01	1,049,595.50	1,967,964.72	-	-
MI	-	-	-	-	-	-	-

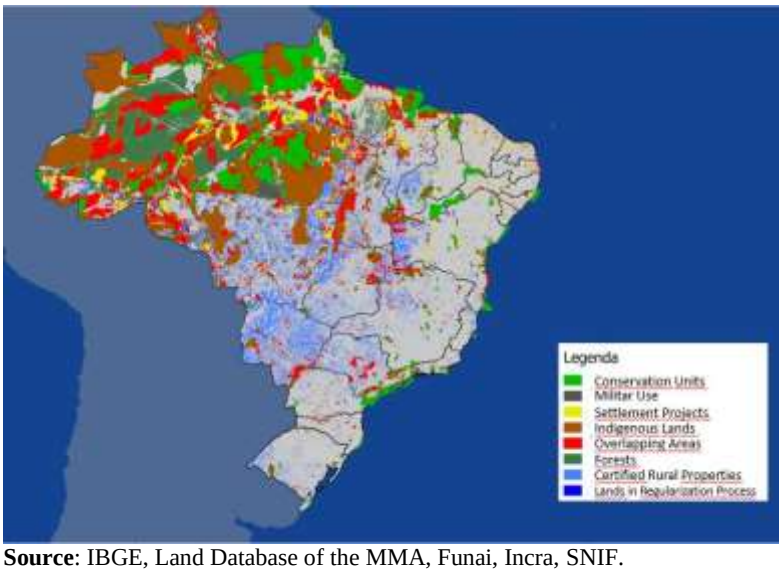
Source: Prepared by TCU based on data provided by IBGE, Incra, Funai, the MMA and SNIF.

76. As for the Conservation Units (UC), it should be stressed that all the existing categories were considered, except for Environmental Protection Areas (APA). There is no legal provision forbidding or defining any form of occupation of UCs for sustainable use, but due to the characteristic of use that is inconsistent with that of a settlement, so these cases were considered as overlaps. Considering only fully protected UCs, the overlapping with settlements comprises 179,724.06 hectares. Regardless of the size of the overlapping, the situation found reflects overlaps between the georeferenced systems of different public institutions.

77. When data from the Brazilian Institute for Geography and Statistics (IBGE) is aggregated and analyzed together with other data included in the land database, the number of inconsistencies in official data of the Federal Government increases, especially in the Amazon region. Analyzing the official data by state, in some cases, the combined area covered by federal public lands and private lands exceeds the total area of the respective state.

78. The figure shown below resulted from plotting the several federal and private areas and superimposing them on a map. The gray areas on the right side of the map are areas not yet included in government land records and the red ones are overlapping areas, i.e. areas with two or more designations.

Figure 10 - Map of overlaps between federal and private areas in Brazil.

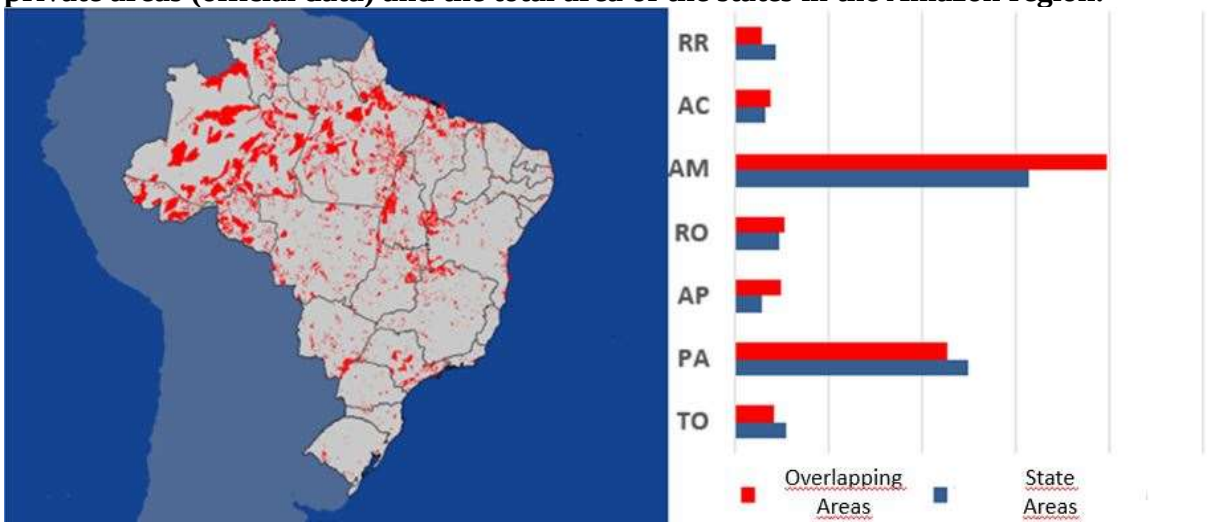


Source: IBGE, Land Database of the MMA, Funai, Incra, SNIF.

79. The various overlapping areas show that the Federal Government is not familiar with the situation of its own territory, or has not yet decided for what purposes its lands are to be used.

80. The graph in Figure 11 shows a comparison between all public and private areas included in official government databases by state and the total area of the states. It indicates that for some states in the Amazon region the sum of official data for public and private areas exceeds the total area of those states. The figure shows several inconsistencies in terms of overlaps between occupied areas and areas designated for different uses.

Figure 11 - Map of overlapping areas and comparison chart between the sum of public and private areas (official data) and the total area of the states in the Amazon region.



Source: IBGE, Land Database of the MMA, Funai, Incra, SNIF.

81. The unavailability of sufficient, reliable and relevant data on the designation of use and occupation of public and private lands harms the planning of public policies and the participation of other stakeholders with an interest in topics related to the territory, soil and water. In addition to making it difficult to measure any progress and advances in achieving the purposes of public policies.

82. The main cause of this situation is the lack coordination of actions of the Federal Government, which prevents the various institutions in charge of collecting and storing data and of generating georeferenced information on the land (mainly public land) situation in Brazil from holding routine discussions and correcting such information as required, thus leading to inconsistencies and unreliability.

83. Based on this issue, the audit recommends to the Office of the President of the Republic to establish mechanisms to ensure coordinated actions among the different institutions

in charge of collecting and storing data and of generating georeferenced information on the land (especially public land) situation in Brazil. Thus they can hold routine discussions, check this information and make it available in open databases, making it possible for them to work operationally in building an analytical foundation for the informed and actual participation of the various stakeholders with an interest in public policies related to land governance and to sustainable soil, water and biodiversity use.

84. As a benefit resulting from the implementation of the proposed recommendation, it is expected that the information on occupation and designation of use of Brazilian land will gain reliability and will be sufficient to ensure the informed participation of stakeholders with an interest in public policies regulating land use and occupation and sustainable soil and water use.

A better understanding of Brazilian soils is important for ensuring better management of public policies and private investment, which can generate benefits of up to R$40 billion.

85. The current level of knowledge on soils in Brazil, for the planning of land use, forestry and agricultural activities, soil and water conservation, is not sufficient to be carried out at the level of watersheds, pursuant to Law 8,171/1991, article 20 combined with Decree 7,127/2010, article 21, item III, paragraph d. The figure below shows the types and scales of the mapping of soils in Brazil.

86. Spatial information about soil classes and properties is not available for most locations in Brazil. Brazil has a soil mapping for the whole of its territory at a scale of 1:1,000,000 (schematic survey), soil surveys and maps published at scales of 1:100,000 and 1:250,000 (reconnaissance survey) are available for about 8.6% of the Brazilian territory, and only 0.6% of this territory has been mapped out at more detailed scales than 1:50,000 (semi-detailed and detailed survey). Such level of information on Brazilian soil is not sufficient for planning public policies for soil and water use, conservation and recovery at the level of watersheds.

Figure 12 – Types and scales of the mapping of soils in Brazil.

Source: Perez *et al*. (2014) adapted from Santos *et al*. (2013)

87. For evaluating the sufficiency of the information available about soils in Brazil, a comparison with the available information in the US is permissible, since it is a continental country similar to Brazil in size and is our main competitor in the global agricultural market today. The United States has digital soil maps for the whole of its territory at scales ranging from 1:12,000 to 1:31,680, which gives them a big competitive advantage over Brazil in relation to soil use planning, conservation of soil and water resources, sustainable production, global warming mitigation and recovery and fertilization costs in their agricultural areas.

88. With regard to the detailing of information on Brazilian soils, the issue of the amount of soil profiles already known in the country should be considered. In its Soil Information System,

Brazil has 8,958 registered profiles and samples for consultation, corresponding to a sampling density of 1 profile for every 100,000 hectares approximately. Americans, in turn, have about 62,000 soil profiles registered in their database, corresponding to a sampling density of approximately 1 profile for every 15,000 hectares. It is noteworthy that the better the scale of a map, the larger the number of soil profiles that are necessary to assign correct soil characteristics and the larger amount of field work required to check the outlines of the various soil polygons.

89. Another point to be emphasized is that detailed surveys (at a scale of 1:20,000 or higher) should be carried out up to the sixth categorical level (series) in the soil taxonomic system, but the Brazilian Soil Classification System is systematically structured to only allow for such surveys up to the fourth categorical level (order, suborder, large group, subgroup). The United States, in turn, has a soil classification system structured to allow for the six categories of classification, as shown in the table below.

