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National Report for
the Convention on
Biological Diversity

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Section I. Information on the targets being pursued at the national level

Country

Brazil

National Targets**National Target 1: By 2020, at the latest, Brazilian people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.**

Rationale for the National Target

The National Target 1 mirrors the Aichi Target 1 and intends to improve the population's knowledge about the values of biodiversity and the measures the population can adopt to conserve and use biodiversity sustainably.

The National Target 1 reflects the important concern with people's awareness and with how these people influence individual and collective decisions, from small consumer's choices to the greater decisions about public investments and policies. It is believed that greater awareness about the values of biodiversity will lead to better decisions, both at the individual level and at the public policies level.

The target is divided in two components:

1. Awareness of the values of biodiversity by the Brazilian population.
2. Awareness of the measures the population can adopt to conserve biodiversity and to use it sustainably.

The National Target 1 counts with 102 actions in the NBSAP action plan, focusing mainly on environmental education; publication of reports; and workshops. To know more about all the actions, see Section II and [Annex I - Monitoring the NBSAP Action Plan.xlsx](#)

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

1. Awareness of biodiversity values

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 2: By 2020, at the latest, biodiversity values, geo-diversity values, and socio-diversity values have been integrated into national and local development and poverty reduction and inequality reduction strategies, and are being incorporated into national accounting, as appropriate, and into planning procedures and reporting systems.

Rationale for the National Target

The National Target 2 mirrors the Aichi Target 2 and has the objective of integrating the values of biodiversity into development processes. The National Target 2 differs from Aichi Target 2 in that it incorporates the geo-diversity and socio-diversity components and promotes de reduction of inequalities. The National Target 2 strengthens the interdependence between development and biodiversity, increasing the value of biodiversity for the poorest segments of society and for governments, increasing the potential of their contribution and increasing perception of these values, as discussed in Target 1.

The target is divided in two components:

1. Integration of biodiversity values, geo-diversity values, and socio-diversity values into national and local development and poverty reduction and inequality reduction strategies.
2. Incorporation of biodiversity values, geo-diversity values, and socio-diversity values into national accounting, as appropriate, and into planning procedures and reporting systems.

The National Target 2 counts with 63 actions in the NBSAP action plan, focusing mainly on territorial management; methods for prioritizing areas; and national accounting and poverty eradication.

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

2. Integration of biodiversity values

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 3: By 2020, at the latest, incentives harmful to biodiversity, including the so-called perverse subsidies, are eliminated, phased out or reformed in order to minimize negative impacts. Positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the CBD, taking into account national and regional socio economic conditions.

Rationale for the National Target

National Target 3 mirrors Aichi Target 3 and has the objective of eliminating harmful incentives and implement positive incentives for biodiversity. The National Target 3 addresses fiscal and credit incentives, and subsidies that may be harmful or positive to biodiversity. The target intends to

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encourage the employment of positive incentives, implicitly including fiscal incentives (tax deductions), credit, subsidies and payments for ecosystem services, to promote the conservation and sustainable use of biodiversity.

The target is divided in two components:

1. Incentives that may harmfully affect biodiversity, including the so-called perverse subsidies, are eliminated, phased out or reformed in order to minimize negative impacts.
2. Positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the CBD, taking into account national and regional economic conditions.

Target 3 counts with 43 actions in the NBSAP action plan, focusing mainly on land tenure regularization; Integration between environmental aspects and private sector; Environmental Reserve Certificates (CRA - *Cotas de Reserva Ambiental*); Ecological ICMS; Environmental Regularization Programs (PRA - *Programas de Regularização Ambiental*); and Payment for Ecosystem Services (PES).

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

3. Incentives

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 4: By 2020, at the latest, governments, private sector and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption to mitigate or prevent negative impacts from the use of natural resources.

Rationale for the National Target

The National Target 4 mirrors the Aichi Target 4 and has the objective of promoting sustainable production and consumption. This target has two objectives: the adoption of the strategy (sustainable production and consumption plans) and the achievement of the desired outcomes (reduce the impacts from the use of natural resources). The achievement of the desired outcomes is broadly defined and can be interpreted as the use of natural resources within safe ecological thresholds.

The target comprises one component:

1. Governments, private sector and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption to mitigate or prevent negative impacts from the use of natural resources.

The National Target 4 counts with 45 actions in the NBSAP action plan, mainly focused on the management of concession contracts; quality seals; and waste management and ecosystem services.

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

4. Use of natural resources

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 5: By 2020, the rate of loss of native habitats is reduced by at least 50% (in comparison with the 2009 rate) and, as much as possible, brought close to zero, and degradation and fragmentation is significantly reduced in all biomes.

Rationale for the National Target

The National Target 5 mirrors the Aichi Target 5 and has the objective to reduce the loss of native habitats and promote monitoring action and deforestation control. The conversion of native habitats into alternative land use is the main cause of biodiversity loss in Brazil and has traditionally represented a means to appropriate land. The National Target 5 establishes parameters for reducing the conversion of habitats at the Brazilian biomes.

The target comprises six components:

1. Reduction of the rate of loss of native habitats by at least 50% (in comparison with the 2009 rate) in the Amazon.
2. Reduction of the rate of loss of native habitats by at least 50% (in comparison with the 2009 rate) in the Cerrado.
3. Reduction of the rate of loss of native habitats by at least 50% (in comparison with the 2009 rate) in the Atlantic Forest, Caatinga, Pantanal and Pampas.
4. Significant reduction of degradation and fragmentation in the Amazon.
5. Significant reduction of degradation and fragmentation in the other biomes.
6. Bringing the rate of habitat loss as close to zero as possible.

The National Target 5 counts with 46 actions in the NBSAP action plan, focusing mainly on monitoring programs; reduction of fragmentation; and field actions to validate data.

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

5. Loss of habitats

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 6: By 2020 all stocks of any aquatic organism are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overharvesting is avoided, recovery plans and measures are in place for depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems, and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, when scientifically established.

Rationale for the National Target

The National Target 6 mirrors the Aichi Target 6 and has the objective of promoting sustainable fisheries. The National Target has a broader scope than the Aichi Target by addressing all aquatic organisms, rather than the Aichi Target's specific reference to "fish, invertebrates and aquatic plants". Furthermore, the National Target requests scientific studies to establish the safe limits for the sustainable use of fisheries resources, which is not mentioned by the Aichi Target. The target reflects a desired outcome (sustainable management and capture of fish, and of aquatic invertebrates and plants) and the strategy to achieve sustainability in the fisheries sector (promotion of legal practices, application of ecosystem approaches, development of measures for the recuperation of overharvested species, and establishment of safe ecological limits for sustainable use).

The target contains four components:

1. The management and capture of all stocks of aquatic organisms are managed and harvested sustainably, legally and applying ecosystem-based approaches, so that overharvesting is avoided.
2. Recovery plans and measures are in place for depleted species.
3. Fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems.
4. The impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, when scientifically established.

The National Target 6 counts with 30 actions in the NBSAP action plan, focusing mainly on participatory management; and evaluation of the status of threatened species.

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

6. Sustainable fisheries

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 7: By 2020 the incorporation of sustainable management practices is disseminated and promoted in agriculture, livestock production, aquaculture, silviculture, extractive activities, and forest and fauna management, ensuring conservation of biodiversity.

Rationale for the National Target

The National Target 7 mirrors Aichi Target 7 and has the objective to promote sustainable development in agriculture, livestock production, aquaculture, silviculture, and extractive activities. The National Target lists the public sectors that are present in the text of the Aichi Target and includes other sectors that are important to the Brazilian economy, and that are not explicitly included in the Aichi Target, such as livestock, extractive activities, forest and fauna management.

The National Target 7 addresses the sustainability of areas converted by productive sectors. The target proposes the maintenance and increase of the production potential of areas through measures that prevent adverse environmental impacts on the landscape, reduce pollution by agricultural chemicals and fertilizers, and promote management practices that are aligned with the conservation of biodiversity.

The target contains four components:

1. Sustainable management practices are disseminated and promoted for incorporation in agriculture and livestock production, ensuring conservation of biodiversity.
2. Sustainable management practices are disseminated and promoted for incorporation in aquaculture, ensuring conservation of biodiversity.
3. Sustainable management practices are disseminated and promoted for incorporation in silviculture, ensuring conservation of biodiversity.
4. Sustainable management practices are disseminated and promoted for incorporation in extractive activities, and forest and fauna management, ensuring conservation of biodiversity.

The National Target 7 counts with 98 actions in the NBSAP action plan, with the main focus on territorial management and good management practices; and introduction of native species in reforestation activities.

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

7. Areas under sustainable management

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

Rationale for the National Target

The National Target 8 mirrors the Aichi Target 8 and has the objective of achieving pollution control, including from excess nutrients, reaching levels that are not detrimental to ecosystem function and biodiversity. The National Target 8 addresses pollution in water, soil and air. The target proposes improving monitoring and control of pollution levels and the adequate waste disposal. The target highlights pollution from excess nutrients, which is a common type of pollution in water bodies, originating from the inadequate discharge of domestic wastewaters and from runoff of fertilizers applied by the agriculture sector. The objectives of this target are particularly important for the conservation of aquatic ecosystems and of the rich natural heritage that water resources represent to Brazil. Brazil possesses 12% of all freshwater available in the planet, which places at the global scale the positive impacts resulting from the control of pollution levels in water bodies. Furthermore, the target intends to promote initiatives for selective waste collection, recycling and adequate waste disposal.

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The target contains one component:

1. Reduction of pollution, including from excess nutrients, to levels that are not detrimental to ecosystem function and biodiversity.

The National Target 8 counts with 31 actions in the NBSAP action plan, focusing mainly on the monitoring of water and soil quality; and selective waste collection programs.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

8. Pollution

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 9: By 2020, the National Strategy on Invasive Alien Species is fully implemented, with the participation and commitment of states and the elaboration of a National Policy, ensuring the continuous and updated diagnosis of species and the effectiveness of Action Plans for Prevention, Contention and Control.

Rationale for the National Target

The National Target 9 mirrors the Aichi Target 9 and has the objective of achieving the control of invasive alien species. The National Target 9 implicitly incorporates the same objectives of the Aichi Target 9, but integrates these objectives with the Brazilian policy to combat invasive alien species. The National Target 9 specifies legal instruments for fulfilling the target's objectives and names the National Strategy on Invasive Alien Species, the National Policy on Invasive Alien Species and the Action Plans for Prevention, Contention and Control as instruments to be implemented by the Federal Government with the participation and commitment of State Governments.

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The target contains two components:

1. Implement the National Strategy on Invasive Alien Species with the participation and commitment of states and the elaboration of a National Policy by 2020.
2. Ensure the continuous and updated diagnosis of species and the effectiveness of Action Plans for Prevention, Contention and Control.

The National Target 9 counts with 44 actions in the NBSAP action plan, focusing mainly on mechanisms for monitoring invasive alien species; and on the National Strategy on Invasive Alien Species.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

9. Invasive Alien Species

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other marine and coastal ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Rationale for the National Target

The National Target 10 mirrors the Aichi Target 10 and has the objective of reducing pressure on coral reefs, and other marine and coastal ecosystems. Together with coral reefs, the mangroves stand out as an important target ecosystem. Differently from most of the National Targets, target 10 has 2015 as its deadline for achievement, which clearly indicates the concern about the conservation status of the marine ecosystems and the need for prompt implementation of actions. Many of the pressures referred by National Target 10 are also addressed under other targets that deal with pollution, unsustainable use of marine organisms and climate change. However, this target highlights the relevance of these impacts for marine and coastal ecosystems and proposes affirmative actions for their mitigation as a priority.

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The target contains one component:

1. By 2015, the multiple anthropogenic pressures on coral reefs, and other marine and coastal

ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

The National Target 10 counts with 13 actions in the NBSAP action plan, focusing mainly on research and monitoring actions for marine ecosystems; and increase marine and coastal protected areas.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

10. Vulnerable ecosystems

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 11: By 2020, at least 30% of the Amazon, 17% of each of the other terrestrial biomes, and 10% of the marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation, ensuring and respecting the demarcation, regularization, and effective and equitable management, so as to ensure ecological interconnection, integration and representation in broader landscapes and seascapes.

Rationale for the National Target

The National Target 11 mirrors the Aichi Target 11 and has the objective of expanding and implementing the National Protected Areas System. The National Target 11 incorporates the same objectives of the Aichi Target 11, but differs by integrating them to the elements of the National Protected Areas Policy. The National Target 11 incorporates the Law on the National Protected Areas System – SNUC and adds other possible protected areas for accounting target achievement, such as permanent protection areas – APP, legal reserves and indigenous lands with native vegetation. Additionally, the National Target establishes a differentiated target for the Amazon Biome at 30% cover.

As the Aichi Target, the National Target is comprised by a quantitative element (protected areas cover) and qualitative elements (effective and qualitative management, ecological representativeness, connectivity among areas and other spatial conservation measures, and integration of protected areas in broader landscapes and seascapes).

The target contains five components:

1. Conservation of 30% of the Amazon through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation.
2. Conservation of 17% of each of the other terrestrial biomes through protected areas foreseen

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under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation.

3. Conservation of 10% of the marine and coastal areas through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation.
4. Ensure and respect the demarcation, regularization, and effective and equitable management.
5. Ensure ecological interconnection, integration and representation in broader landscapes and seascapes.

The National Target 11 counts with 118 actions in the NBSAP action plan, focusing mainly on the integration of protected areas recorded in the National Protected Areas Registry; preparation and implementation of management plans; evaluation of biodiversity protection effectiveness; support to studies and projects focusing on mosaics, fragmentation effects and Systematic Conservation Planning.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

11. Protected areas

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 12: By 2020, the risk of extinction of threatened species has been significantly reduced, tending to zero, and their conservation status, particularly of those most in decline, has been improved.

Rationale for the National Target

The National Target 12 mirrors the Aichi Target 12 and has the objective of preventing the extinction of species. The National Target 12 proposes affirmative actions for the conservation of threatened species. The main causes of species extinction are habitat loss and fragmentation, introduction of alien species, and predatory exploitation of natural resources, which are factors also related to other targets.

The target contains two components:

1. By 2020, the risk of extinction of threatened species has been significantly reduced, tending to zero.
2. The conservation status, particularly of those most in decline, has been improved.

The National Target 12 counts with 48 actions in the NBSAP action plan, focusing mainly on the monitoring of threatened species; regional actions for the conservation of threatened species; updating the lists of threatened species.

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

12. Preventing extinctions

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 13: By 2020, the genetic diversity of microorganisms, cultivated plants, farmed and domesticated animals and of wild relatives, including socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing the loss of genetic diversity.

Rationale for the National Target

The National Target 13 mirrors the Aichi Target 13 and has the objective of promoting the conservation of agrobiodiversity species and wild relatives, including microorganisms, cultivated plants and farmed animals with focus on the preservation of genetic diversity. Target 13 addresses the relevant conservation of domesticated genetic resources and their wild relatives, which are important for the traditional livelihoods and for the genetic improvement of modern culture and commercial farming. The inclusion of microorganisms contrasts the National Target with the Aichi Target's text.