Table 2 - Comparison between knowledge on soils available in Brazil and in the United States.

Knowledge Level	Brazil	United States
Soil profile survey (profile number per area ratio)	1 profile for every 100,000 ha	1 profile for every 15,000 ha
Soil Map Scales (for the whole country)	1:1,000,000	Between 1:12,000 and 1:31,680
Soil Classification System	Order, Suborder, Large Group and Subgroup	Order, Suborder, Large Group, Subgroup, Family and Series

Source: Prepared by TCU.

90. Comparing the scale of Brazil's soil map with those of major Latin American countries (Argentina, Bolivia, Chile, Colombia, Costa Rica, Cuba, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Dominican Republic, Uruguay and Venezuela) in relation to the mapping out of most of their territory (over 50%), the scale of Brazil's map is only larger than those of Argentina, Costa Rica, Honduras, Guatemala and Nicaragua. The scales of the soil maps of the other compared countries range from 1:250,000 to 1:500,000 (exploratory surveys, which allow for soil analysis at regional level). In Latin America, special mention should be made of countries such as Bolivia (soil maps for the entire country at a scale of 1:250,000), Colombia (soil maps for the entire country at scales of 1:500,000 and 1:100,000) Cuba (national map at a scale of 1:25,000), Mexico (national map at a scale of 1:250,000) and Venezuela (95% of the territory at a scale of 1:250,000), among other countries with similar or lower socioeconomic status than that of Brazil.

91. In addition to the insufficiency of information, the decision-makers face difficulties to access soil data or to interpret them, since there is no single data system storing all the knowledge about soils in Brazil or a platform that makes it possible for professionals who need to use information of this type to interpret such data.

92. As a consequence of this found situation, mention should be made of the fact that there is no definition of a baseline (or “ground zero”) to be used as input for assessing the results and evolution of public interventions in the area of soil and water conservation and of sustainability of agricultural production. In addition, difficulties are faced to enforce legislation that defines watersheds as basic units for planning the use, conservation and recovery of natural resources, as the mapping scales of Brazilian soils do not provide sufficient information for such planning. As a result, decision-making and participation of various actors involved in public policies and private investment that depend on this information are also negatively affected.

93. One of the causes of the lack of knowledge of the characteristics related to the spatiality of Brazilian soils lies in the fact that the last federal public policy providing for systematic surveys of information on soils in Brazil was one applied between 1970 and 1985 through the RADAM-BRASIL project. Since then, no government initiative designed to expand the scales used at the time or to detail available information has been taken, despite their great potential for economic and ecological use for the benefit of the country.

94. Another problem is that the information on soils produced by different institutions in Brazil are stored in spreadsheets, technical reports, master's dissertations, doctoral thesis, books, research reports and other magnetic media, since no single national database is available to store them, preventing existing information from being easily retrieved and shared among interested sectors.

95. Although the Brazilian Agricultural Research Corporation (Embrapa) is organizing an information system for soils, this system is still in an early stage of development and is not yet sufficiently structured, standardized and organized in a systematic way to allow every soil information produced in the country to be added to it.

96. Based on the found causes that, it is seen as relevant to recommended to the MAPA to work jointly with the Ministry of Planning and Budget (MOPG) to include in the next Multi-Year Plan (PPA) a national soil survey and interpretation program at scales consistent with appropriate land and water use planning in rural areas by watershed. It is also proposed to recommend to the MAPA and Embrapa to establish collaborative and permanent mechanisms for organizing data on soils in Brazil.

97. It is expected that the implementation of the proposed recommendations will lead to sustainable, knowledge-based soil management, thus avoiding waste and production and biodiversity losses due to unawareness of the characteristics of the soil. In addition, there are potential economic benefits to be enjoyed from the mapping out of soils in the entire national territory at a scale of 1:50,000 by the agricultural sector.

98. There are several studies in the international literature demonstrating that the benefit-cost ratio of mapping out soils is favorable, that is, that the benefits derived from mapping out soils outweigh the costs of such exercise (Craemer and Barber, 2007; Carrick, Vesely and Hewitt, 2010; Manderson and Palmer, 2006; Klingebiel, 1966; Odeh and McBratney, 1996). The benefit-cost ratio calculated by these authors ranged from 6:1 to 123:1. This variation is due to the degree of intensity of the surveys, with more detailed scales yielding much more benefits than their costs. Thus, for illustrative purposes, based on a study carried out by Giasson et. al. (2006), it is estimated that the total cost for mapping out soils in the entire Brazilian territory (851 million hectares) at a scale of 1:50,000 would be approximately R$900 million. In interviews with researchers specializing in the area, figures ranging from R$900 million to R$3 billion were mentioned, according to the priority areas, while potential economic benefits, considering only the country's agricultural area (282 million hectares), were estimated at R$40 billion.

V. The establishment of a dynamic of inter-institutional evaluation and monitoring will improve the quality of decisions and accountability in connection with public policies designed to regulate soil occupation and use and soil and water sustainability.

99. The analysis of the above-mentioned public policies showed in Figure 1 indicates that there are no formal, actual and comprehensive routines for integrated monitoring and follow-up on soil and water occupation, use, conservation and recovery at federal level, thus undermining the decisions made on those initiatives and their transparency.

100. As for the dynamic of public policy evaluation and monitoring for managing the territory and promoting soil and water sustainability, the following situations were found: i) there are no formal, actual and comprehensive routines for integrated monitoring and follow-up on soil and water occupation, use, conservation and recovery at federal level; ii) the performance indicators designed for public policies on land governance and soil and water sustainability lack the minimum requirements to support their planning and monitoring; and iii) insufficient integration among the various IT systems that are used to manage and control necessary information for regulating land occupation and promoting soil and water sustainability.

Formalizing and materializing routines for monitoring and following up on public initiatives is critical to achieving expected results.

101. It was found that no formal, actual and comprehensive routines have been established for monitoring and following up on soil and water occupation, use, conservation and recovery at federal level. In its articles 17, items II and VI, and 21, item III, paragraph d, Decree 7,127/2010 provides that it is the responsibility of the Secretariat for the Development of Agriculture/Livestock and Cooperativism (SDC) of MAPA to plan, promote, coordinate, monitor and evaluate government activities designed to protect, conserve and manage soil and water in rural areas using watersheds as planning units.

102. It is noteworthy that during the 2008-2011 Multi-Year Plan (PPA) MAPA was in charge of a specific action to fulfill that legal responsibility, but since 2012 the focus of the soil and water conservation and management actions under the responsibility of that Ministry in the 2012-2015 PPA was shifted to reducing greenhouse gas emissions in agriculture. The 2006-2015 Strategic Plan of the Ministry of Agriculture, published in 2009, does not even mention the word “soil” and only mentions the word “land” once.

103. Among the strategic objectives of MAPA, as well as in monitoring reports, no specific objectives were found for integrated soil and water conservation. In the above-mentioned plan, only were found initiatives and project results that do not address soil and water related issues comprehensively. These objectives ended up materializing under the ABC Plan, but only in the form of providing agricultural credit but with a still incipient monitoring dynamic.

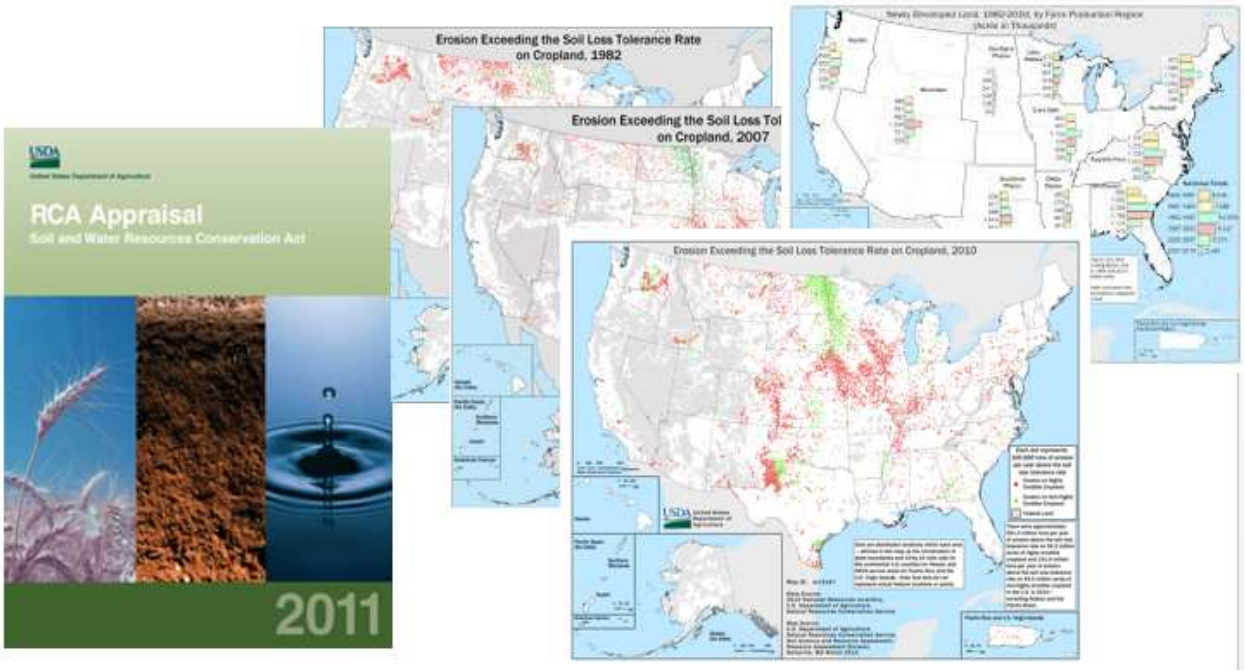
104. As a result of this situation, the Federal Government is not provided with information, on a systematic basis, inputs, deliverables, activities and circumstances that are relevant to the actual implementation of public policies designed to promote the sustainability of soil and water use in non-urban environments. Moreover, it ends up not checking whether its resources and activities and those of the remaining federated entities for managing soil use, conservation and recovery are being implemented as scheduled and whether their goals in terms of outcomes are being achieved or not.

105. As causes of this problem, it was found that soil and water related issues have not been given importance as a strategic objective within MAPA, making it difficult to formalize and materialize routines for following up on and monitoring the situation of soils and water used in activities that combine agriculture, livestock, forage production and forestry (agrosilvopasture). In addition, with regard to budget-related aspects, the Executive Branch failed to include in the proposed 2012-2015 PPA programs, objectives and initiatives establishing monitorable and measurable items, as well as performance indicators with sufficient scope to cover the entire national territory. Finally, MAPA has not taken any initiative to formalize and implement a dynamic for monitoring and evaluating the sustainability of soil and water used in activities combining agriculture, livestock, forage production and forestry (agrosilvopasture).

106. As an international example of good practice, mention can be made of the monitoring and follow-up on water and soil conservation carried out by the USDA, known as RCA Appraisal

- Soil and Water Resources Conservation Act. Such a study was conducted by ten US agencies as part of their obligations under the Soil and Water Resources Conservation Act (RCA) and it comprises, among other elements: land use; agrarian structure and agriculture; soil and water health; conservation actions; and climate change; etc. Another US initiative that can be mentioned as an example is a report on the progress achieved in its strategic objective set for soil and water conservation. Information on this report is available at (www.performance.gov), where progress reports for each year can be found, as well as descriptions of challenges to be faced in future fiscal years and external risk factors involved in achieving goals.

Figure 13: RCA Appraisal Study and soil erosion maps for the US territory - an example of good practice.



Source: USDA, 2015 (available at www.performance.gov, accessed on July 8, 2015).

107. For the correction of this situation, it is recommend to MAPA to include a specific objective related to ensuring soil and water use sustainability in the review of its strategic planning. It is also proposed to recommend to MAPA to work jointly with the MPOG to include specific programs, objectives and initiatives designed to promote the sustainability of soil and water used in agrosilvopasture in the next Multi-Year Program, and to request MAPA to formalize and implement routines for monitoring and following up on such activities.

108. Through the measures proposed, it is expected that MAPA will be able to evaluate the management of soil and water use conservation and recovery comprehensively at the federal level, making it possible for the following activities to be carried out: i) critically checking, and taking into account subsequent changes, the rationale of the program in terms of the appropriateness of its objectives and strategies; ii) comparing actually achieved goals with planned ones, identifying the reasons for their success and failure; iii) checking the effectiveness of the procedures adopted to implement the program and the quality of managerial performance; iv) determining the economic efficiency of the program; v) determining and tracking the causality of the effects and impact of the program; and vi) identifying lessons learned and proposing recommendations to strengthen successful actions and/or, if necessary, adjusting, refocusing and changing objectives, goals, organizational arrangements and resources.

Establishing performance indicators with minimum quality requirements is key for improving government initiatives.

109. The set of performance indicators designed for federal government initiatives related to land use planning and promotion of soil and water sustainability analyzed (Water Producer Program, Land Framework Planning, ZEE, *Bolsa Verde* [Green Grant] Program, CAR, ABC Plan and National Action Program to Combat Desertification) are not sufficient to identify and measure key aspects of public intervention. Furthermore, it no performance indicators established to assess the actual situation of soils in the country.

110. The set of indicators of the initiatives referred to in Figure 1, including both those established in the 2012-2015 PPA and those internally controlled by government agents, should, when analyzed together with their main objectives, provide sufficient information for describing, classifying, organizing, comparing or quantifying the reality of policies designed to regulate soil occupation and use, as well as to promote soil and water sustainability. However, these indicators, when they are actually available, are usually focused on their implementation processes and not on their performance in meeting their established objectives, making it difficult to build scenarios for these public policies and to monitor the progress made in government interventions, goal setting, and evaluation of actions and definition of strategies.

111. It was found that this set of indicators does not follow all the standards set by the MPOG in the document "Indicators - Basic Guidelines Applied to Public Management" and is not consistent with the evaluation requirements defined in the document "Techniques for Performance Indicators to be Used in Audits of the Federal Court of Audit". The problems found with respect to the analyzed performance indicators include: i) they do not cover all the phases of the public policy cycle (input, process, deliverable, outcome, impact); ii) they are not associated with a periodic collection and validation dynamic that is sufficient for evaluation purposes; iii) they are not represented in a regionalized fashion; and iv) they are not associated with legal and strategic goals or objectives.

112. The lack or insufficiency of quality indicators hinders the participation of stakeholders in initiatives on an informed basis, besides affecting transparency in relation to funds spent and results achieved. Moreover, it complicates the assessment and monitoring of inputs, processes, deliverables, outcomes and impacts of the evaluated government initiatives, besides affecting their planning, implementation, monitoring and review.

Figure 14: Scheme of the analyzed criteria for performance indicators of the studied government initiatives.

Source: Prepared by TCU.

113. The main causes for the lack and insufficiency of quality indicators in the studied government initiatives are the absence of appropriate links between those in charge of the policy for building performance indicators and lack of supervision by the MPOG itself to make sure that the agencies involved were actually following the guidelines established in the relevant manual.

114. With the aim of mitigating such a situation, it is proposed to recommend to the agencies in charge of managing the evaluated government initiatives, when they are preparing the proposal for the next PPA, to review their performance indicators in order to adapt them to the standards and requirements defined by the MPOG in the document "Indicators - Basic Guidelines Applied to Public Management", so that they may reflect the progress and success/failure in relation to the initially defined objectives and problems, and to recommend to the MPOG to supervise the institutions responsible for actions designed to regulate soil and water occupation, use, conservation and recovery, so that the controlled indicators are consistent with its guidelines.

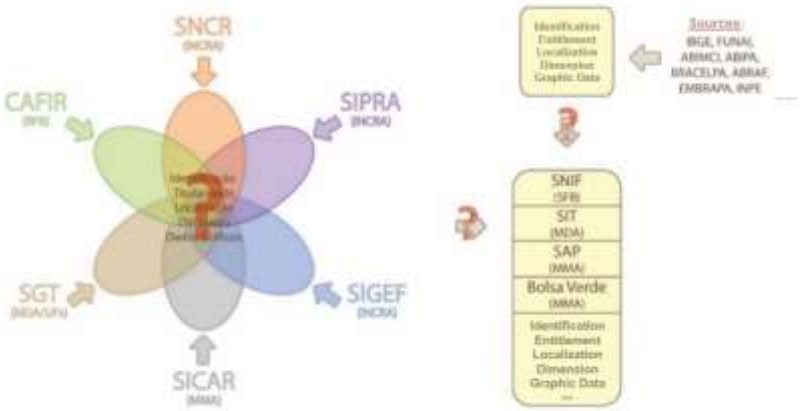
115. These recommendations are expected to lead to the availability of sufficient information for managers and decision-makers to be able to measure the achievement of the objectives of the analyzed federal government initiatives and to reveal the actual status of those initiatives, in addition to producing inputs for monitoring their evolution.

Integrating and consolidating the different information management and control systems for the Brazilian territory, soil and water will facilitate the use of such information.

116. Although there are several soil governance systems, their information are not integrated among them as provided for in Law 5,868/1972, as amended by Law 10,267/2001, and in Decree 4,449/2002, according to which a common database with information on rural properties in Brazil is to be set up. In addition, most of these systems contain common information on the identification, ownership, location and size of non-urban properties and geographic or georeferenced data on them that are often conflicting among them, limiting the use of this information.

117. For the purpose of checking whether these various systems were integrated, the audit analyzed eleven of them: Information System for Agrarian Reform Projects (Sipra) - Agrarian Reform (PNRA); Early Warning System Against Desertification (SAP) - combating desertification; National Forest Information System (SNIF) - natural and planted forests in Brazil; *Bolsa Verde* (Green Grant) System - Green Grant Support for Environmental Conservation, under development; Information System for Rural Territories (SIT) - rural areas and areas of citizenship; Territorial Management System (SGT) - Land and Land Regularization Registration Program of the MDA; Land Management System (SIGEF) - rural property certification; National Rural Environmental Registry System (Sicar) - Rural Environmental Registry; National Rural Registry System (SNCR) - Brazilian rural registry; Cafir - Rural Property Tax (ITR) collection and asset management. The figure below provides an overview of the systems and of information that is common to them.