The target contains two components:

1. Maintenance of the genetic diversity of microorganisms, cultivated plants, farmed and domesticated animals and of wild relatives, including socio-economically as well as culturally valuable species.
2. Development and implementation of strategies for minimizing the loss of genetic diversity.

The National Target 13 counts with 46 actions in the NBSAP action plan, focusing mainly on the promotion of research on genetic diversity; and data systematization.

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

13. Agricultural biodiversity

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, traditional peoples and communities, indigenous peoples and local communities, and the poor and vulnerable.

Rationale for the National Target

The National Target 14 mirrors the Aichi Target 14 and has the objective of promoting the restoration of ecosystems that provide essential services. The target incorporates the objectives of restoration of degraded areas related to the rulings of the Law on the Protection of Native Vegetation and of the National Plan for the Restoration of Native Vegetation - PLANAVEG.

The target contains two components:

1. By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded.
2. Taking into account the needs of women, traditional peoples and communities, indigenous peoples and local communities, and the poor and vulnerable.

The National Target 14 counts with 45 actions in the NBSAP action plan, focusing mainly on creating awareness on the value of biodiversity and ecosystem services; and restoration of degraded areas and conservation of priority areas.

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

14. Essential ecosystem services

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions, including restoration of at least 15% of degraded ecosystems, prioritizing the most degraded biomes, hydrographic regions and ecoregions, thereby contributing to climate change mitigation and adaptation and to combatting desertification.

Rationale for the National Target

The National Target 15 mirrors the Aichi Target 15 and has the objective of promoting the restoration of degraded ecosystems for climate change mitigation and adaptation. The target incorporates the objectives of the Nationally Determined Contribution (NDC) under the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC) to reduce, by 2025, the emissions of greenhouse gases by 37% below the 2005 levels and increase ecosystems' resilience to climate change. The National Target determines the minimum percentage of 15% for the restoration of degraded ecosystems.

The target contains three components:

1. By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions (in the Amazon).
2. By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions (in the other biomes).
3. Including through the restoration of at least 15% of degraded ecosystems, prioritizing the most degraded biomes, hydrographic regions and ecoregions, thereby contributing to climate change mitigation and adaptation and to combatting desertification.

The National Target 15 counts with 75 actions in the NBSAP action plan, focusing mainly on support to the implementation of projects for the restoration of degraded areas; and territorial management tools.

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

15. Ecosystem resilience

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

Rationale for the National Target

The National Target 16 mirrors the Aichi Target 16 and has the objective of implementing the Nagoya Protocol. The National Target determines that the Nagoya Protocol must be operational in compliance with local legislation, which requires Brazil to ratify the Protocol and create tools and public policies for its implementation. The implementation of the Protocol requires the development of a platform for the systematization of information on access to genetic resources and traditional knowledge, and the creation of a fund to receive contributions arising from access to resources and knowledge for benefit sharing.

The target contains one component:

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1. By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

The National Target 16 counts with 18 actions in the NBSAP action plan, focusing mainly on the systematization and implementation of portals related to access to genetic resources; and development of methodologies for systematizing traditional knowledge.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

16. Nagoya Protocol on ABS

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 17: By 2014, the national biodiversity strategy is updated and adopted as policy instrument, with effective, participatory and updated action plans, which foresee periodic monitoring and evaluation.

Rationale for the National Target

The target contains one component:

1. By 2014, the national biodiversity strategy is updated and adopted as policy instrument, with effective, participatory and updated action plans, which foresee periodic monitoring and evaluation.

ES

The National Target 17 contains 12 actions in the NBSAP action plan, focusing mainly on the construction, enhancement and monitoring of NBSAP actions; and to facilitate the achievement of the National Biodiversity Targets.

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

17. NBSAPs

Relevant documents and information

National Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous peoples, family rural producers and traditional communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, in accordance with their uses, customs and traditions, national legislation and relevant international commitments, and fully integrated and reflected in the implementation of the CBD, with the full and effective participation of indigenous peoples, family rural producers and traditional communities, at all relevant levels.

Rationale for the National Target

The National Target 18 mirrors the Aichi Target 18 and has the objective of promoting respect to indigenous peoples, family rural producers and traditional communities, and conserving the traditional knowledge retained by these communities. The text of the National Target differs from the Aichi Target by including, in addition to indigenous peoples and traditional communities, the family rural producers. Brazil is home to a great variety of traditional groups, such as quilombolas, rubber tappers, geraizeiros, faxinal communities, river-side communities, romani, pomeranos, babassu coconut-crackers, caçaras, among others, which are also represented in the National Target, although not individually mentioned. Just as most indigenous peoples, these communities maintain their original traditional knowledge incorporated into their livelihoods, including through the sustainable use of biodiversity and natural resources.

The target contains three components:

1. The traditional knowledge, innovations and practices of indigenous peoples, family rural producers and traditional communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, in accordance with their uses, customs and traditions, national legislation and relevant international commitments.
2. The traditional knowledge, innovations and practices are fully integrated and reflected in the implementation of the CBD.
3. Full and effective participation of indigenous peoples, family rural producers and traditional communities, at all relevant levels.

The National Target 18 counts with 36 actions in the NBSAP action plan, focusing mainly on the strengthening of indigenous peoples and traditional communities; family agriculture; and rural extension activities.

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

18. Traditional knowledge

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 19: By 2020, the science base and technologies necessary for enhancing knowledge on biodiversity, its values, functioning and trends, and the consequences of its loss, are improved and shared, and the sustainable use of biodiversity, as well as the generation of biodiversity-based technology and innovation are supported, duly transferred and applied. By 2017, the complete compilation of existing records on aquatic and terrestrial fauna, flora and microbiota is finalized and made available through permanent and open access databases, with specificities safeguarded, with a view to identify knowledge gaps related to biomes and taxonomic groups.

Rationale for the National Target

The National Target 19 mirrors the Aichi Target 19 and has the objective of promoting progress in science and technology for biodiversity. The National Target 19 expands the Aichi Target 19 to include a sub-target with a 2017 deadline and the objective of compiling the existing records on Brazilian fauna, flora and microbiota into open access databases. This addition to the Aichi Target highlights the importance of progress in the synthesis of knowledge on the Brazilian biodiversity and its availability to society.

The target contains three components:

1. By 2020 the science base and technologies necessary for enhancing knowledge on biodiversity, its values, functioning and trends, and the consequences of its loss, are improved and shared.
2. The sustainable use of biodiversity, as well as the generation of biodiversity-based technology and innovation are supported, duly transferred and applied.
3. By 2017, the complete compilation of existing records on aquatic and terrestrial fauna, flora and microbiota is finalized and made available through permanent and open access databases, with specificities safeguarded, with a view to identify knowledge gaps related to biomes and taxonomic groups.

The National Target 19 counts with 109 actions in the NBSAP action plan, focusing mainly on the compilation of existing records; field activities for data collection; and implementation of platforms and databases for the publication of technical-scientific materials.

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

19. Biodiversity knowledge

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

ES

National Target 20: Immediately following the approval of the Brazilian targets, resources needs assessments are carried out for the implementation of national targets, followed by the mobilization and allocation of financial resources to enable, from 2015 on, the implementation and monitoring of the Strategic Plan for Biodiversity 2011-2020, as well as the achievement of its targets.

Rationale for the National Target

The National Target 20 mirrors the Aichi Target 20 and has the objective to facilitate the mobilization and allocation of financial resources for actions in the Strategic Plan for Biodiversity 2011-2020 and achievement of the National Biodiversity Targets. The National Target 20 has objectives that are similar to those of the Aichi Target; however, the text of the National Target places the financial mobilization and allocation of resources in the context of the process that originated the Brazilian NBSAP. The National Target refers to the onset of activities in 2015, after the consolidation of the National Targets, and determines the assessment of resource needs for NBSAP implementation followed by the mobilization and allocation of the necessary resources.

The target contains two components:

1. Immediately following the approval of the Brazilian targets, resource needs assessments are carried out for their implementation.
2. Mobilization and allocation of financial resources to enable, from 2015 on, the implementation and monitoring of the Strategic Plan for Biodiversity 2011-2020, as well as the achievement of its targets.

The National Target 20 counts with 10 actions in the NBSAP action plan, focusing mainly on the inventory of biodiversity expenditures; constitution of institutional partnerships; and dissemination of information on the achievement of National Targets.

ES

Level of application

Jurisdiction

National / Federal

Relevance of National Targets to Aichi Targets

Aichi Target components

20. Resource mobilization

Relevant documents and information

To know more about the National Targets development process, go to Section VII, Additional Information.

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Section II. Implementation measures, their effectiveness, and associated obstacles and scientific and technical needs to achieve national targets

Evaluation of progress in the implementation of the NBSAP Action Plan and Methodology to evaluate the progress towards the achievement of the National Biodiversity Targets

Measures taken to contribute to the implementation of your country's national biodiversity strategy and action plan

Evaluation of progress in the implementation of the NBSAP Action Plan

To monitor the implementation of actions from the National Biodiversity Strategy and Action Plan – NBSAP consultations were carried out with the managers responsible for the implementation of those actions proposed in the action plan, as well as with representatives of institutions of national relevance for the conservation of biodiversity which had not included actions in the NBSAP action plan. The Ministry of the Environment – MMA issued official requests for information on the implementation of the action plan to the institutions engaged in the NBSAP (those with actions included in the action plan) and to other institutions not engaged in the strategy, consulting 161 institutions in the country. The engaged institutions were requested to report progress on the implementation of actions included in the NBSAP and offered the possibility to include new actions not previously reported. The non-engaged institutions were invited to report actions related to any National Biodiversity Target, as well as to engage in the NBSAP(1).

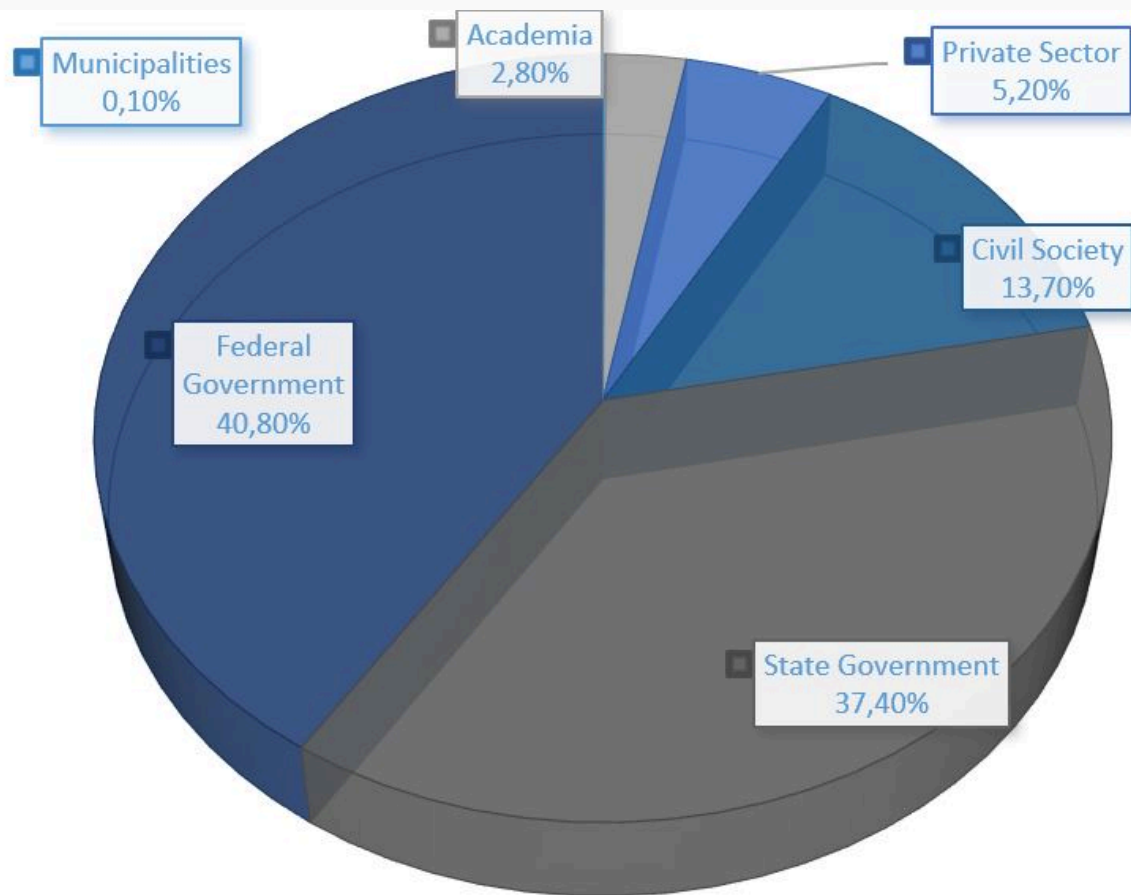
The action plan reported in the NBSAP version published in 2017 contained 721 actions under the responsibility of 52 institutions, including the federal government, the state governments, universities, research institutes, NGOs and inter-governmental organizations. During the monitoring and evaluation process in 2018, complementary actions were reported by the institutions and the need for adjusting the Strategy’s Action Plan was identified. The updated and monitored Action Plan can be found in Annex 1. The updated version of the Biodiversity Action Plan has become a database with information on 1,032 actions distributed among the 20 biodiversity targets. At the conclusion of the monitoring process and with the engagement of new institutions, 66 institutions(2) have reported actions related to biodiversity in the NBSAP action plan. Among the new institutions, of particular notice are the State Secretariat for the Environment of Pernambuco, the President’s Office, the Brazilian Institute of Geography and Statistics, the National Confederation of Industries, and the Global Network of Youth for Biodiversity.

The current biodiversity action plan reflects the great diversity of actors working for nature conservation in Brazil. As shown in Figure 2, the federal government accounts for 40.8% of actions, state governments(3) for 37.4%, civil society for 13.7%, the private sector for 5.2%, academia for 2.8% and municipalities for 0.1%.