Figure 15: Insufficient integration between information management and control systems for rural properties.



Source: Prepared by TCU.

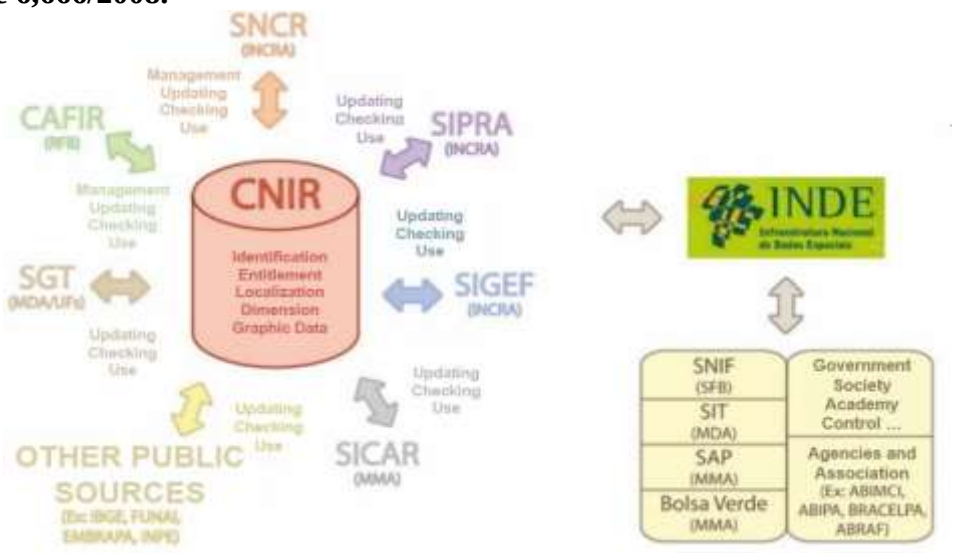
118. It is noteworthy that Law 10,267/2001 created the National Registry of Rural Properties (CNIR), which was supposed to comprise the database of the different federal and state public institutions that produce and use information about Brazilian rural areas and to be jointly managed by Incra and the Internal Revenue Service. However, the CNIR is not so far.

119. Although the law provides that Incra and the Internal Revenue Service are the managers of the CNIR system, Decree 4,449/2002, which regulates Law 10,267/2001, determines that "in addition to Incra and the Internal Revenue Service, all other agencies of the Federal Public Administration are to produce, feed and use information of the CNIR database". Thus, other agencies provided with registry information were also supposed to adjust their databases to provide information to CNIR. However, no contribution or participation of other federal government agencies in preparing the CNIR was found, which will only rely on data from the SNCR and Cafir.

120. Decree 6,666/2008, in turn, established the National Spatial Data Infrastructure (INDE) system within the federal executive branch to integrate and standardize spatial data produced by different federal institutions. The INDE system is intended to comprise all systems that process geospatial information, including rural information systems, to avoid overlapping and waste of resources. However, the integration and sharing of spatial data by agencies and entities of the federal administration in the INDE system are still incipient.

121. The figure below shows the ideal situation of integration and interaction among systems for controlling information on soil occupation and use, which would have a common database, the CNIR, fed and shared by all users that would be part of the INDE system and would be open for consultation by public policy managers.

Figure 16: Ideal situation of integration among the systems, according to Law 10,267/2001 and Decree 6,666/2008.



Source: Prepared by TCU.

122. As a result of the lack of integration among these systems, the following may happen: more time required to process data due to integrated information limitations; increased costs and risk of exposure due to errors derived from human work to reenter data from one database into another database or system; slowness of the institution to identify and deal with events that could be detected through communication of incidents recorded in other information systems; and inconsistency in the information generated by the various federal databases. Moreover, it can generate legal uncertainty as a result of difficulties faced by Government to locate specific areas, irregularly occupied areas and public land.

123. Causes found for this situation include the fact that the Executive Branch has failed to take actual steps to meet legal requirements related to the integration of rural property registry systems used by the public administration in all federal entities, as provided for in article 1 of Law 5,868/1972 (as amended by Law 10,267/2001) and regulated by article 7 of Decree 4,449/2002.

124. With the aim of reversing this situation, it is proposed to issue a determination for the Internal Revenue Service and Incra to submit an action plan for surveying and integrating rural property registry systems at federal level; and for agencies of the executive branch provided with systems for controlling and managing information related to soil occupation and use in non-urban areas to inform the CNIR managing agencies about their needs for integrating their records into the system. It is also proposes to recommend to the MPOG and to the Office of the President of the Republic to regulate the conditions for integrating the information systems of the different federal and state-level public institutions that produce and use information on rural areas.

125. The implementation of the proposed determinations is expected to lead to the establishment of a Multipurpose Technical Registry that can provide key data for government have a more precise knowledge of its territories, and to develop a comprehensive understanding of information available on rural areas that can be used both for planning and monitoring public and private activities and for ensuring transparency to citizens as regards the regulation of soil occupation and use and actions designed to promote soil and water sustainability.

VI. Conclusion

126. Soil is a vital resource for several key activities for human life, such as food, fiber and energy production, environmental services, biodiversity conservation and maintenance of water sources. The United Nations Conference on Sustainable Development (Rio + 20) recognized the economic and social importance of sound land management and highlighted the key role played by soil, particularly in promoting economic growth, biodiversity, sustainable agriculture and food security, poverty eradication, the fight against climate change and improved water availability.

127. The analysis made in the audit of the current status of soil governance involving the main government initiatives related to territorial, soil, water and biodiversity management revealed a number of opportunities for improvement in several areas: legal basis for soil management; institutional arrangement; registration obligations for non-urban properties; interagency plans, objectives and coordination; knowledge; follow-up on and monitoring of public policies.

128. The first conclusion of this report is that the institutional definition of priorities for the Brazilian Government to regulate soil occupation and promote soil and water sustainability is critical to the success of the public policies in question. Such definition entails the need to consolidate, align and integrate several laws, regulations and institutional competences related to territorial management and to promoting soil and water sustainability, as these laws are set in a fragmented way within the Brazilian legal framework. The consolidation and simplification of registration obligations imposed on landowners or occupants of rural properties also constitute a major legislative advance for information collected to be actually useful for designing public policies and making informed decisions.

129. In addition, formalizing a logic of intervention and integrated planning for public policies designed to regulate soil occupation and soil and water sustainability is critical to actually implementing them for the benefit of society. This formalization includes several work processes, such as the institutionalization of a long-term planning for using these resources, the definition of basic elements for joint actions involving the different government agencies concerned, as well improving the knowledge available about the use of the Brazilian territory and the characteristics of Brazilian soils.

130. Finally, the need to establish a dynamic for interagency evaluation and monitoring should be stressed in order to improve the quality of decisions and of the accountability for the government initiatives evaluated in this report. This dynamic comprises the development and formalization of routines for monitoring and following up on initiatives and problems related to the management of the Brazilian territory, soil, water and biodiversity; the development and monitoring of performance indicators; and the integration of the several IT systems available that store information on rural properties in Brazil.

131. It is expected that the adoption of these measures by Government will lead to the outlining of an integrated public policy designed to deal with territorial occupation issues and to promote soil and water sustainability in Brazil. It is also expected that a more effective long-term planning will be developed based on the results of analyses and specific objectives for solving identified problems that will be fed back by the results of monitoring actions and periodic evaluations.

VII. Proposal for Referral.

132. Based on the foregoing, this report is hereby submitted for consideration by high-ranking officials with the following proposals:

Office of the President of the Republic

I. **Recommend** to the Office of the President of the Republic, pursuant to article 43, item I of Law 8,443/1992, combined with article 250, item III, of the Internal Rules of the Brazilian Federal Court of Audit to:

a) make joint efforts with the National Congress to review and consolidate legal provisions on territorial organization and access to land resources for the purpose of setting guidelines, limits and sources of funds for actions to be carried out by the executive branch in this area, pursuant to article 21, IX of the Federal Constitution of 1988 (paragraphs 18-24);

b) define, on a consolidated basis and through appropriate legal standards, the competences, limits for actions and ways by which the different agencies in charge of organizing and regulating the territory at federal level should work in integration, pursuant to article 84, sections IV and VI of the Federal Constitution of 1988 (paragraphs 33-39);

c) define, on a consolidated basis and through appropriate legal standards, the competences, limits for actions and ways by which the different agencies in charge of promoting soil and water sustainability at federal level should work in integration, pursuant to article 84, sections IV and VI of the Federal Constitution of 1988 (paragraphs 40-46);

d) make joint efforts with the different actors in charge of soil and water management at federal, state and municipal level to draw up and publish a long-term plan with strategic objectives contemplating alignment and integration, at national level, of inputs, activities, deliverables, effects and impacts related to problems to be addressed with the aim of ensuring territorial organization and soil and water sustainability, containing, pursuant to paragraph 1 of article 174 of the Federal Constitution of 1988 (paragraphs 57-65):

d.1) a characterization of a logic of intervention for federal policies covering the following items:

d.1.1) identification of the effects derived from its implementation;

D.1.2) identification of the main mechanisms required for achieving public policy goals;

D.1.3) a clear-cut definition of the target audience associated with expected deliverables and effects;

D.1.4) identification of expected results;

D.1.5) a clear-cut definition of a policy baseline as a basic input for evaluating the results of these policies.

d.2) a plan for the specific listed activities, including the following:

d.2.1) schedules with detailed milestones and deadlines for completing intermediate steps;

d.2.2) a clear-cut definition of responsibilities for deliverables and actions;

D.2.3) identification of orders of precedence for carrying out activities;

D.2.4) alternatives for contingencies;

D.2.5) control means, with monitoring and evaluation mechanisms;

D.2.6) participation of stakeholders; and

d.2.7) tests to be applied to policy implementation strategies.

e) establish, according to the principle of efficiency as defined in article 37 of the Constitution, deadlines and schedules, as well as inter-ministerial oversight mechanisms, for the forums in charge of ensuring the implementation of government initiatives to regulate soil occupation and use and promote soil and water sustainability to publish instruments defining at least (paragraphs 66-74):

e.1) consistent objectives mutually agreed among all the organizations involved;

e.2) a governance framework, as well as roles and responsibilities, including guidelines on how the cooperative effort will be led;

e.3) coordination and horizontal relationship mechanisms between public and private actors; and

e.4) coordination, communication and collaboration mechanisms capable of aligning the strategies and operations of the organizations involved in cross-cutting and decentralized policies designed to achieve a common result.

f) establish, based on the principle of efficiency, as provided for in article 37 of the Federal Constitution, mechanisms to ensure coordinated actions among the different institutions in charge of collecting and storing data and of generating georeferenced information on the land (especially public land) situation in Brazil, so that they can hold routine discussions, check this information and make it available in open databases, making it possible for them to work operationally in building an analytical foundation for informed and actual participation of the various stakeholders with an interest in public policies related to land governance and to sustainable use of soil, water and biodiversity (paragraphs 75-84).

g) establish mechanisms for coordinating and integrating the different government institutions in charge of implementing resolutions derived from this report, according to the responsibility set out in paragraph a, item I, article 2 of Law 10,683/2013. (paragraphs 18-125)

Office of the President of the Republic and MPOG

II. **Recommend** to the Office of the President of the Republic and the Ministry of Planning, Budget and Management, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item III, of the Internal Rules of the Brazilian Federal Court of Audit to regulate the necessary conditions for mapping out and integrating the geospatial information systems of the different federal and state public institutions that produce and use information about Brazilian rural areas, according to item III of article 1 of Annex I of Decree 8,189/2014 (paragraphs 116-125).

Ministry of Agriculture, Livestock and Supply

III. **Recommend** to the Ministry of Agriculture, Livestock and Supply, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item III, of the Internal Rules of the Brazilian Federal Court of Audit to:

a. include, in reviewing its strategic plan, a specific objective to address soil and water use sustainability comprising government activities for conserving and recovering natural resources, according to the duties provided for in the Decree 7,127/2010, Annex I, article 1, item VIII, article 17, items II and VI, and article 21 (paragraphs 101-108);
b. work jointly with the Ministry of Planning, Budget and Management to include specific programs, objectives and initiatives designed to promote the sustainability of soil and water used in agrosilvopasture activities in the next Multi-Year Program, also comprising governmental actions to ensure the conservation and recovery of these natural resources associated with deliverables, performance indicators and formalized monitoring evaluation routines, based on the duties provided for in the Decree 7,127/2010, Annex I, article 1, item VIII, article 17, items II and VI, and article 21 (paragraphs 101-108);
c. develop, as the ministry in charge of managing and implementing the ABC program, performance indicators covering all the phases of the ABC Plan cycle (Input, Process, Deliverable, Outcome, Impact) together with the Ministry of Planning, Budget and Management (paragraphs 109 -115);
d. formalize and implement routines for monitoring its initiatives comprising at least (paragraphs 101-108):

d.1) a definition of the scope, purpose and users of the monitoring and evaluation system from the moment that the policy is made;

d.2) an identification of key progress indicators for the main objectives of the policy;

d3) sufficient availability of reliable and relevant data to support the drafting of policy performance reports;

d.4) an identification of the main actors in charge of providing and using data and information;

d.5) regular reporting on the progress made with the policy by submitting implementation reports to key stakeholders;

d.6) monitoring and evaluation of the progress made in relation to the main deliverables of implementing the policy;

d.7) internalization of lessons learned before the start of subsequent steps, in the case of policies consisting in sequential initiatives;

d.8) a distinction between endogenous and exogenous factors in evaluating the success or failure of the policy;

d.9) scheduled reporting of the results of evaluations with the aim of promoting timely feedback as part of the public policy cycle;

d.10) development of mechanisms for monitoring, evaluating and reporting the results of cooperative efforts.

e. given the potential economic and ecological benefits, work together with the Ministry of Planning, Budget and Management to include in the next PPA a national soil survey and interpretation program to update studies undertaken under the RADAM-BRASIL project at scales consistent with the appropriate planning units for using, conserving and recovering soil and water, i.e. watersheds, according to Law 8,171/1991, article 20 combined with the Decree 7,127/2010, articles 1, 17, items II and VI (paragraphs 85-98).

MAPA and Embrapa

IV. **Recommend**, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item III, of the Internal Rules of the Brazilian Federal Court of Audit, to the Ministry of Agriculture, Livestock and Supply and to the Brazilian Agricultural Research Corporation to establish collaborative and permanent mechanisms for organizing, systematizing and making available data resulting from Brazilian soil surveys carried out by different public education, research and extension institutions and other agencies at different levels (federal, state and municipal levels) in a publicly accessible information system through which the data can be easily interpreted, retrieved and exported to other systems, according to item 2.2 of the Embrapa Resolution No. 10 of February 28, 2011, similar to the National Soil Information System of the US Department of Agriculture (paragraphs 85-98).

Ministry of Environment

V. **Recommend**, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item III of the Internal Rules of the Brazilian Federal Court of Audit, to the Ministry of Environment, which is in charge of managing and implementing the ZEE, CAR, the Water Producer Program, the *Bolsa Verde* [Green Grant] Program and the National Action Program to Combat Desertification, to work jointly with the MPOG to develop performance indicators covering all phases of the public policy cycle (Input, Process, Deliverable, Outcome, Impact), according to the document "Indicators - Basic Guidelines Applied to Public Management" of the Ministry of Planning, Budget and Management (paragraphs 109 -115).

MAPA and MMA

VI. **Recommend**, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item III, of the Internal Rules of the Brazilian Federal Court of Audit, to the Ministry of Agriculture, Livestock and Supply and to the Ministry of Environment, when implementing public policies of interest to these respective Ministries, to previously define necessary and sufficient indicators for monitoring and evaluating their initiatives, according to the document "Indicators - Basic Guidelines Applied to Public Management" of the Ministry of Planning, Budget and Management (paragraphs 109-115).

MAPA, MDA, MMA, Ministry of Justice, MCT, MPOG and MI

VII. **Determine**, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item II, of the Internal Rules of the Brazilian Federal Court of Audit, to the Ministry of Agriculture, Livestock and Supply, to the Ministry of Agrarian Development, to the Ministry of Environment, to the Ministry of Justice, to the Ministry of Science, Technology and Innovation, to the Ministry of Planning, Budget and Management and to the Ministry of

National Integration and their related units, in accordance with Article 1 of Law 5,868/1972 (as amended by Law 10,267/2001) and regulated by Article 7 of Decree 4,449/2002, to inform the agencies in charge of managing the CNIR about the need to integrate their records into the CNIR or, if this is not possible, to inform this Court about the reasons for not integrating them (paragraphs 116-125).

PR, MPOG, MAPA, MDA, MMA, Ministry of Justice, MCT, MI, SRF, Incra, Embrapa and Deliberative Council

VIII. **Determine**, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item II, of the Internal Rules of the Brazilian Federal Court of Audit, to the Office of the President of the Republic, to the Ministry of Planning, Budget and Management, to the Ministry of Agriculture, Livestock and Supply, to the Ministry of Environment, to the Ministry of Agrarian Development, to the Ministry of Justice, to the Ministry of Science, Technology and Innovation, to the Ministry of National Integration, to the Internal Revenue Service, to the National Institute for Colonization and Agrarian Reform, to the Brazilian Agricultural Research Corporation and to the Deliberative Council referred to in the Decree 8,414/2015 to submit, pursuant to paragraphs 196, 197 and 202-207 of the Anop Manual, approved by Administrative Decree 4/2010 issued by Segecex, within 120 days, a plan for complying with the recommendations contained in the Operational Non-Urban Soil Governance Audit (paragraphs 18-125).

Ministry of Planning, Budget and Management

IX. **Recommend**, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item III, of the Internal Rules of the Brazilian Federal Court of Audit, to the Ministry of Planning, Budget and Management to oversee the institutions in charge of actions for regulating soil and water occupation, use, conservation and recovery to make sure that their performance indicators comply with the guidelines contained in the document "Indicators - Basic Guidelines Applied to Public Management" of the Ministry of Planning, Budget and Management (paragraphs 109-115).