Figure 2

Percentage of actions in the Action Plan of the National Strategy, by sector

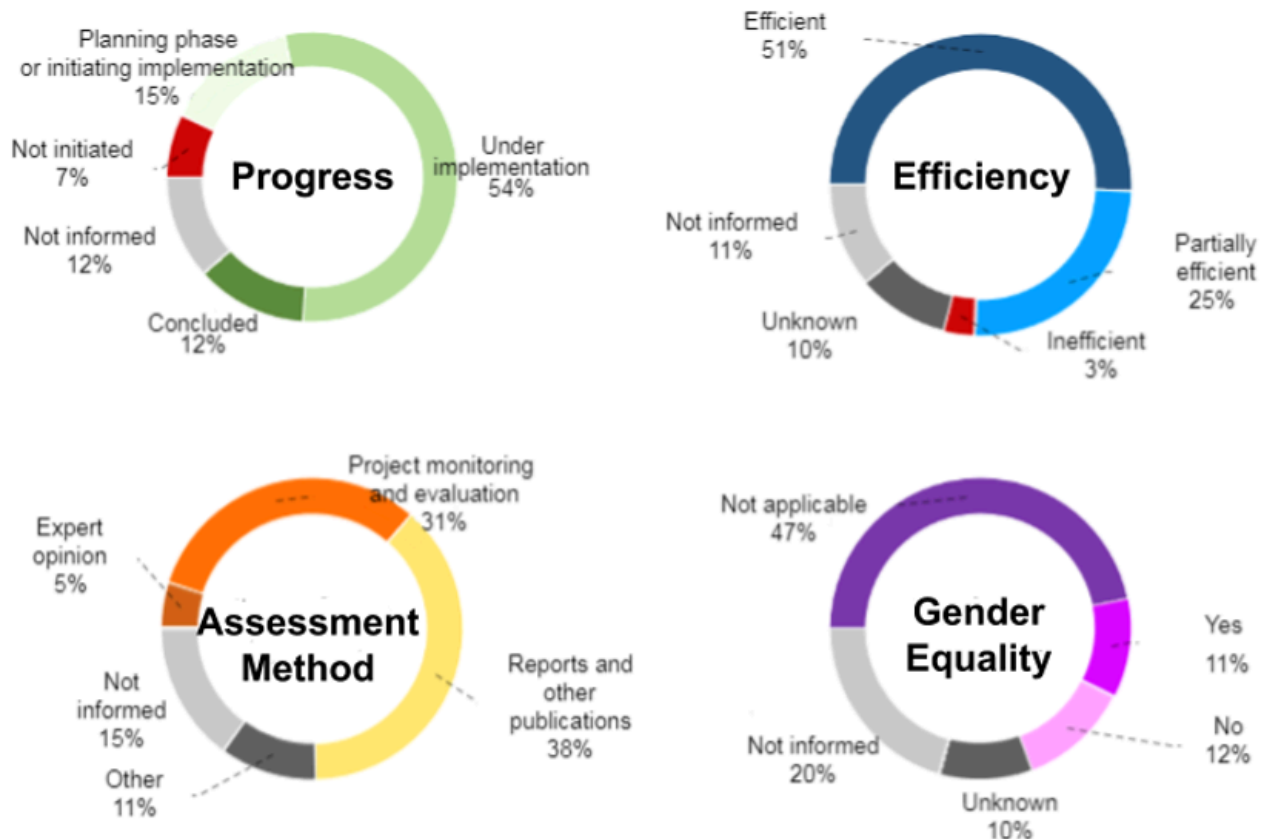
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Source: MMA, 2018.

The monitoring of implementation of actions in the national biodiversity action plan, including actions reported in 2018, revealed that 12% of actions were concluded, 54% are under implementation, 15% are at the planning phase or initial implementation, and only 7% have not yet initiated. The actions for which no information was provided comprise 12% of the total (Figure 3). According to the evaluating institutions, most of the assessed actions were considered efficient (51%) and partially efficient (25%). Only 3% of actions in the action plan have been evaluated as inefficient. Concerning the assessment method, most actions were evaluated through reports or other types of publications (38%) or through the monitoring and evaluation of projects (31%). Actions under implementation related to gender equality represent 11% of the total (Figure 3).

Figure 3
Implementation progress of the National Biodiversity Action Plan



Source: MMA, 2018.

Monitoring the action plan has revealed that most of the proposed actions are under implementation, demonstrating that the action plan is fully operating. Most actions are demonstrating efficiency according to the evaluation carried out by the managers responsible for their implementation. Additionally, in great measure the actions are being monitored through reports and publications, which is relevant for adequate monitoring.

Through this monitoring process and information collected for the 6 National Report, it was possible to identify the following challenges to accelerate the progress of the action plan: coordination among institutions engaged in the NBSAP; create synergy among proposed actions; and availability of integrated management tools to allow the collection of information, including regarding the mobilization of resources and spatial planning, as well as monitoring biodiversity actions. Given the complexity and large number of actions in the Brazilian national action plan, it would be very relevant to overcome these challenges.

(1) By allowing the inclusion of new actions, the identified advantage was to enhance the information level, since some sectors could mobilize to collect and consolidate information on action for biodiversity, which was notable for the private sector but also clear at the federal and state government.

Relevant websites, links, and files

[Annex I - Monitoring the NBSAP Action Plan.xlsx](#) (NBSAP, Plan Action, Brazil, Monitoring Brazilian Actions)

National Target 1: By 2020, at the latest, Brazilian people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.



2018 - On track to achieve target

Targets

National Target 1: By 2020, at the latest, Brazilian people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 1 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status
Indicator A1.1: Professional qualification on themes related to biodiversity conservation with socio-environmental inclusion, water resources management, and access and benefit sharing from the use of genetic resources.	Positive	Good
Indicator A1.2: Brazilian population's perception of biodiversity and protected areas.	Positive	Good

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Any other tools or means used for assessing progress.

Implementation of the Action Plan

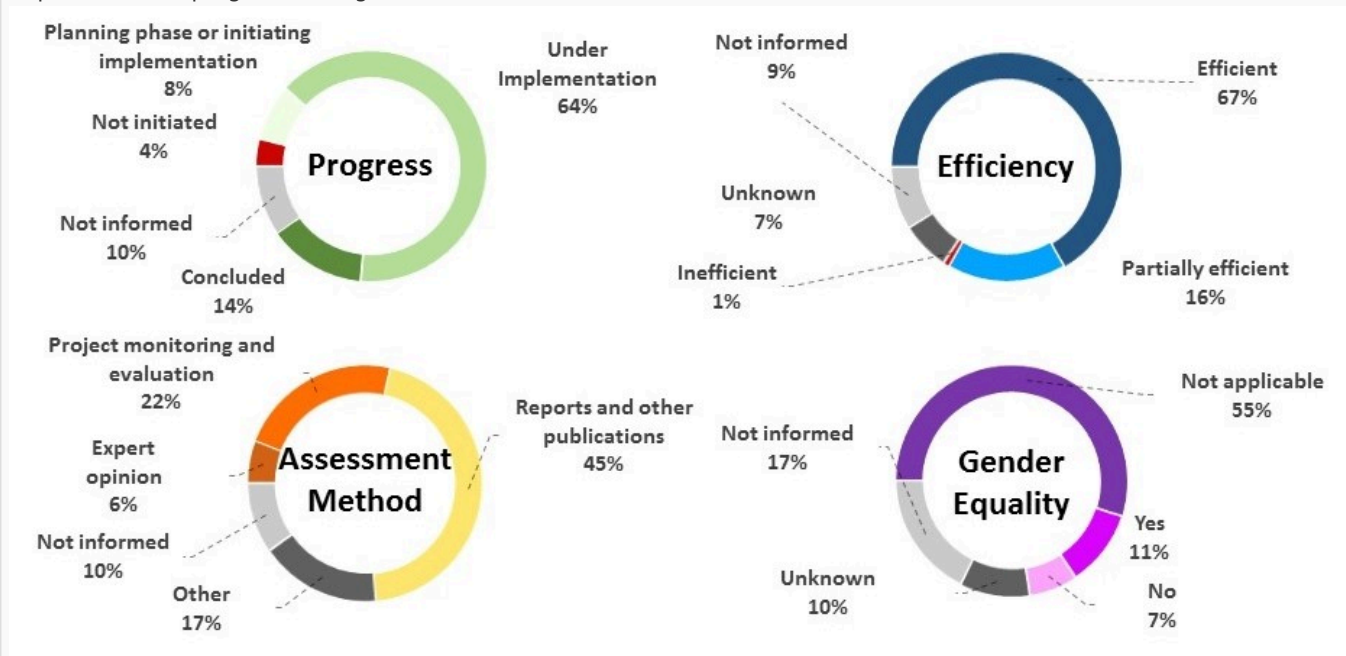
Target 1 counts with a set of 102 actions proposed by institutions engaged in the NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 1 actions (Figure 15) reveals that 14% of actions were concluded, 64% are under implementation, 8% are being planned or initiating implementation, and only 4% have not yet initiated. No information was provided for 10% of actions. Most of the assessed actions have been considered efficient (67%), and a minority was considered partially efficient (16%) or inefficient (1%). Most actions were

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assessed based on reports and other publications (45%), while a smaller number of actions were assessed based on project monitoring and evaluation processes (22%). Actions implementing activities related to gender equality represent 11% of the total.

Figure 15

Implementation progress of Target 1



Source: MMA, 2018

Other considerations

According to the two indicators available at this time and considering the managerial assessment of the NBSAP Action Plan, the country is on its way to exceed target 1 (blue arrow). Target 1 states that by 2020 Brazilian people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably. The indicators address both the professional qualification through courses on biodiversity-related themes (promoted by the Ministry of the Environment and by the National Water Agency), and the Brazilian population’s perception on biodiversity according to an opinion poll on Protected Areas (promoted by WWF-Brazil). However, although the indicators present a direct relationship to represent the target’s evolution, they have limited power to determine if, in fact, by 2020, the Brazilian people *are aware* of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Although the number of participants in the offered courses (indicator A.1.1) has increased significantly during this period, this public still represents less than 1% of the Brazilian population. The indicator is also unable to measure the actual impact of the course’s lessons on the awareness process of the student, i.e., does not measure the actual knowledge acquired nor the effectiveness of this knowledge on these people’s actions (behavior). On the other hand, the assessed database does not include the courses and activities offered by universities, states, municipalities, non-governmental organizations, private sector and other actors throughout the national territory. The second indicator (A.1.2) records the opinion of Brazilians concerning some aspects related to biodiversity, mainly protected areas, but not the level of knowledge on biodiversity. And, there is less information available on the knowledge of Brazilian people regarding the measures that can and should be taken to conserve and use biodiversity sustainably. Additionally, the poll is limited particularly regarding the lack of interviewees located in rural and forested areas, where most of the environmental conflict regarding the use of biodiversity is located.

Thus, the country chose to classify target achievement as “on track to achieve target” because advances were actually observed for the task to create awareness among Brazilian people on biodiversity, in various sectors.

In the future, it is important for the country to monitor and strongly intensify actions to create awareness of the importance of biodiversity for the human being, even though the territorial size represents a barrier.

Relevant websites, links, and files

[Target 1 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

The assessment of progress towards achieving Target 1 counts with the evaluation of 90% of the 102 actions listed in the action plan for Target 1 and two indicators that address the main themes in the target: awareness of the values of biodiversity and building capacity for environmental management. Information collected for target assessment encompass most of the national territory and allow the assessment of trend evolution through time of the indicator data and implementation of public policies.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

Target 1 is monitored through periodic assessments of the implementation of NBSAP actions and evaluation of trends and status of two indicators.

- Indicator A1.1: Professional qualification on themes related to biodiversity conservation with socio-environmental inclusion, water resources management, and access and benefit sharing from the use of genetic resources.

This indicator represents the number of people completing face-to-face, semi-face-to-face and distance-learning courses. Between 2015 and 2018, a total of 43,671 people completed the courses offered by MMA on the themes "Conservation, sustainable use and restoration of biodiversity with socio-environmental inclusion" and "Environmentally adequate management of natural resources and the multiple uses of water". Among the offered courses, the following are particularly noted: "Environmental education and communication in protected areas"; "Conflict management in protected areas"; "Local coordination and fund raising for biodiversity protection"; "Training community environmental education agents in family agriculture"; and "Youth, participation and caring for water". Between 2011 and 2016, ANA trained 94,418 people on water resource management, which is a number approximately ten times greater than the total reached between 2001 and 2011. The Ministry of the Environment trained 5,227 people on access and benefit sharing, including indigenous peoples, after the publication of Federal Law nº 13.123, of 20 May 2015.

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- Indicator A1.2: Brazilian population's perception of biodiversity and protected areas.

This indicator shows the level of knowledge demonstrated by the Brazilian population on biodiversity and protected areas. In 2018, 2002 interviews were carried out with women and men of 16 years old or older, from different social levels, with a representative national sample, and data were compared with those collected by a similar poll carried out in 2014. The poll reveals that the environment and natural wealth occupy the first place among reasons for country pride. However, a drop is observed in the assessment of most attributes analyzed by the polls carried out in 2014 and 2018. The Brazilian population recognizes Protected Areas as providers of ecosystem services to society. When presented a table indicating the possible benefits generated to society by Protected Areas, the interviewees point out the improvement of air quality (51%), protection of water sources and rivers (45%) and protection of the diversity of animals and plants (44%) as the main advantages. The poll also reveals that most of the Brazilian population would like to have more contact with nature (91%) and values places with natural landscapes when travelling (82%).

Other relevant website address or attached documents

Indicators

National Target 2: By 2020, at the latest, biodiversity values, geo-diversity values, and socio-diversity values have been integrated into national and local development and poverty reduction and inequality reduction strategies, and are being incorporated into national accounting, as appropriate, and into planning procedures and reporting systems.



2018 - Progress towards target but at an insufficient rate

Targets

National Target 2: By 2020, at the latest, biodiversity values, geo-diversity values, and socio-diversity values have been integrated into national and local development and poverty reduction and inequality reduction strategies, and are being incorporated into national accounting, as appropriate, and into planning procedures and reporting systems.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 2 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of Indicator	Trend	Status
A2.1: Percent of municipalities that initiated the process of the Local Agenda 21, by Large Region and class of municipal population size	Positive	Fair
A2.2. Land use and occupation planning - EEZ	Positive	Good

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Any other tools or means used for assessing progress.

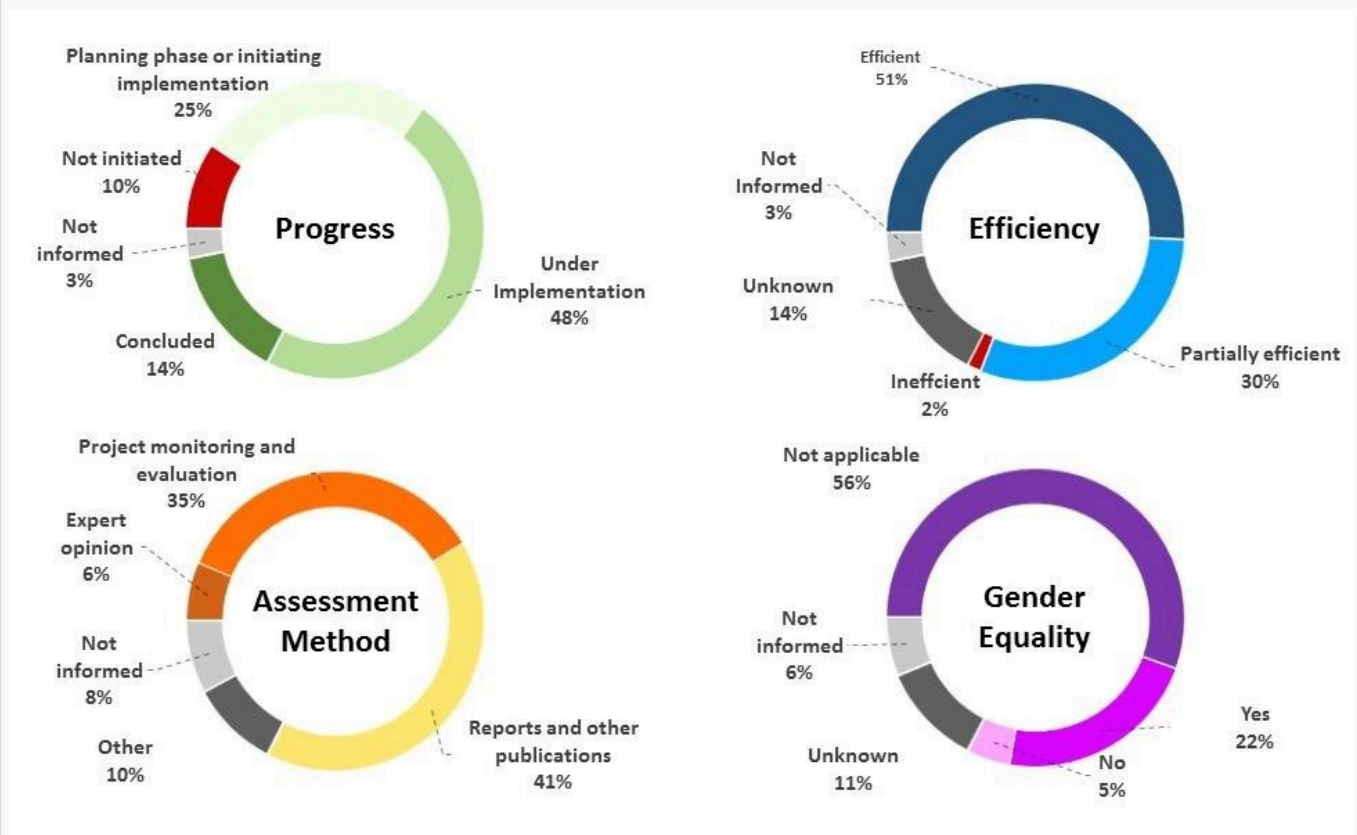
Implementation of the Action Plan

Target 2 counts with a set of 63 actions proposed by institutions engaged in the NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 2 actions (Figure

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19) reveals that 14% of actions were concluded, 48% are under implementation, 25% are being planned or initiating implementation, and only 10% have not yet initiated. No information was provided for 3% of actions. Most of the assessed actions have been considered efficient (51%) and partially efficient (30%). Only 2% of actions were considered inefficient. Most actions were assessed based on reports and other publications (41%) or project monitoring and evaluation processes (35%). Actions implementing activities related to gender equality represent 22% of the total, or close to one quarter of the target.