INCRA and Internal Revenue Service

X. **Determine**, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item II, of the Internal Rules of the Brazilian Federal Court of Audit, to the National Institute for Colonization and Agrarian Reform and to the Internal Revenue Service, in compliance with article 1 of Law 5,868/1972 (as amended by Law 10,267/2001), as regulated by Article 7 of Decree 4,449/2002, to carry out a survey of rural registration systems used in the federal and state public administration and integrate them (paragraphs 116-125).

XI. **Recommend**, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item III, of the Internal Rules of the Brazilian Federal Court of Audit, to the National Institute for Colonization and Agrarian Reform and to the Internal Revenue Service to regulate the conditions for mapping out and integrating the information systems of the different federal and state-level public institutions that produce and use information about Brazilian rural areas, in compliance with article 1 of Law 5,868/1972 (as amended by Law 10,267/2001), as regulated by article 7 of Decree 4,449/2002 (paragraphs 116-125).

Working Group

XII. **Determine**, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item II, of the Internal Rules of the Brazilian Federal Court of Audit, to the Working Group set up by the Ministry of Agriculture, Livestock and Supply and the National Water Agency, pursuant to paragraphs 196, 197 and 202-207 of the Anop Manual, approved by

Administrative Decree 4/2010 issued by Segecex, within a deadline of 90 days, to draw up a plan to be proposed in the form of a Bill to the National Congress with the aim of complying with article 97 of Law 8,171/1991 (paragraphs 25-32).

XIII. **Recommend**, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item III, of the Internal Rules of the Brazilian Federal Court of Audit, to the Working Group set up by the Ministry of Agriculture, Livestock and Supply and the National Water Agency, to consider, in the above-mentioned Bill, as examples, the aspects addressed in the legislation of the State of Sao Paulo and Parana and of the United States, as well as the provisions of Law 9,433/1997, namely: foundations; objectives; general guidelines for action; instruments; plans; classification; regulation of use; definition of an information system; competences of government (including federal, state and local governments); establishment of a national management system with the participation of councils, including a definition of agencies in charge of decision-making processes; and offenses and penalties for violators of the rules (paragraphs 25-32).

Deliberative Council

XIV. **Recommend**, pursuant to article 43, item I, of Law 8,443/1992, combined with article 250, item III, of the Internal Rules of the Brazilian Federal Court of Audit, to the Deliberative Council referred to in Decree 8,414/2015 to include in its activities for simplifying and streamlining public services and information and for promoting the integration of information systems, as provided for in item I, III and IV of article 2 of Decree 8,414/2015, the systems and records referred to in the following legal provisions (paragraphs 47-54):

a. Law 4,504/1964, article 46, paragraph 3, 119 combined with Law 4,947/1966, article 22, paragraphs 1 and 2;

b. Law 5,868/1972, articles 1-4;

c. Law 9,433/1997, article 44, item II;

d. Law 9,393/1996, article 6, paragraph 2, item IV and article16, paragraph 3;

e. Law 12,651/2012, article 4, paragraph 6, item IV, article 12, paragraph 3, article 15, item III, paragraph 2, and article 29;

f. Law 6,938/1981, article 9, items VII and XII, articles 17-B, 17-C and Annex VIII;

g. Decree 7,830/2012;

h. Other provisions governing registration requirements for owners of non-urban properties and such properties.

Give knowledge

XV. **Determine** to Segecex, working together with the Environmental Secex and the Secretariat for IT Solutions (STI), to post the Report, Vote and Judgment, as well as the Report of the Technical Unit included in the records, on the Court's website for public access.

XVI. **Submit** the Judgment that will be issued and the Vote and Report on which it is based to the National Congress and to the Office of the President of the Republic for their knowledge:

a. of the need for reviewing and consolidating legal provisions that govern the organization of the Brazilian territory and access to land resources, with the aim of setting guidelines and limits for the actions of the executive branch, laying the foundations for good governance of the territorial organization and access to land resources in the country (paragraphs 18-24);

b. of the need for formalizing a national policy to promote the sustainable use, conservation and recovery of soil and water resources, with the aim setting guidelines and limits for the actions of the executive branch and laying the foundations for good governance of the sustainability of soil and water resources (paragraphs 25-32);
c. of the excessive formalism and detailing in normative regulations for use and registration obligations related to the sustainability of soil and water use in non-urban areas, which jeopardize inspection actions and the feasibility of public policies associated with the sustainable development of economic activities that use soil and water resources (paragraphs 47-54).

XVII. **Authorize** SecexAmbiental to perform monitoring on the resolutions that may be handed down in this case.

XVIII. **File** the records.

Brasilia (Federal District-DF), July 27, 2015.

Signed electronically
Aderbal Amaro de Souza
AUFC - Registration 5610-3

Signed electronically
Elisângela Papst
AUFC - Registration 5082-2

Signed electronically
Vinícius Neves dos Santos
AUFC - Registration 10216-4
Coordinator

Signed electronically
Tiago Modesto Carneiro Costa
AUFC - Registration 5610-3
Supervisor

Annex I - Analysis of the comments made by the Manager.

1. In compliance with the provisions of paragraphs 144-148 of the Auditing Standards of the Brazilian Federal Court of Audit (NATs), approved by Ordinance 280/2010 of the TCU, as amended by Ordinance 168/2011 of the TCU; and of paragraphs 148, 174 and 185-189 of the Performance Audit Manual approved by Ordinance 144/2000 of the TCU, as revised by Ordinance 4/2010 of Segecex, an e-mail was sent on July 17, 2015 to the Ministry of Agriculture, Livestock and Supply (MAPA), to the Ministry of Environment (MMA), to the Ministry of Agrarian Development (MDA) and to the Federal Revenue Service (SRF) with a copy of the draft Performance Audit Report and an invitation to attend a meeting of the Brazilian Federal Court of Audit on July 23, 2015 for collecting comments on relevant points of the report.

2. Representatives of the four institutions attended the meeting, according to its minutes and attendance list contained in document 60. The MMA sent additional comments by e-mail on July 24, 2015, which were attached to the proceedings in document 61. A full, point by point analysis of the manager's comments can be found in document 62.

3. Following the guidelines of TCU's Operational Audit Manual, new information and arguments provided by the managers of the four institutions that were considered relevant and enlightening were incorporated into the report. On the other hand, other arguments made by the audited parties were not sufficient to change the understanding of the team and were summarized below, followed by their respective analysis.

4. The MDA requested that the Civil House (Chief of Staff's Office) should be added as object of deliberation on proposals directed to the Office of the President of the Republic. On this point, it was decided that such inclusion of the Chief of Staff's Office was unnecessary, since this institution is an integral part of the structure of the Office of the President of the Republic, according to article 1 of Law 10,683/2003.

5. The National Water Agency (ANA) questioned the use of the selected government initiatives to assess soil- and water-related issues, particularly regarding the analysis of indicators. TCU's Framework for Assessing Public Policy Governance points out that the formal institutionalization of a public policy is not necessary in cases such as those involving soil. In this case, to assess the informal public policy for soils, the most relevant government initiatives for ensuring soil sustainability and regulating its use and occupation were chosen to provide an overview of the strategy adopted in federal government actions in this area. As for the Water Producer Program, which is designed to increase the quantity and improve the quality of water generated in selected watersheds, soil treatment in those areas is critical to the success of the initiative. It is noteworthy that soil treatment involves issues related to water and forest resources and to other natural resources, and these issues are addressed in the context of the government initiatives that were analyzed as part of the scope of this audit.

6. The MMA argued that the preparation and implementation of the PNOT will strengthen the ZEE and will rely on a legal framework for land use planning. The report describes that both instruments will be used for land use planning and regulation, and because the law today does not set limits for their scope, conflicts will tend to occur. Furthermore, it stresses that it is up to the MMA to “coordinate the competent political parties involved in the task of preparing the ZEE under the responsibility of the Federal Government”, namely, the Coordinating Committee of the ZEE for the National Territory, and that this role “ends up weakening the discussions for defending the environmental agenda in the processes of defining the ZEE”. No conclusion in this regard could be reached in the audit, considering that the coordination of the CCZEE can favor or weaken the environmental aspect. Thus, the analysis of the finding only notes that the competence to coordinate the CCZEE can introduce some bias into the instrument.

Annex II - Detailing of the Methodology

1. This audit was intended to evaluate the governance of public policies on soil occupation and use in terms of territorial aspects and of aspects related to soil conservation and recovery from the point of view of sustainability, according to TCU's Framework for Assessing Public Policy Governance, pursuant to Ordinance No. 230/2014 of the TCU.

2. This audit was separated from the Non-Urban Soil Governance Survey (TC 021212/2014-7) due to the large number of findings identified during the audit.

Organization and scope

3. Given its important role in regulating and fostering initiatives, in controlling activities and in making public policies, plans and programs, the government is a major actor in promoting sustainable models for soil use. It is thus very important to understand the scope of its actions in these areas. More specifically, it is important to check whether government actions are based on sound governance concepts and practices or not.

4. It should be noted, however, that due to the complexity of the topic, the scope of this audit will be limited both in terms of the concept of governance and of the concept of soils, so as to provide a proper understanding of what will be studied. Evidently, without prejudice to future audits with different scopes that may contribute to a full understanding of the entire soil governance system.

5. It should also be noted that the scope limitation was due to not only constraints of time and funds, but mainly to the need to systematize the knowledge available on a comprehensive and complex subject in a rational way. It was therefore decided that the study would yield better results if conducted in a fragmented way or in stages.

6. Having said this, the scope of this audit will comprise, with respect to government actions at the federal level, the following initiatives: Ecological-Economic Zoning (ZEE); Agro-ecological Zoning (AEZ); Agricultural Zoning for Climate Risk (ZARC); Rural Property Registration Certificate (CCIR); Land Regularization; National Agrarian Reform Plan (PNRA); National Program to Combat Desertification (Pan-Brasil); Low-Carbon Agriculture Plan (ABC); Rural Environmental Registry (CAR); Water Producer Program; and *Bolsa Verde* (Green Grant) Program.

7. Regarding the concept of soils, the scope will be limited to non-urban areas (rural and forestry areas), focusing on issues related to food security and soil use (property, territory and management), conservation and recovery.

8. In order to meet the stated objectives and address the audit issue in relation to soil governance, audit questions related to four of the eight aspects to be evaluated as defined by the Framework were prepared, namely: Institutionalization; Plans and Objectives; Coordination and Consistency; and Monitoring. The questions are arranged as follows:

Question 1 - To what extent are government initiatives related to territorial management and promotion of soil and water sustainability in Brazil formally and properly institutionalized through a legal instrument, according to the good practices described in the “institutionalization” component of the “Framework for the Evaluation of Public Policies of the TCU” and according to the Federal Constitution of 1988 and international best practices?

Question 2 - To what extent is the planning of government initiatives related to territorial management and promotion of soil and water sustainability in Brazil based on a sound diagnosis (baseline) and on a logic of intervention aligned with its components and expected results,

according to the good practices described in the "plans and objectives" component of the "Framework for the Evaluation of Public Policies of the TCU" and to international benchmarks?

Question 3 - To what extent are the different governmental actors involved in government initiatives related to territorial management and promotion of soil and water sustainability in Brazil acting in a consistent and coordinated way with each other, according to the good practices described in the "Coordination and Consistency" component of the "Framework for the Evaluation of Public Policies of the TCU" and to international benchmarks?

Question 4 - To what extent is the monitoring and evaluation system established for government initiatives related to territorial management and promotion of soil and water sustainability in Brazil properly structured to generate information to feed back into decision-making processes in such a way as to promote learning and improvements in actions designed to achieve results as described in the item "monitoring and evaluation" of the "Framework for the Evaluation of Public Policies of the TCU" and "Indicators: Basic Guidelines Applied to Public Management" of the MPOG?

Non-scope

1. The scope of this audit does not cover issues relating to conservation units, coastal zone; continental shelf; mining; infrastructure projects (energy, roads); indigenous areas and Quilombola communities, except in relation to land use and occupation in areas designated as conservation units and indigenous lands.

Criteria

1. The main evaluation criteria adopted in this audit were the following ones:

- Framework for Public Policy Governance Evaluation (Ordinance No. 230 of August 25, 2014 of the TCU). The following best practices described in the Framework were adopted as criteria:

a) Institutionalization:

1) Formal institutionalization of the public policy through an appropriate legal rule (law, ordinance, resolution, etc.) issued by an agency with the required legitimacy and competence to do so to regulate the actions of the different agencies, institutions and levels of government involved;

2) Clear and formal definition of the competences of key stakeholders involved in implementing the public policy (responsibility matrix), so as to make it possible for the objectives, roles, responsibilities, resources and obligations of all parties involved to be identified, including a mechanism for settling conflicts, identifying and sharing risks and opportunities and establishing review, evaluation and monitoring means;

3) Formal institutionalization of decision-making processes relating to the public policy;

4) Availability of a regulatory framework that does not jeopardize the performance of the public policy as a result of excessive formalism and detailing.

b) Plans and Objectives:

1) Definition of the results of policies based on a long-term vision, considering the domestic and international situation;

2) Clear definition of the initial reference stage, i.e. of the baseline (or "ground zero") that will be used for assessing the results of public interventions;

3) Making of evidence-based policies, taking advantage of the experience of other countries, subject to regional variations;

4) Definition of objectives that are sufficiently precise to allow for a clear delimitation of the political playing field, translated into accurate and objectively characterized targets that contribute to the achievement of the general purposes of public interventions, so as to guide government actions and ensure transparency in relation to goals and outcomes;

5) Consistency in the logic of policy intervention, aligning inputs, activities, deliverables, effects and impacts according to the problems to be addressed and related causes identified in the public policy-making process;

6) Establishment, by mutual agreement, of consistent and concerted objectives among all the organizations involved in implementing the strategy, so that the expected outcomes can be achieved.

7) Preparation and timely submission by the actors in charge of technical information and open databases allowing for analytical foundations to be built for creating conditions for the informed and actual participation of the different stakeholders (Participation);

8) Inclusion in the plan of means for measuring progress and achievements, including the identification of key progress indicators for the main policy objectives, sufficient availability of reliable and relevant data to support policy performance reports and the performance of the main agents in charge of providing and using data and information (Monitoring and Evaluation).

c) Coordination and Consistency:

1) Consistency among public policies, so that the actions and specific objectives of the interventions undertaken by different entities are aligned and expected outcomes are achieved and mutually strengthened, enhancing their impact for citizens;

2) Horizontal coordination and relationship between public and private actors, so that they can act in a coordinated fashion in making and managing public policies;

3) Establishment of coordination, communication and collaboration mechanisms capable of aligning the strategies and operations of the organizations involved in cross-cutting and decentralized policies designed to achieve a common result;

4) Publication, for all stakeholders to become aware of it, of the governance framework established in the public policy, as well as of the roles and responsibilities defined in it, including how the cooperative effort will be led.

d) Monitoring and Evaluation:

1) Definition of the scope, purpose and users of the monitoring and evaluation system from the moment that the policy is made;

2) Identification of key progress indicators for the main objectives of the policy;

3) Sufficient availability of reliable and relevant data to support the drafting of policy performance reports;

4) Identification of the main actors in charge of providing and using data and information;

5) Regular reporting on the progress made with the policy by submitting implementation reports to key stakeholders;

6) Monitoring and evaluation of the progress made in relation to the main deliverables of implementing the policy;

7) Scheduled reporting of the results of evaluations with the aim of promoting timely feedback as part of the public policy cycle.

e) Accountability

1) Definition of a single leader responsible for establishing policies and guidelines for managing the organization and achieving the expected outcomes, even if this person has to coordinate the work of other actors;

- Constitutional Competences defined in articles 21, 23 and 24;
- Law 8,171/1991;
- Decree-Law 200/1967;
- Technique for Performance Indicators for Audits of the Brazilian Federal Court of Audit (Ordinance 33/2010 of Segecex);
- Indicators - Basic Guidelines Applied to Public Management of the Ministry of Planning, Budget and Management (MPOG);

Visited sites

1. The criterion for choosing the sites to be visited during the phase of planning and carrying out the audit, in addition to central agencies, was one of encompassing all regions of Brazil, focusing on those states with some differentiated performance in implementing the programs and initiatives under analysis here. The selected locations were the following ones:

State	Cities selected
Parana	Curitiba
Sao Paulo	Sao Paulo and Piracicaba
Rio de Janeiro	Rio de Janeiro and Seropedica
Mato Grosso do Sul	Campo Grande
Pernambuco	Recife and Goiana
Paraiba	Joao Pessoa, Campina Grande and Serido
Ceara	Fortaleza and Irauçuba
Para	Belem and Paragominas

2. The trip to Piracicaba was intended to gather information on a system for monitoring the ABC Plan being developed by the Soil Science Department of the Higher School of Agriculture Luiz de Queiroz of the University of Sao Paulo (Esalq). Meetings were held in Seropedica with experts in soils of the Federal Rural University of Rio de Janeiro (UFRRJ) and Embrapa Agrobiologia. The trip to Goiana, in the state of Pernambuco, was intended to visit the Acau-Goiana Extractive Reserve and evaluate the execution of the *Bolsa Verde* (Green Grant) Program. Interviews were held in Campina Grande with experts from the National Institute for the Semiarid Region (Insa) and visits were paid to several areas affected by desertification in Serido. The trip to Irauçuba was intended to check actions being carried out by the municipality to fight desertification. The purpose of the trip to Paragominas was to check the Green Livestock Project, which is designed to increase livestock productivity with less environmental impacts. The other locations were chosen to provide an overview of the government initiatives analyzed in this audit in all Brazilian regions.

Data Collection Tools

2. For the audit questions to be satisfactorily answered, the techniques listed below and in the attached planning matrix were used as data collection tools:

- Official letters requesting information;
- Interviews with open-ended and closed questions;
- Reviews of documents;
- Reviews of laws;
- Comparative budget study;
- Comparative financial study;
- Direct observation; and
- Cross-checking of databases.