Figure 19 -Implementation progress of Target 2



Source: MMA.

Relevant websites, links, and files

[Target 2 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 2 counts with the evaluation of 97% of the 63 actions in the action plan and two indicators that address important themes in the target: territorial management and municipal planning. However, there is a lack of information on the integration of biodiversity into economic sectors and public policies.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

The Target is monitored through the assessment of the implementation of the action plan and the trend status assessment of two indicators. The proportion of the Brazilian territory that counts with land use and occupation directives on sustainable basis defined by macro-regional, regional or state ecological-economic zonings (EEZs). The indicator demonstrated a gradual increase of the portion of national territory covered by completed federal or state EEZ initiatives. The indicator increases sharply from 33% in 2007 to approximately 90% in 2018, demonstrating a significant progress for this agenda. However, despite the progress observed for this indicator, there is currently a slowness and discontinuity in the EEZ development processes due to the high cost of preparation and persistent lack of financial and human resources in most states. Additionally, the indicator is not capable of detecting the impacts from the effective application of strategies and directives established by the EEZs.

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The Agenda 21 is a participatory planning instrument for constructing sustainable societies at different geographical scales, which conciliates environmental protection, social equality and economic efficiency methods. Results of the 2015 Munic report (IBGE, 2015) indicate a growing engagement in Local Agenda 21 between 2012 and 2015. The percent of Brazilian municipalities initiating the preparation process for this instrument increased from 18.1% (1,010) to 22.0% (1,225), and the increase was observed in all classes of population size and in almost all Large Regions. Of particular notice are the municipalities with over 500,000 inhabitants, with an increase from 57.9% (22) to 75.6% (31), and the North Region, with an increase from 30.3% (136) to 39.6% (178) of municipalities.

Other relevant website address or attached documents

[Indicators](#)

National Target 3: By 2020, at the latest, incentives harmful to biodiversity, including the so-called perverse subsidies, are eliminated, phased out or reformed in order to minimize negative impacts. Positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the CBD, taking into account national and regional socio economic conditions.



2018 - Progress towards target but at an insufficient rate

Targets

National Target 3: By 2020, at the latest, incentives harmful to biodiversity, including the so-called perverse subsidies, are eliminated, phased out or reformed in order to minimize negative impacts. Positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the CBD, taking into account national and regional socio economic conditions.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

31 May 2018

[Target 3 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Nome of indicator	Trend	Status
Indicator A.3.1: Positive fiscal incentives for the energy sector - Procel	Positive	Good
Indicator A3.2: Number of families benefited by the Green Grant program	Negative	Good

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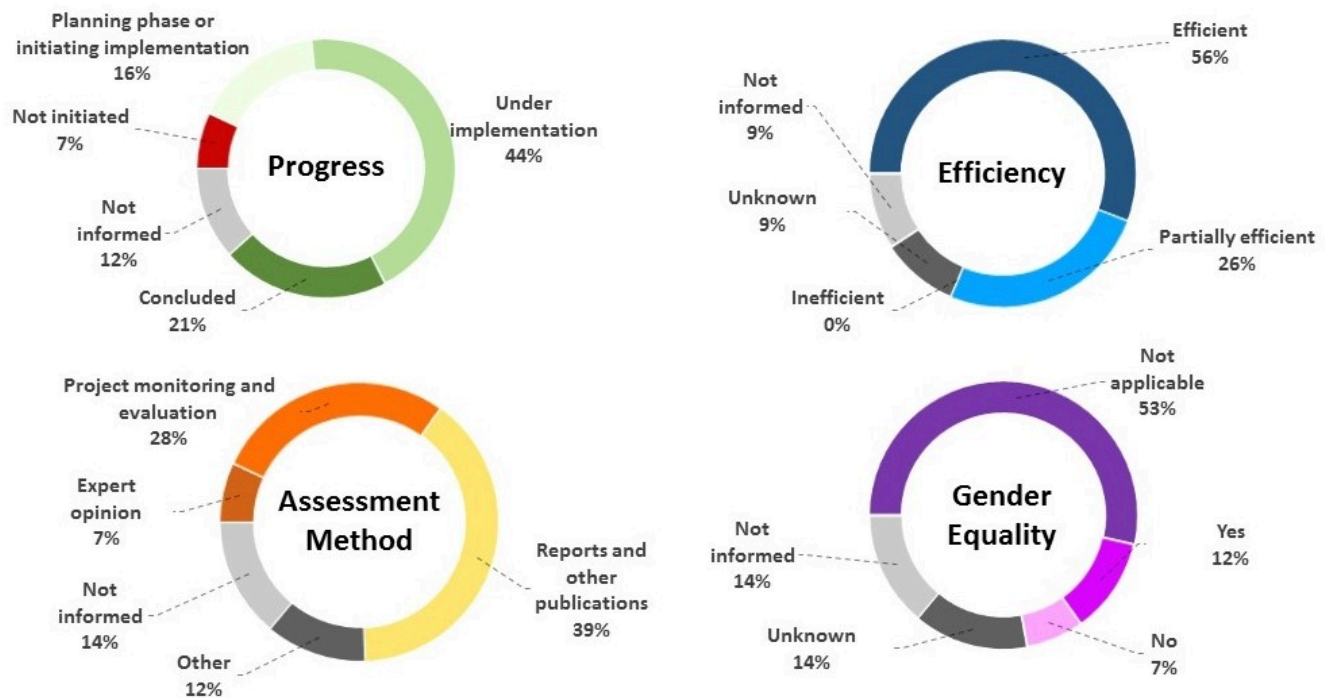
Any other tools or means used for assessing progress.

Implementation of the Action Plan

Target 3 counts with a set of 43 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan – NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan in 2018. The assessment of Target 3 actions (Figure 25) reveals that 21% of actions were concluded, 44% are under implementation, 16% are being planned or initiating implementation, and 7% have not yet initiated. No information was provided for 12% of actions. Most of the assessed actions have been considered efficient (56%) and partially efficient (26%). No actions were considered inefficient. Most actions were assessed based on reports and other publications (39%) or project monitoring and evaluation processes (28%). Actions implementing activities related to gender equality represent 12% of the total.

Figure 25

Implementation progress of Target 3



Source: MMA, 2018.

Relevant websites, links, and files

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Target 3 - Relevant websites, web links and files.docx

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 3 counts with the evaluation of 88% of the 43 actions in the action plan and two indicators that address important themes in the target. However, there is a lack of information on perverse incentives harmful to the environment, which hampers a comprehensive analysis of the interactions among the various incentives for target achievement.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

The advance of this target is benefitting from recent initiatives such as the Biodiversity Finance Initiative - BIOFIN project. It is important to continue supporting the in-depth analyses of fiscal incentives for the environment and the efficacy of these actions for conservation. The assessment for the 6th Report indicates important advances but, foresees problems for the next few years regarding investment on the environment. Additionally, an important fragile aspect of the assessment is the lack of data on perverse incentives harmful to the environment.

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Other relevant website address or attached documents

[Indicators](#)

National Target 4: By 2020, at the latest, governments, private sector and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption to mitigate or prevent negative impacts from the use of natural resources.



2018 - Progress towards target but at an insufficient rate

Targets

National Target 4: By 2020, at the latest, governments, private sector and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption to mitigate or prevent negative impacts from the use of natural resources.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 4 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Indicator A4.1. Engagement in the Environmental Agenda in Public Administration	Positive	Fair
Indicator A4.2: Percent of Achievement of the Target established for the collection of Used or Contaminated Lubricating Oils (UCLO) in Brazil.	Positive	Good
Indicator A4.3: Volume of Commercialized Agricultural Chemicals by Environmental Hazard Class.	Negative	Poor
Indicator A4.4. Energy intensity measured by primary energy and GNP	No trend	Good
Indicator A4.5 Participation of renewable energy sources in the National Energy Supply (NES)	No trend	Good
Indicator A4.6 Water use efficiency in Brazil	No Trend	Fair

EN

Any other tools or means used for assessing progress.

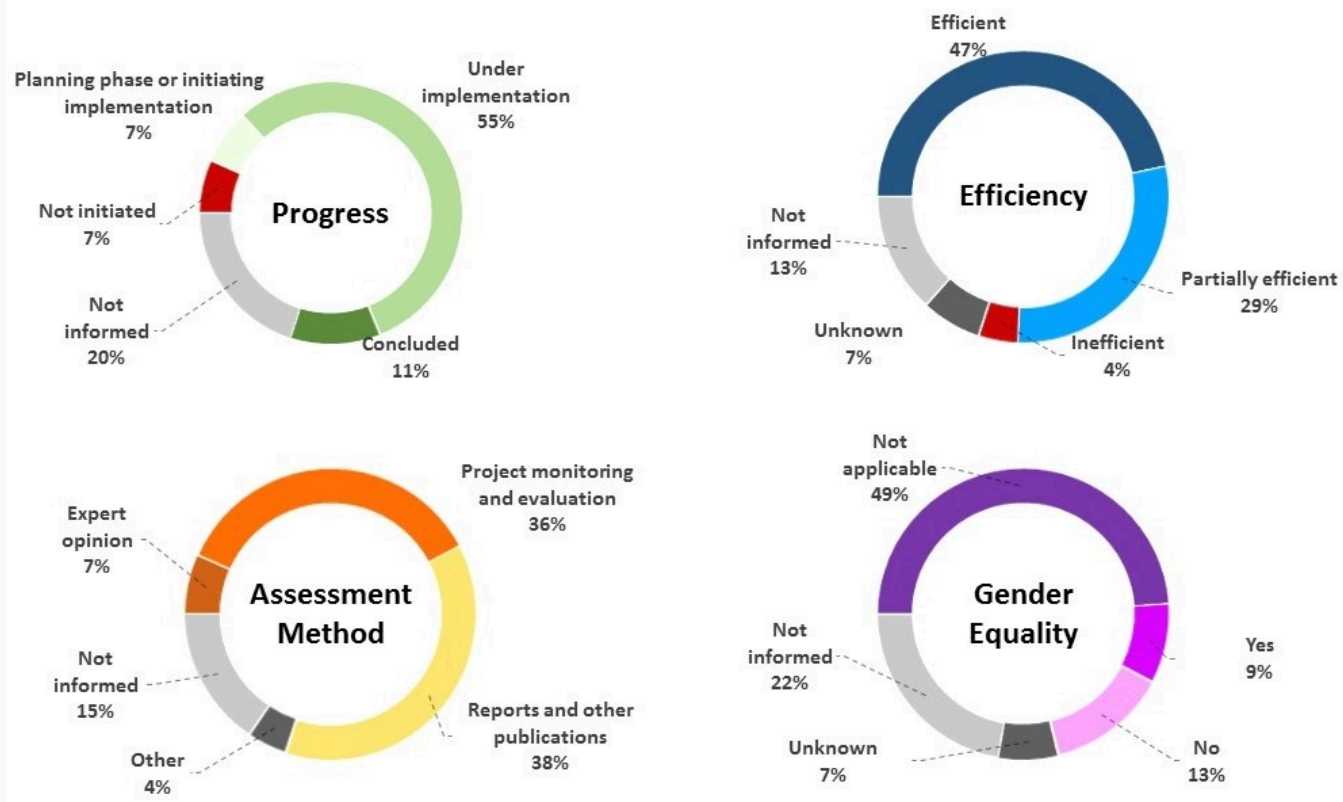
Implementation of the Action Plan

Target 4 counts with a set of 45 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan - NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The monitoring of implementation of Target 4 actions reveals that 11% of actions were concluded, 55% are under implementation, 7% are being planned or initiating implementation, and only 7% have not yet initiated. No information was provided for 20% of actions. Most of the assessed actions have been considered efficient (47%) and partially efficient (29%). Only 4% of actions were considered inefficient. Most actions were assessed based on project monitoring and evaluation processes (36%) or reports and other publications (38%). Actions implementing activities related to gender equality represent 8% of the total.

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Figure 34

Implementation progress of Target 4



Source: MMA, 2018.

Relevant websites, links, and files

[Target 4 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 4 counts with the evaluation of 80% of the 45 actions in the action plan and six indicators that address important themes in the target. The indicators are of national scope and allow the assessment of trends over time. However, there is lack of information on the extent of sustainability improvement by type of production chain and lack of data on waste disposal.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

The target is assessed through the monitoring of the implementation of the action plan through a set of six indicators:

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- Indicator A4.1: Engagement in the Environmental Agenda in Public Administration

The dissemination of initiatives related to socioenvironmental responsibility in governmental institutions at the federal, state and municipal levels, through formal adhesion to A3P, has been growing at the rate of approximately 33 new adhesions per year since the program was launched (minimum = 14 adhesions in 2008; maximum = 62 adhesions in 2018). Results demonstrate advances in the country's public administration regarding compliance with the principles of the National Environment Policy, as well as compliance with international recommendations, particularly concerning recommendations of the United Nations Conference on the Environment and Development (Eco 92).

- Indicator A4.2: Percent of Achievement of the Target established for the collection of Used or Contaminated Lubricating Oils (UCLO) in Brazil.

Based on the presented data, it can be noted that the minimum percent collection defined by the Brazilian regulations have been met in most of the assessed years. The national target was not achieved in 2011 and 2014, although not much was missing to achieve it (less than 1%). Nevertheless, the targets were surpassed by up to 2% in 2009, 2010, 2012, 2013, 2015 and 2016. Data on the established targets are presented in the Individual UCLO Collection Report by ANP - VERSION 1.1 - 13 June 2017. The indicator shows that the targets defined by the inter-ministerial administrative ruling are realistic and achievable and tend to grow in the next several years. CONAMA Resolution nº 362/2005 establishes that all used or contaminated lubricant must be collected. Thus, a progressive increase of the percent collected combined with effective enforcement and increased population awareness on the theme should allow an increase in UCLO collection, as well as the environmentally adequate disposal of this hazardous residue.

- Indicator A4.3: Volume of Commercialized Agricultural Chemicals by Environmental Hazard Class

The historical series shows a growing trend of agricultural chemical consumption at all Brazilian regions. It is thus necessary to define specific actions for the control of their use in face of the risks of environmental contamination and risks to human health. Concerning the environmental hazard classes, from 2009 to 2017 a growing trend is observed of the apparent consumption of class II and III agricultural chemicals, larger than for the other classes; class I (highest hazard) and class IV present a stability trend along time. Class I presents little participation in the total and shows a decreasing trend, reducing from 1.55% in 2009 to 0.93% in 2017. Class II agricultural chemicals had a higher percent increase compared to the total commercialized products, going from 23.57% in 2009 to 32% in 2017. Despite the class III percent decrease (63.8% in 2009), these products still represent 60% of the total in 2017. This scenario also indicated the need for more studies on the adoption of public policies to control and reduce the use of agricultural chemicals, emphasizing the higher hazard classes (classes I and II), as well as the need of incentives for the development, supply and consumption of less hazardous agricultural chemicals.

- Indicator A4.4: Energy intensity measured by primary energy and GNP

Between 2011 and 2016 a small reduction in energy use efficiency was observed in Brazil, with index values going from 0.09% to 0.1%. The larger the energy efficiency of a country is, the larger are the benefits, such as reducing energy cost in total production costs, reducing environmental impacts and costs resulting from production processes, reduction or, in some cases, delay of investments for expanding energy supply. Striving for energy efficiency is part of the planning for a better use of energy resources and for reducing environmental impacts generated by economic activities.

- Indicator A4.5: Participation of renewable energy sources in the National Energy Supply - NES

Supply: Renewable sources 42.9%, non-renewable sources 57.1%. In 2017, the national energy supply (total energy available in the country) reached 292.1 Mtep, representing a 1.3% increase in comparison with the previous year. Part of this increase was influenced by the national natural gas and wind power supply, which increased 6.7% and 26.5% in the period, respectively. The recovery of economic activities in 2017 also contributed to the increase of national gross supply, with a 1.0% GNP increase according to the most recent IBGE data. The national supply of electric energy also increased by 4.6TWh (0.7%) in comparison with 2016. Due to the adverse hydrological conditions, a 3.4% reduction was observed in the supplied hydropower in comparison with the previous year. Despite the smaller water availability, the participation of renewable energy sources in the electricity matrix reached 80.4% in 2017, a fact explained by the increase in wind power generation, which reached 42.4 TWh, representing a 26.5% growth. The wind power potency reached 12,283 MW, representing a 21.3% increase. The distributed micro- and mini-generation promoted by recent regulation actions that allowed compensating surplus

energy produced by small-scale systems (net metering) reached 359.1 GWh, with the installed potency of 246.1 MW. A significant energy generation contribution of 165.9 GWh was provided by solar power sources, with 174.5% of installed potency.

- Indicator A4.6: Water use efficiency in Brazil

Between 2010 and 2015 little variation is observed in the efficiency of water use by economic activities: from 74.71 R\$/m³ in 2010 to 76.45 R\$/m³ in 2015, with an average of 76.23 R\$/m³ in the period. The concern and need to conserve water resources and avoid waste in water use by the population and economic activities is a global trend and, in Brazil, has stood out during the water crisis that severely challenged the country between 2013 and 2016. It resulted in increased population awareness on the need to save water and, facing the risk of water supply shortage, the population adopted procedures to save water. In general, the recent implementation and enhancement of water resources management actions, particularly those aimed at managing water demands in the country, have shown a positive trend in water use efficiency by the main water use sectors. The challenge of enhancing techniques to reduce water waste in production processes and water supply systems is continuous in the country and still requires much enhancement to achieve efficient water use by the main Brazilian economic sectors.

Other relevant website address or attached documents

[Indicators](#)

National Target 5: By 2020, the rate of loss of native habitats is reduced by at least 50% (in comparison with the 2009 rate) and, as much as possible, brought close to zero, and degradation and fragmentation is significantly reduced in all biomes.



2018 - On track to achieve target

Targets

National Target 5: By 2020, the rate of loss of native habitats is reduced by at least 50% (in comparison with the 2009 rate) and, as much as possible, brought close to zero, and degradation and fragmentation is significantly reduced in all biomes.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 5 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Indicator	Trend	Status
Indicator B5.1: Rate of fire occurrences and forest fires	Positive	Good
Indicator B5.2: Deforested area per biome	Positive	Fair
Indicator B5.3: Rural properties registered in the Rural Environmental Registry - CAR	Positive	Excellent
Indicator B5.4: Deforestation (clear cut) in Indigenous Lands of the Legal Amazon	Positive	Good

EN

Any other tools or means used for assessing progress.

[Target 5 - Other tools or means used for assessing progress.docx](#)

EN

Relevant websites, links, and files

[Target 5 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 5 counts with the evaluation of 72% of the 46 actions in the action plan and four indicators that address important themes in the target. There is a trend of greater information availability for the Amazon and Cerrado biomes due to the higher number of projects developed in these regions. However, complementary information on deforestation and land use under the PRODES Program is being developed for the other biomes. Data on fire occurrences and rural properties registered in CAR are frequently updated and have national scope.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

The target is monitored through implementation reports of the action plan and assessment of four indicators.

- Indicator B5.1: Rate of fire occurrences and forest fires

Although the reference satellite has recorded an annual average of 182,000 fire occurrences along the 1999-2013

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period, a large variation was observed (from 100,000 to 250,000 occurrences/year), as well as a reduction trend for specific periods such as 2006-2013, with an average of 156,000 occurrences. Over the past several years, the worst years were 2004 and 2010, with 270,000 and 250,000 fire occurrences, respectively. On the other hand, 2013 had 115,000 fire occurrences (Indicator B5.1). These variations are related to climatic factors – rainfall, mainly –, economic aspects and biomass accumulation – vegetation available to be consumed by fire –, among other factors. “MATOPIBA”, the border region shared by the states of Maranhão, Tocantins, Piauí and Bahia, stands out as an area with high presence of fire occurrences due to the expansion of the agricultural and livestock activities in the region.

Based on the total fire occurrences identified, the following states rank as the five with higher rates in 2016: Mato Grosso/MT (29,600 occurrences; 15.7%), Pará/PA (29,300 occurrences; 15.6%), Maranhão/MA (21,800 occurrences; 11.6%); Tocantins/TO (14,900 occurrences; 7.9%), and Amazonas/AM (12,000 occurrences; 6.4%). In Mato Grosso, the number of fire occurrences has reduced since 2004, which was the year with the highest number of fire occurrences. On the other hand, in Amazonas the number of fire occurrences show a clear increasing trend since the beginning of monitoring activities, while in Pará the decrease was limited to the period 2005-2009. This means that the states of Pará, Amazonas and Mato Grosso are subject to particular conditions of land use and control, and deforestation and fire occurrences, which indicates the need for punctual studies to assess degradation and fragmentation of their ecosystems and the main pressures responsible for the variation in fire occurrences.

- Indicator B5.2: Deforested Area per Biome

The PMDBBS time series on the variation of deforested areas in non-Amazon Brazilian biomes – except for the Cerrado, which counts with a time series of data produced by PRODES Cerrado – indicates a sharp reduction trend of deforestation in the Caatinga (30%), Atlantic Forest (46%), Pampas (10%) and Pantanal (74%) for the period of 2008-2009 in comparison with the previous period of 2002-2008. The next assessment period of 2009-2010 showed an increase for the Pampas (25%), Pantanal (47%) and Atlantic Forest (56%); while the reduction trend continued in the Caatinga during the same period (41%). Deforestation rates reduced again in the next period of 2010-2011 for the Caatinga (56%), Pampas (20%) and Pantanal (22%). Data was not recorded for the Atlantic Forest during this latter period.

For the Cerrado, data provided by PRODES Cerrado indicate that, since the onset of the time series recording, a reduction trend of deforestation is observed, despite two recent increase peaks in 2013 and 2015. However, the following years indicate a diminishing trend, even though the 2018 estimate indicates a higher rate than in the previous year. It cannot yet be stated that the increasing trend will be maintained.

For the Amazon, even though PRODES data is used to monitor the Legal Amazon, which is a region that includes the entire area of the Amazon biome, it can be stated that the deforestation rate reduced significantly in 2004 when compared to all the previous years, which presented high rates. Since the establishment of PPCDAm, the deforestation rate has been decreasing. Some high rates have been observed recently, although it is still not possible to state that the high trend will be maintained.

- Indicator B5.3: Rural properties registered in the Rural Environmental Registry - CAR

Between 2015 and 2018 the number of rural properties registered in the Rural Environmental Registry increased by over 300%, which represents approximately 5 million properties. All regions in the country registered in 2018 an area larger than the area pending registration, which indicates overlap problems among properties. Some regions of the country, such as the North Region, recorded 50% area in excess. The registration in CAR will go through an analysis and validation by the state environmental agency of the state where the rural property is located.

- Indicator B5.4: Deforestation (clear cut) in Indigenous Lands of the Legal Amazon

The latest data consolidated and published by INPE as a result of the Project on Deforestation Monitoring in the Legal Amazon (PRODES) for 2017 indicated a deforestation rate of 76.62 km² in Indigenous Lands within the Legal Amazon. This number represents a 2.83 km² increase in comparison with the rate calculated for 2016.

Other relevant website address or attached documents

[Indicators](#)

National Target 6: By 2020 all stocks of any aquatic organism are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overharvesting is avoided, recovery plans and measures are in place for depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems, and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, when scientifically established.



2018 - Progress towards target but at an insufficient rate

Targets

National Target 6: By 2020 all stocks of any aquatic organism are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overharvesting is avoided, recovery plans and measures are in place for depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems, and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, when scientifically established.

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Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 6 - Additional information.docx](#)

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Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status
Indicator 6.1 - Proportion of Brazilian marine area covered by Pas	Positive	Good
Indicator 6.2 - Budget execution of federal governmental programs and actions targeting fisheries	Negative	Poor
Indicator 6.3 - Number of plans for the recovery of threatened aquatic species under implementation	Positive	Good

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Any other tools or means used for assessing progress.

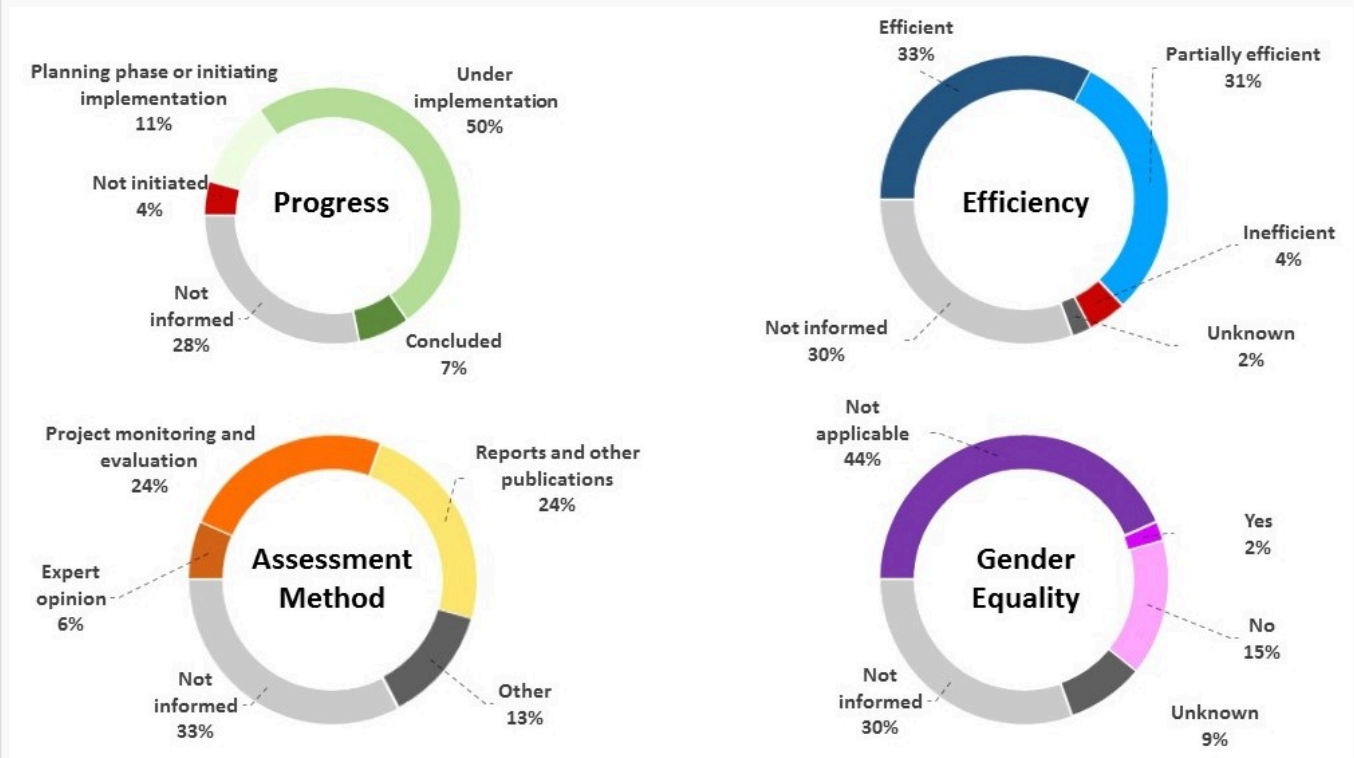
Implementation of the Action Plan:

Target 6 counts with a set of 30 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan - NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 6 actions reveals that 13% of actions were concluded, 67% are under implementation, 17%

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are being planned or initiating implementation, and only 3% have not yet initiated. All actions proposed for the target were assessed. Most of the assessed actions have been considered efficient (60%) followed by partially efficient (27%). Seven percent of actions were considered inefficient. Most actions were assessed based on reports and other publications (63%) and project monitoring and evaluation processes (34%). Actions implementing activities related to gender equality represent 7% of the total.

Figure 55 -Progress in the implementation of Target 6



Source: MMA, 2018.

Relevant websites, links, and files

[Target 6 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 6 was carried out based on the evaluation all 30 actions proposed in the action plan and three indicators. There is a lack of information on fisheries statistics for monitoring the exploited volume per species and data on the national fishing fleet.

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Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

The target is monitored through reports on the implementation of the action plan and three indicators that measure the evolution of the protected areas cover in marine areas, investment in sustainable fisheries programs and assessment of the number of recovery plans for threatened aquatic species under implementation.