Procedures adopted

3. The planning phase involved collecting preliminary information with the aim of ensuring a better understanding of the initiatives covered by this audit. For this purpose, information was collected on the following: general objectives and characteristics of the initiatives, strategy for action (regulatory framework, other normative acts, PPA, indicators, goals, initiatives and actions), organizational framework (ministries, municipalities, agencies, commissions, committees, etc. involved in the initiative, describing the role of each one of them), budget-related aspects, background, interest groups and characteristics of the external and internal environment (stakeholder analysis), nature of the activities of other agencies or government programs that are active in the same area, management processes, main existing systems, control environment and restrictions being faced.

4. In addition, still in the planning phase, interviews were held with federal managers in charge of all the studied initiatives and a field visit was paid to Paraiba (to Insa and to the desertification center of Serido) and to Rio de Janeiro (interview with state managers of the analyzed initiatives and soil experts from Embrapa Solos and UFRRJ).

5. During the execution phase, study visits were conducted in the following states: Parana, Sao Paulo, Mato Grosso do Sul, Ceara, Pernambuco and Para. In those states, semi-structured interviews were held with the managers in charge of the federal initiatives that were analyzed and experts in the area in question.

6. Field visits were also conducted during the implementation phase to Campo Grande/state of Mato Grosso do Sul (Water Producer Program), Irauçuba/state of Ceara (Municipal Program to Combat Desertification) and Paragominas/state of Para (Green Livestock Project).

7. In the phase of execution of this audit, the benchmarking technique was used and comparisons were made between the Brazilian reality and experiences in Soil Conservation and Recovery Programs of the United States of America. The information collected during the study was compared with information collected on the website of the US government (www.usda.gov and www.performance.com) and with documents published by those institutions, such as the *RCA Appraisal - Soil and Water Resources Conservation Act*.

8. In addition, information available in databases of the IBGE and in the land records of the MMA, of Funai, of Incra and of the Brazilian Forest Service was cross-checked for the purpose of building overlapping maps of types of soil occupation. As a limitation faced in this analysis, special mention should be made of the use of layer intersections, which generates a new shape in

which overlapping areas in overlays were not removed and ended up being computed twice in the calculation, according to the analysis included in document 54.

9. The analyses of working papers resulting from this audit, such as analyses of the records of interviews, of the results of the questionnaires that were applied, among others, can be found in documents 47-58.

10. Based on the collected information, it was possible to have an overview of the management of non-urban soils at federal level and of the government initiatives analyzed here, making it possible to evaluate the governance of non-urban soils in Brazil in a systemic fashion for the following components: institutionalization, plans and objectives, coordination and consistency, and monitoring and evaluation.

Compliance with the Auditing Standards of the Brazilian Federal Court of Audit (NATs):

11. The analyses and conclusions of this audit are in compliance with the auditing standards and techniques accepted by the Court.

12. All the evidence collected during the audit was tested for its sufficiency, relevance and reliability.

Annex III - Table of documents prepared and analyses made in support of the audit findings

Finding	Name of the Document	Procedural Reference (Document)	Reference in the Report (Paragraphs)
The complexity and scattered nature of Brazilian laws hinder the implementation of public policies designed to regulate the occupation and use of land.	The complexity and scattered nature of Brazilian laws hinder the implementation of public policies designed to regulate land occupation and use.	Document 47	Paragraphs 18-24
The Brazilian laws governing the management of water resources are still separated from the laws governing the management of soil resources, a situation that leads to many gaps.	Analysis of the Finding - The Brazilian laws governing the management of water resources are still separated from the laws governing the management of soil resources, a situation that leads to many gaps.	Document 48	Paragraphs 25-32
The Brazilian laws governing the management of water resources are still separated from the laws governing the management of soil resources, a situation that leads to many gaps.	Analysis of the Finding - The Brazilian laws governing the management of water resources are still separated from the laws governing the management of soil resources, a situation that leads to many gaps.	Document 49	Paragraphs 33-39
The Brazilian legislation does not define the competences and limits for the actions of the different agencies in charge of promoting soil and water sustainability in non-urban areas of the country.	The Brazilian legislation does not define the competences and limits for the actions of the different agencies in charge of promoting soil and water sustainability in non-urban areas of the national territory.	Document 50	Paragraphs 40-46
The Brazilian legislation does not define clear-cut competences and	Analysis of the Finding - The Brazilian legislation does not define clear-cut	Document 51	Paragraphs 47-54

Finding	Name of the Document	Procedural Reference (Document)	Reference in the Report (Paragraphs)
limits for the actions of the different agencies in charge of promoting soil and water sustainability in non-urban areas of the country.	competences and limits for the actions of the different agencies in charge of promoting soil and water sustainability in non-urban areas of the national territory.		
The Brazilian legislation does not define clear-cut competences and limits for the actions of the different agencies in charge of promoting soil and water sustainability in non-urban areas of the national territory.	Analysis of the Finding - The Brazilian legislation does not define clear-cut competences and limits for the actions of the different agencies in charge of promoting soil and water sustainability in non-urban areas of the national territory.	Document 52	Paragraphs 57-65
The Brazilian legislation does not define clear-cut competences and limits for the actions of the different agencies in charge of promoting soil and water sustainability in non-urban areas of the national territory.	Analysis of the Finding - The Brazilian legislation does not define clear-cut competences and limits for the actions of the different agencies in charge of promoting soil and water sustainability in non-urban areas of the national territory.	Document 53	Paragraphs 66-74
Eliminating inconsistencies and overlaps in official data on the occupation of the Brazilian territory is critical to the management of territorial, soil and water policies.	Analysis of the Finding - Eliminating inconsistencies and overlaps in official data on the occupation of the Brazilian territory is critical to the management of territorial, soil and water policies.	Document 54	Paragraphs 75-84
Knowledge of the Brazilian soils is not sufficient for	Analysis of the Finding - Knowledge of the Brazilian soils is not	Document 55	Paragraphs 85-98

Finding	Name of the Document	Procedural Reference (Document)	Reference in the Report (Paragraphs)
planning, implementing and monitoring public policies designed to promote sustainable land use in agrosilvopasture activities.	sufficient for planning, implementing and monitoring public policies designed to promote sustainable land use in agrosilvopasture activities		
There are no formal, actual and comprehensive routines for monitoring and following up on soil and water management, conservation and recovery at federal level.	Analysis of the Finding - There are no formal, actual and comprehensive routines for monitoring and following up on soil and water management, conservation and recovery at federal level.	Document 56	Paragraphs 101-108
The Performance Indicators designed for public policies on land governance and for promoting sustainability in soil and water use lack the minimum requirements to support their planning and monitoring.	Analysis of the Finding - The Performance Indicators designed for public policies on land governance and for promoting sustainability in soil and water use lack the minimum requirements to support their planning and monitoring.	Document 57	Paragraphs 109-115
Lack of integration in the systems being used for managing and controlling information on soil regulation, conservation and recovery.	Analysis of the Finding - Lack of integration in the systems being used for managing and controlling information on soil regulation, conservation and recovery.	Document 58	Paragraphs 116-125

Annex IV - Glossary

Accountability – Quality that involves aspects related to transparency, responsibility, communication and rendering of accounts.

Sand-spreading – Process of change in little consolidated or unconsolidated sand deposits that results in difficulties for cover vegetation to take root appropriately due to intense mobility of sediments caused by water and wind action. This phenomenon is different from desertification due to the fact that it is not linked to arid, semiarid and sub-humid climates.

Multipurpose Technical Registry– System for registering spatial elements representing urban or rural structures consisting of a geometric component (space) and of a descriptive component than lend agility and diversity to the provision of data for the performance of different functions, including the planning function. (BLACHUT et al, 1974).

Desertification – Land degradation process caused by arid, semiarid and sub-humid climates resulting from various factors, including climatic variations and human activities. In the context of desertification, land degradation comprises the degradation of soils, water resources and vegetation and of the quality of life of the affected populations. In Brazil, the phenomenon of desertification can be observed in the northeast region, whose climatic characteristics are consistent with the definition of desertification contained in the UN Convention to Combat Desertification.

Governance – How government manages its economic and financial resources with transparency and accountability to achieve the best results possible. The document *Referencial para Avaliação de Governança em Políticas Públicas* (Framework for Public Policy Governance Evaluation) of the TCU contemplates eight components of good governance in public policy: institutionalization, plans and objectives, participation, organizational capacity and resources, coordination and consistency, monitoring and evaluation, risk management and internal controls, accountability.

Government initiatives – Government actions in general terms, involving Programs, Projects, partnerships, initiatives and budget-related actions. This report analyzed government initiatives related to soil use, conservation and recovery.

Soil Profile – Pedon or basic unit of soil collected from the surface to the source material, producing the minimum volume to make it possible for soil to be studied. A soil profile is used for the purpose of checking, describing and collecting soil samples and classifying them according to an organized soil classification system. (http://www.agencia.cnptia.embrapa.br/gestor/solos_tropicais/arvore/CONTAG01_5_221220061 1537.html)

Sustainability – Term related to the concept of sustainable development, i.e. the exploitation of natural resources without affecting their capacity to provide for future generations. In this report, the term soil sustainability refers to the proper handling and use of appropriate technologies to preserve the productivity of the soil.

Zoning – Planning tool designed to regulate soil use and occupation. Defined zones limit activities to be carried out in a given area.

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