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- Indicator B6.1. Proportion of the Brazilian marine expansion covered by Protected Areas.

In 2018, the marine expansion covered by Protected Areas increased from 1.5% to 26.34% of the Brazilian marine area (the marine area corresponds to the Territorial Sea combined with the Exclusive Economic Zone). The main challenges for improving the indicator are: 1) conciliate the interest of expanding the National System of Protected Areas with areas relevant for the recovery of species and stocks, with benefits for the conservation of biodiversity and for the production sector; 2) obtain support from society and from the municipal, state and federal governments for the creation of new protected areas; and 3) mobilize the management agencies for registering the existing protected areas.

- Indicator B6.2: Budgetary execution of federal government's programs and actions targeting fisheries

Between 2005 and 2015, public expenditures with programs and actions specifically targeting fisheries activities identified in the assessed governmental Multi-Year Plans – PPA added up to R\$ 867 million. A drop in budgetary execution was observed since 2011, which reached its lowest level (R\$ 11.4 million) in 2015, when the Ministry of Fisheries and Aquaculture was extinct.

- Indicator B6.3: Number of plans for the recovery of threatened aquatic species under implementation

Of the 47 priority species for the preparation of recovery plans, 23 are addressed by 9 prepared and officialized plans. For the remaining species, the development of 13 new recovery plans is planned to begin in 2019 through the hiring of studies, according to the existing model. The preparation of plans will be supervised by MMA. The implementation of recovery plans occurs through the publication and implementation of MMA regulations that recognize species as eligible for sustainable use and fisheries regulations. To-date, nine MMA Administrative Rulings were published, as well as nine Inter-ministerial Administrative Rulings and Normative Instructions. Recurrent changes in institutional jurisdictions at the federal level for fisheries management may delay the future definition of regulations.

Other relevant website address or attached documents

[Indicators](#)

National Target 7: By 2020 the incorporation of sustainable management practices is disseminated and promoted in agriculture, livestock production, aquaculture, silviculture, extractive activities, and forest and fauna management, ensuring conservation of biodiversity.



2018 - On track to achieve target

Targets

National Target 7: By 2020 the incorporation of sustainable management practices is disseminated and promoted in agriculture, livestock production, aquaculture, silviculture, extractive activities, and forest and fauna management, ensuring conservation of biodiversity.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 7 - Additional information.docx](#)

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Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status
Indicator B7.1: Volume of Agricultural Chemicals Commercialized by Environmental Hazard Class	Negative	Poor
Indicator B7.2: Area of Federal Public Forests under Forest Concession	Positive	Good
Indicator B7.3: Number of producers and organic production units registered by MAPA	Positive	Fair
Indicator B7.4: Area, Production and Productivity of Grains in Brazil	Positive	Fair
Indicator B7.5: Number of valid Declarations of Entitlement to the National Program for Strengthening Family Agriculture (DAP) issued to indigenous peoples, per year	Positive	Good
Indicator B7.6: Water use efficiency in Brazil	No Trend	Fair
Indicator B7.7: Extractive production in forest concessions	Positive	Good
Indicator B7.8: Plant extraction production in the states of Legal Amazon	Positive	Good

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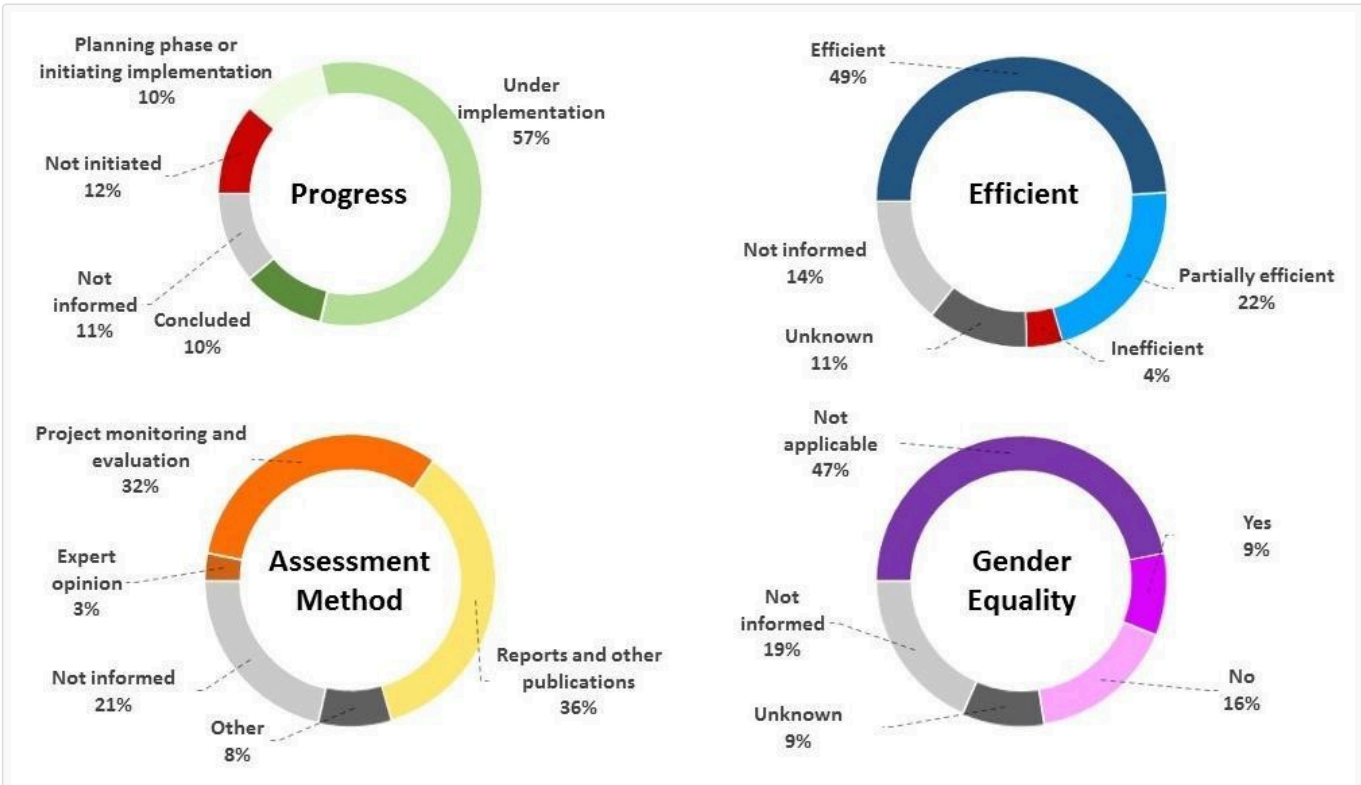
Any other tools or means used for assessing progress.

Implementation of the Action Plan

Target 7 counts with a set of 98 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan - NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 7 actions reveals that 10% of actions were concluded, 57% are under implementation, 10% are being planned or initiating implementation, and 12% have not yet initiated. No information was provided for 11% of actions. Most of the assessed actions have been considered efficient (49%) followed by partially efficient (22%). Only 4% of actions were considered inefficient. Most actions were assessed based on reports and other publications (36%) or project monitoring and evaluation processes (32%). Actions implementing activities related to gender equality represent 9% of the total.

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Figure 74 - Progress of Target 7 implementation



Source: MMA.

Relevant websites, links, and files

[Target 7 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 7 counts with the evaluation of 89% of the 98 actions proposed in the action plan and eight indicators. The indicators allow monitoring the progress of elements of most of the target's objectives and have national scope.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

The target is monitored through implementation reports of the National Biodiversity Action Plan and the assessment of eight indicators (Indicator B7.1: Volume of Agricultural Chemicals Commercialized by Environmental Hazard Class; Indicator B7.2: Area of Federal Public Forests under Forest Concession; Indicator B7.3: Number of producers and organic production units registered by MAPA; Indicator B7.4: Area, Production and Productivity of Grains in Brazil; Indicator B7.5: Number of valid Declarations of Entitlement to the National Program for Strengthening Family Agriculture (DAP) issued to indigenous peoples, per year; Indicator B7.6: Water use efficiency in Brazil; Indicator B7.7: Extractive production in forest concessions; Indicator B7.8: Plant extraction production in the states of the Legal Amazon).

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Other relevant website address or attached documents

Indicators

National Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.



2018 - Progress towards target but at an insufficient rate

Targets

National Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 8 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status
Indicator B8.1: Alteration of Aquatic Ecosystems through Time	No trend	Fair
Indicator B8.2: State Water Resource Plans	Positive	Fair
Indicator B8.3: Adequate Disposal of Unusable Tyres in Brazil	Positive	Good
Indicator B8.4: Volume of Commercialized Agricultural Chemicals by Environmental Hazard Class	Negative	Poor
Indicator B8.5: Percent Achievement of the Target Established for the Collection of Used or Contaminated	Positive	Good

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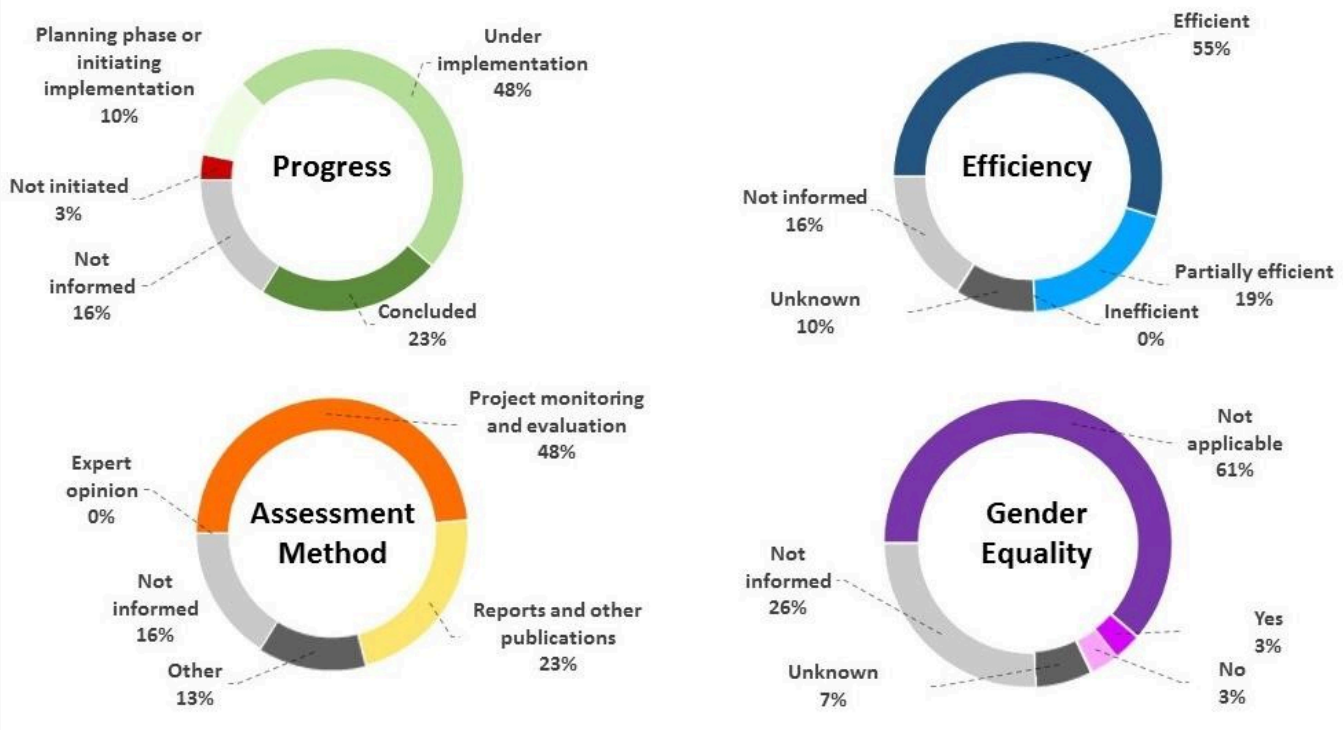
Lubricating Oils (UCLLO) in Brazil		
Indicator B8.6: Nitrogen Dioxide (NO2) Concentration in the Metropolitan Region (RM) of São Paulo	Positive	Fair
Indicator B8.7: Concentration of Particulate Matter with Diameter Smaller than 10 micrometers (PM10), in the Metropolitan Region (RM) of São Paulo	Positive	Good
Indicator B8.8: Consumption of Ozone Depleting Substances	Positive	Good
Indicator B8.9: Number of annual notifications of intoxication by agricultural chemicals in Brazil	Negative	Poor

Any other tools or means used for assessing progress.

Implementation of the Action Plan

Target 8 counts with a set of 31 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan – NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 8 actions reveals that 23% of actions were concluded, 48% are under implementation, 10% are being planned or initiating implementation, and only 3% have not yet initiated. No information was provided for 16% of actions. Most of the assessed actions have been considered efficient (55%) followed by partially efficient (19%). No actions were considered inefficient. Most actions were assessed based on project monitoring and evaluation processes (48%) and reports and other publications (23%). Actions implementing activities related to gender equality represent 3% of the total.

Figure 111 - Implementation progress of Target 8



Source: MMA, 2018.

Relevant websites, links, and files

Target 8 - Relevant websites, web links and files.docx

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 16 counts with the evaluation of 89% of the 18 actions proposed in the action plan, recent progress in projects and public policies and one indicator that measures the efficiency of the National System for the Management of Genetic Heritage and Associated Traditional Knowledge - SisGen.

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Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

The target is monitored through implementation reports of the action plan and the assessment of nine indicators: Indicator B8.1: Alteration of Aquatic Ecosystems through Time; Indicator B8.2: State Water Resource Plans; Indicator B8.3: Adequate Disposal of Unusable Tyres in Brazil; Indicator B8.4: Volume of Commercialized Agricultural Chemicals by Environmental Hazard Class; Indicator B8.5: Percent Achievement of the Target Established for the Collection of Used or Contaminated Lubricating Oils (UCLO) in Brazil; Indicator B8.6: Nitrogen Dioxide (NO₂) Concentration in the Metropolitan Region (RM) of São Paulo; Indicator B8.7: Concentration of Particulate Matter with Diameter Smaller than 10 micrometers (PM₁₀), in the Metropolitan Region (RM) of São Paulo; Indicator B8.8: Consumption of Ozone Depleting Substances; Indicator B8.9: Number of annual notifications of intoxication by agricultural chemicals in Brazil.

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Other relevant website address or attached documents

[Indicators](#)

National Target 9: By 2020, the National Strategy on Invasive Alien Species is fully implemented, with the participation and commitment of states and the elaboration of a National Policy, ensuring the continuous and updated diagnosis of species and the effectiveness of Action Plans for Prevention, Contention and Control.



2018 - Progress towards target but at an insufficient rate

Targets

National Target 9: By 2020, the National Strategy on Invasive Alien Species is fully implemented, with the participation and commitment of states and the elaboration of a National Policy, ensuring the continuous and updated diagnosis of species and the effectiveness of Action Plans for Prevention, Contention and Control.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 9 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status
Indicator B9.1: Degree of fulfillment of the Implementation Plan of the National Strategy on Invasive Alien Species (ENEEL)	Positive	Good

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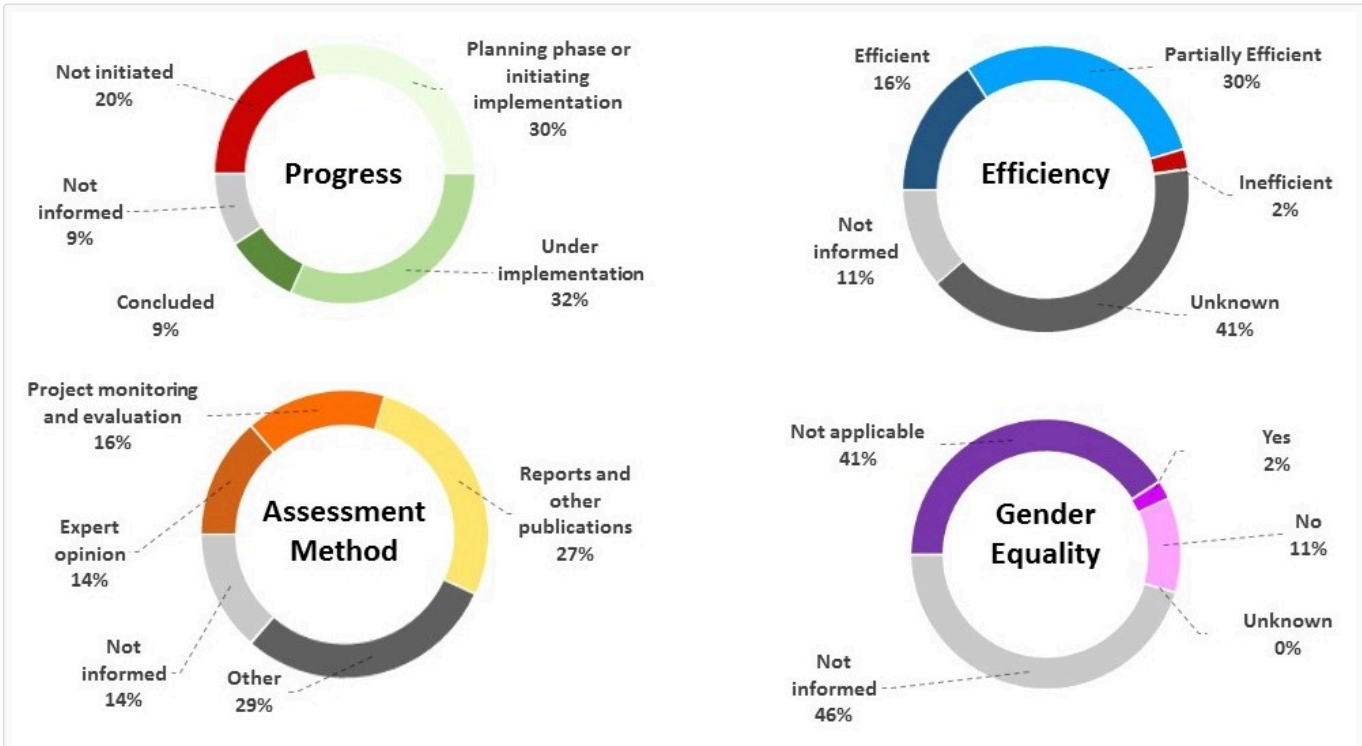
Any other tools or means used for assessing progress.

Implementation of the Action Plan

Target 9 counts with a set of 44 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan - NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 9 actions reveals that 9% of actions were concluded, 32% are under implementation, 30% are being planned or initiating implementation, and 20% have not yet initiated. No information was provided for 9% of actions. Most of the assessed actions have unknown efficiency (41%) and 17% are partially efficient. Only 2% of actions were considered inefficient and 10% as efficient. Most actions were assessed based on reports and other publications (27%), followed by project monitoring and evaluation processes (16%). Actions implementing activities related to gender equality had low representation and correspond to only 2% of the total.

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Figure 118 - Progress of the implementation of Target 9



Source: MMA, 2018.

Other considerations

According to the indicator available and combined with the managerial evaluation of the NBSAP Action Plan, the country would be on track to achieve target (green arrow). Brazil has indeed progressed concerning research initiatives and has created a first legal framework, with guidelines for the implementation of a policy and a strategy to control biological invasions. However, many actions still need to be implemented to control invasive alien species, and it is also necessary to harmonize conflicting interests to establish effective prevention and control measures for invasive alien species, as well as obtain financial resources to develop these actions. Under this scenario, it is considered that for this Target the country presents progress towards target but at an insufficient rate.

Relevant websites, links, and files

[Target 9 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 9 counts with the evaluation of 91% of the 44 actions proposed in the action plan and recent progress in public policies. Data on the proposed indicator will be available from 2019 forward. Even though the indicator has not yet been assessed, it was verified by the technical team that the timeline of ENEEI implementation actions is being satisfactorily executed, which allowed the team to carry out a process evaluation of the indicator for the 6th National Report to the CBD.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

The target is monitored through implementation reports of the action plan and the assessment of indicators.

There are still no results available for assessing indicator trend. The main challenges are the compatibilization of conflicting interests for the establishment of prevention and control measures for invasive alien species and the budget freeze concerning financial resources for the development of actions.

EN

The target is monitored through implementation reports of the action plan and the assessment of indicators.

Other relevant website address or attached documents

[Indicators](#)

National Target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other marine and coastal ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.



2018 - On track to achieve target

Targets

National Target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other marine and coastal ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 10 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status
Indicator B10.1. Area of coral reefs inside protected areas	Positive	Good

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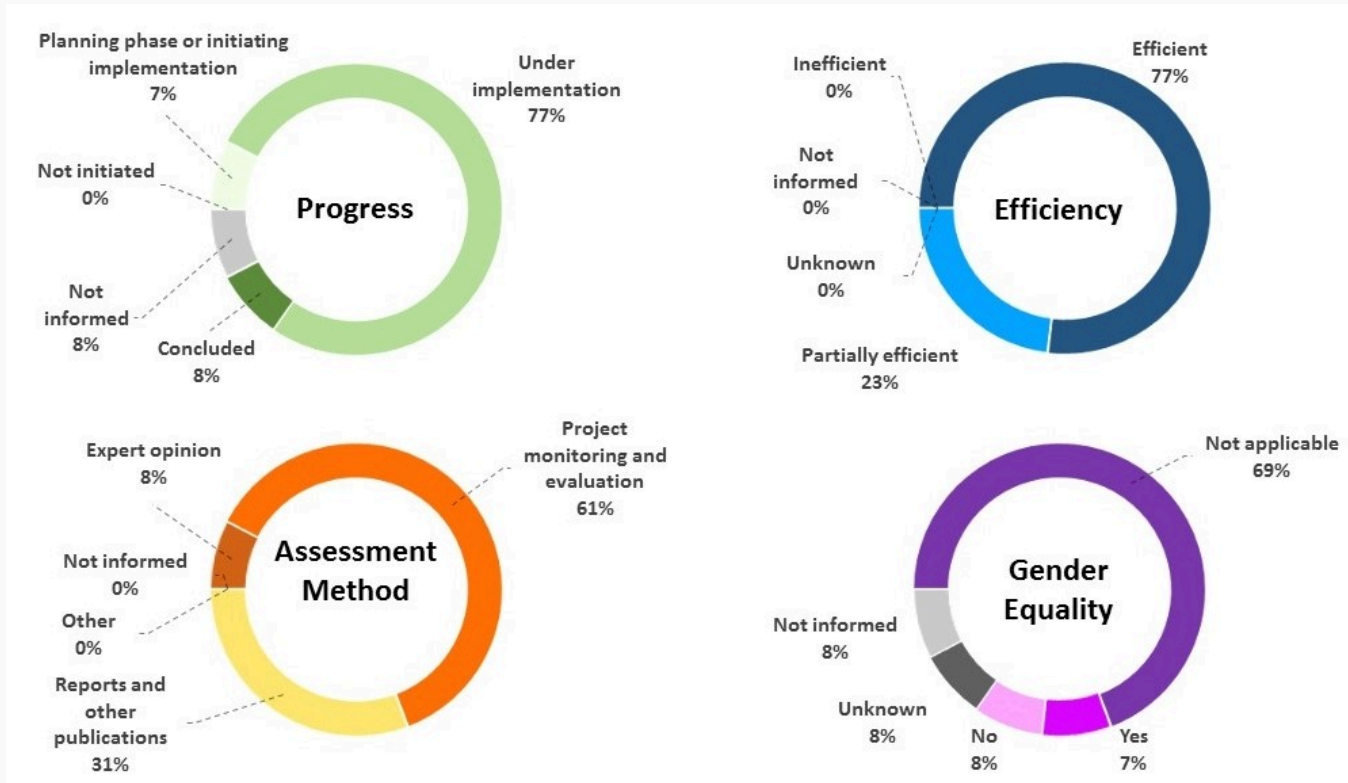
Indicator B10.2: Percent of mangrove area encompassed by protected areas (PA)	Positive	Good
Indicator B10.3: Mangrove area altered by shrimp farming ventures	Negative	Poor
Indicator 10.4: Percent of PAN Coral actions that were implemented	No trend	Fair

Any other tools or means used for assessing progress.

Implementation of the Action Plan

Target 10 counts with a set of 13 actions proposed and 8 actions reported in the National Biodiversity Strategy and Action Plan – NBSAP, and 5 new actions reported along the assessment for the preparation of the 6th National Report. The monitoring of implementation of Target 10 actions reveals that 8% of actions were concluded, 77% are under implementation and 7% are being planned or initiating implementation. All reported actions were initiated. Actions with no information available comprise 8% of the total. Most of the assessed actions have been reported as efficient (77%), followed by partially efficient (23%). No actions were considered inefficient. Most actions were assessed based on project monitoring and evaluation processes (61%) or reports and other publications (31%). Actions implementing activities related to gender equality represent 7% of the total.

Figure 133 - Implementation progress of Target 10



Source: MMA, 2018.

Other considerations

Given the importance of these ecosystems and the urgent need for action, the Aichi Target 10 is one of the few for

which the deadline was set for 2015. Additionally, the advance of threats over these ecosystems, the realization of the current rate of climate change, the rising ocean temperatures and acidification lead to a forecast of irreversible losses. In Brazil, such losses have not yet manifested themselves as irreversible and, taking into account a series of important conservation actions and measures carried out by Brazil for these ecosystems from 2014 to 2018, the target classification – based on the indicators and implementation of the NBSAP action plan – was considered “on track to achieve target”, replacing the preliminary assessment of “progress towards target but at an insufficient rate”.

Relevant websites, links, and files

[Target 10 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 10 counts with the evaluation of 92% of the 13 actions proposed in the action plan, recent progress obtained by projects and public policies and four indicators. The indicators are aligned with the main objectives of the target and have reasonable scope.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

The target is monitored through periodic assessments of the implementation of actions under the NBSAP and the assessment of four indicators.

- Indicator B10.1: Area of coral reefs inside protected areas, which assesses the percent of areas of coral reef occurrence in Brazil that are under protection within protected areas. The scientific publication of the existence of Amazonian coral reefs occurred in April 2016. Its relevance for the maintenance of the area’s biodiversity and the threats to this area due to oil drilling interests point to the need to protect these corals within protected areas. Currently, only 0.19% (12,144.12 hectares) of the coral reefs in the Amazon River estuary (6,511,962.34 hectares) is protected within PAs. There is also little protection of the biodiversity of coral reefs in deep-water and mesophotic areas inside protected areas (60,420.69 hectares and 224,611.49 hectares, respectively). On the other hand, the shallow-water coral reefs are better protected inside protected areas (60,335.65 hectares of a total of 76,556.8 hectares of occurrence area). Challenges apparently lay on maintaining the rich biodiversity that occurs in coral reef areas, which may be possible through the creation of new protected areas.

- Indicator B10.2: Percent of mangrove areas encompassed by protected areas (PA). The conservation of mangroves in protected areas tends to reduce pressure over these areas and facilitate the conservation of their biodiversity. A total of 120 protected areas contain mangroves, spanning an area of 12,114 km², which corresponds to 87% of the ecosystem all across Brazil. This percent was at 75% in 2010. Of the total protected areas with mangroves, 55 are federal, 46 are state and 19 are municipal, distributed in 1,998 km² under the full protection category (17%) and 10,115 km² of sustainable use PAs (83%). This scenario theoretically confers greater effectiveness to the conservation of this ecosystem, reinforcing its legal status of permanent preservation area.

- Indicator B10.3: Mangrove area altered by shrimp farming ventures. Between 2013 and 2016, the area covered by shrimp farming increased in Brazil. Current numbers indicate that over 36,000 hectares of mangroves have already been converted to shrimp farming tanks. This scenario is of particular concern in the North region, where these ventures are only beginning to increase. The status of shrimp farming ventures inside protected areas, by PA group, indicates that almost all shrimp production tanks are located inside sustainable use protected areas (99.9%), particularly under the APA category (96.3%).

- Indicator B10.4: Percent of PAN Coral actions that were implemented. The National Action Plan for the Conservation of Coral Habitats – PAN Corals, approved by ICMBio Administrative Ruling nº 19/2016 and prepared in

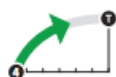
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partnership with the Live Coral organization, establishes a conservation strategy in the form of a pact to face the threats to coral habitats. The preparation of PAN Corals took into consideration the species included on the current official lists of threatened species in Brazil or those effective at the time of the plan's preparation (MMA Normative Rulings n° 5/2004 and n° 52/2005, and MMA Administrative Ruling n° 445/2014). It counts with 10 objectives and originally included 146 proposed actions, which were reduced to 123 after the 2017 monitoring process.

Other relevant website address or attached documents

[Indicators](#)

National Target 11: By 2020, at least 30% of the Amazon, 17% of each of the other terrestrial biomes, and 10% of the marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation, ensuring and respecting the demarcation, regularization, and effective and equitable management, so as to ensure ecological interconnection, integration and representation in broader landscapes and seascapes.



2018 - On track to achieve target

Targets

National Target 11: By 2020, at least 30% of the Amazon, 17% of each of the other terrestrial biomes, and 10% of the marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation, ensuring and respecting the demarcation, regularization, and effective and equitable management, so as to ensure ecological interconnection, integration and representation in broader landscapes and seascapes.

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Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 11 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status

EN

Indicator C11.1: Brazilian biomes and marine area in Protected Areas	Positive	Good
Indicator C11.2: PADDD ^[1] - Downsizing, downgrading and degazettement of Protected Areas	Negative	Poor
Indicator C11.3: Number of Enforcement Actions carried out in Federal Protected Areas	Positive	Good
Indicator C11.4: Number of Management Plans in Federal PAs	Positive	Good
Indicator C11.5: Management effectiveness index of Federal PAs	No trend	Fair
Indicator C11.6: Number of Protected Area Management Councils created at the Federal Level	Positive	Good
Indicator C11.7: Deforestation rate in federal PAs in the Legal Amazon	Positive	Fair
Indicator C11.8: Number of Territorial and Environmental Management Plans (PGTA) in Indigenous Lands	Positive	Good
Indicator C11.9: Active fire occurrences detected in federal protected areas	Negative	Poor

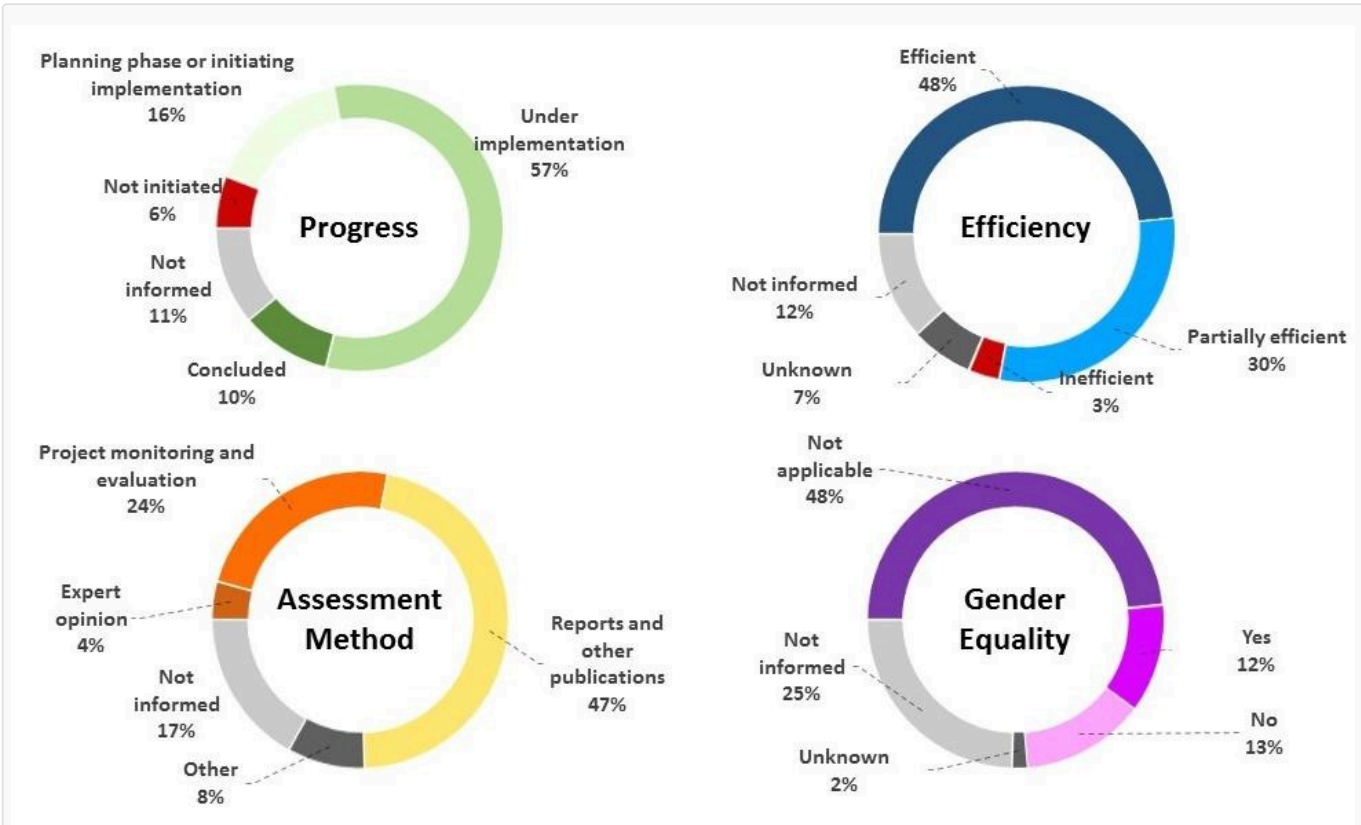
Any other tools or means used for assessing progress.

Implementation of the Action Plan

Target 11 counts with a set of 118 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan - NBSAP, as verified in the 2018 updating of the Action Plan. The assessment of implementation of Target 11 actions reveals that 10% of actions were concluded, 57% are under implementation, 16% are being planned or initiating implementation. Six percent of actions have not yet initiated. No information was provided for 11% of actions. Most of the assessed actions have been considered efficient (48%) followed by partially efficient (30%). Only 3% of actions were considered inefficient. Most actions were assessed based on project monitoring and evaluation processes (24%) and reports and other publications (47%). Actions implementing activities related to gender equality represent 12% of the total.

Figure 147 - Implementation progress of Target 11

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Source: MMA, 2018.

Relevant websites, links, and files

[Target 11 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 11 counts with the evaluation of 89% of the 118 actions proposed in the action plan, recent progress in projects and public policies and six indicators. The indicators are aligned with the main target objectives and are of national scope. There is still a lack of information on state, municipal and private protected areas.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

The target is monitored through implementation reports of the action plan and the assessment of nine indicators.
- Indicator C11.1. Brazilian biomes and marine area in Protected Areas

Between 2014 and 2018, there was significant progress in the creation of new protected areas, which increased the continental area covered by PAs to 18.08%. All biomes, except for the Pantanal, had their PA networks expanded. Most of the increase in area cover occurred in the Amazon, from 26.61% to 28.08%. The expansion of marine

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area covered by PAs increased significantly in 2018, from 1.51% to 26.36% of the exclusive economic zone – EEZ, following the creation of the marine PAs of the São Paulo and São Pedro archipelagos and Trindade and Martim Vaz islands.

- Indicator C11.2: PADDD - Downsizing, downgrading and degazettement of Protected Areas.

The number of PADDD events in Brazil has increased every decade, i.e., there is a larger number of protected areas being degazetted, suffering a reduction of PA size or conservation status in each of the considered decades. The number of PADDD events in the 2010's has varied, with no clear trend. The size of the area affected by PADDD events shows a growing trend for each decade; however, for each year of the 2010 decade there is a decreasing trend of the affected area. No significant changes were observed in the short term in the deforestation rates following PADDD events, in relation to deforestation trends in areas that have never been protected by PAs and forests still under protection.

- Indicator C11.3: Number of Enforcement Actions carried out in Federal Protected Areas

A small increase of enforcement actions in federal protected areas was observed in 2016 and 2017 in comparison with 2015. In addition, an adjustment is perceived in action planning in 2017, resulting from a review of the number of planned actions considering the number of effectively implemented actions in previous years. The challenge rests on maintaining the number of enforcement actions given the limitations of the operational infrastructure.

- Indicator C11.4: Number of Management Plans in Federal PAs.

From 2010 to 2018, there was a significant increase in the number of federal PAs with management plans. In 2018, the number of PAs under direct management of ICMBio with management plan in place reached 195 (58.38%), with 139 (41.62%) still with no plan.

- Indicator C11.5: Management effectiveness index of federal PAs.

A consistent time series is not yet available, but it is possible to notice a significant growth in the number of evaluated PAs, which doubled between 2016 and 2018. The target is to achieve the participation and evaluation of 100% of the federal protected areas, in addition to the participation and evaluation of state and municipal PAs, which in 2018 were respectively represented by 38 and 2 PAs with data in the system.

- Indicator C11.6: Number of Protected Area Management Councils created at the Federal Level.

This indicator presents a positive trend given that in 2018, 285 councils had already been created, corresponding to 85.3% of the 334 federal protected areas. The implementation of management councils has shown to be relevant for participatory management and for expanding knowledge for the conservation of biodiversity and natural resources.

- Indicator C11.7: Deforestation rate in federal PAs in the Legal Amazon

This indicator records the deforested area and the increase in deforested areas inside federal PAs in the Legal Amazon using the PRODES methodology. A declining trend was observed for the deforestation rate in federal protected areas in the Legal Amazon.

- Indicator C11.8: Number of Territorial and Environmental Management Plans (PGTA) in Indigenous Lands

A growing number of indigenous lands has prepared their Territorial and Environmental Management Plans – PGTA. Of the 449 ratified/regularized lands, 91 count with PGTA. The instrument is prepared according to the specificities of each indigenous territory and the political, social, cultural and economic characteristics of each people, as well as according to the environmental specificities of their territories.

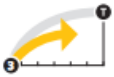
- Indicator C11.9: Active fire occurrences detected in federal protected areas

Based on the regular satellite detection of fire occurrences, it is possible to verify spatial and time trends in fire occurrences. The analysis of fire occurrences that are annually detected through the reference satellite – which recorded an annual average of 6,325 fire occurrences from 1998-2016 – presents large variation (between 914 and 26,446 occurrences/year). A pronounced increase was observed in the latest two years of the series. This trend emphasizes the need to improve the prevention and control practices for forest fires and agricultural burning inside and near protected areas.

Other relevant website address or attached documents

Indicators

National Target 12: By 2020, the risk of extinction of threatened species has been significantly reduced, tending to zero, and their conservation status, particularly of those most in decline, has been improved.



2018 - Progress towards target but at an insufficient rate

Targets

National Target 12: By 2020, the risk of extinction of threatened species has been significantly reduced, tending to zero, and their conservation status, particularly of those most in decline, has been improved.

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Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 12 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of Indicator	Trend	Status
Indicator C12.1: Percent of threatened fauna and flora species addressed by Action Plans or other recuperation and conservation instruments.	Positive	Good

EN

Any other tools or means used for assessing progress.

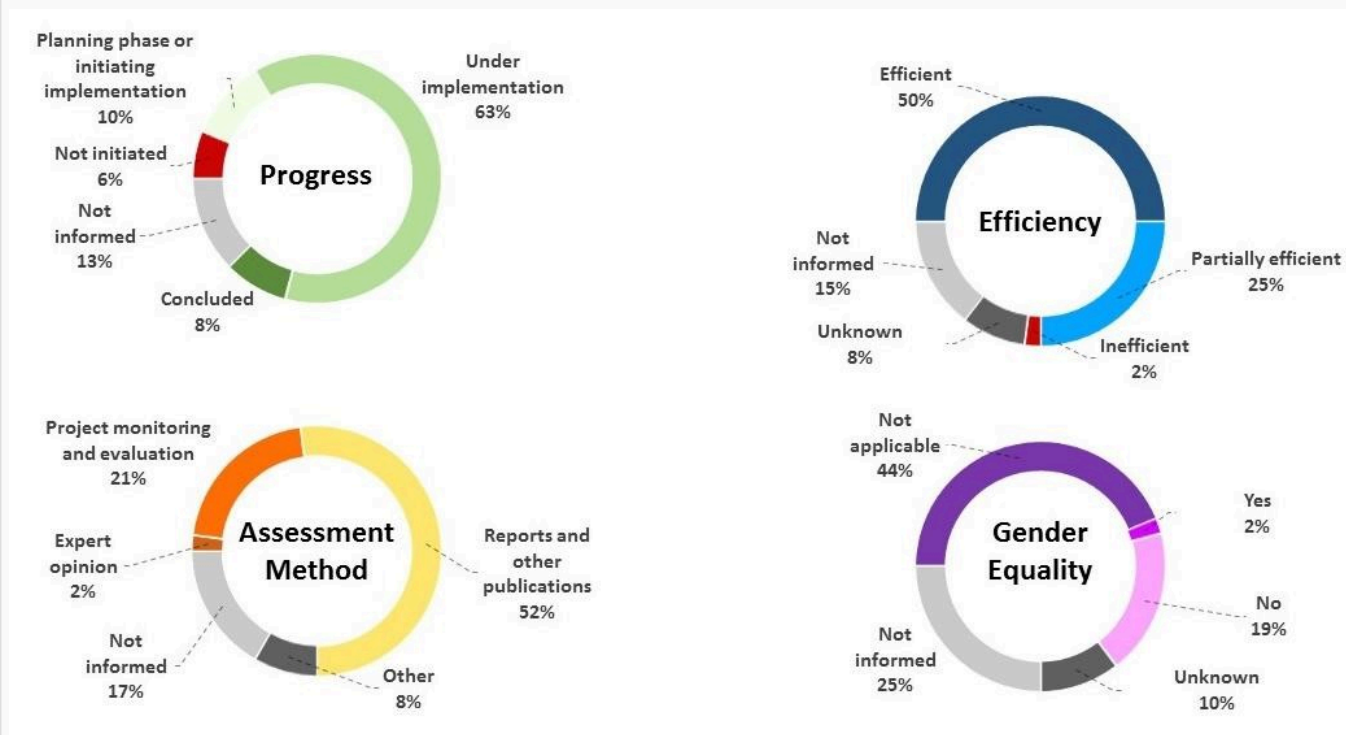
Implementation of the Action Plan

Target 12 counts with a set of 48 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan - NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 12 actions reveals that 8% of actions were concluded, 63% are under implementation, 10%

EN

are being planned or initiating implementation, and 6% have not yet initiated. No information was provided for 13% of actions. Most of the assessed actions have been considered efficient (50%), followed by partially efficient (25%). Only 2% of actions were considered inefficient. Most actions were assessed based on project monitoring and evaluation processes (21%) and reports and other publications (52%). Actions implementing activities related to gender equality represent 2% of the total.

Figure 153 - Progress in the implementation of Target 12



Source: MMA, 2018.

Other considerations

To assess if the extinction risk of threatened species has reduced or not it is necessary to compare the conservation status of the species group at a given moment (t_0) to a second subsequent evaluation. Brazil applied an encompassing effort to assess the conservation status of fauna and flora species according to the internationally recognized methodological criteria established by the International Union for the Conservation of Nature - IUCN, to prepare the 2014 Red List. Since then, species are being re-assessed and a new list is planned for 2020. The comparison between the lists will enable a more rigorous assessment to define if actual progress has been achieved towards the target of reducing the extinction risk of species.

The indicator assessment, combined with the NBSAP managerial evaluation, indicated that the country would be “on track to exceed target” (blue arrow). However, the various efforts applied by Brazil during the 2011-2020 Strategic Plan indicate that the country is still progressing towards target achievement, but at an insufficient rate to ensure its achievement by 2020, which is the reason for informing the yellow arrow in Target 12 assessment.

Relevant websites, links, and files

Target 12 - Relevant websites, web links and files.docx

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 12 counts with the evaluation of 87% of the 48 actions proposed in the action plan, recent progress in projects and public policies and one indicator. The indicator is aligned with the main target objectives and is of national scope. Despite the effort to define the conservation status of threatened species and propose instruments for the conservation of species, there is a lack of information on the impact of the proposed instruments on the conservation status of many species.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

The target is monitored through periodic assessments of the implementation of actions of the National Biodiversity Strategy and Action Plan – NBSAP and also through the assessment of one indicator.

Details on the indicator:

- Indicator B12.1: Percent of threatened fauna and flora species addressed by Action Plans or other recuperation and conservation instruments. With the establishment of the National Strategy on Threatened Species through MMA Administrative Ruling nº 444, of 26 November 2018, this indicator presented a significant increase in comparison with previous years. This is due to the encompassing Assessment of Conservation Effectiveness and Gaps that was carried out under the GEF Pro-Species Project for the 3,286 threatened species. This analysis considered a larger number of conservation measures and revealed the actual number of species that are not addressed by any conservation measure to-date.

The threats are the identification of the most adequate instruments for each threatened species and the implementation of actions given the various interests related to biodiversity conservation and the purposes of production sectors.

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Other relevant website address or attached documents

[Indicators](#)

National Target 13: By 2020, the genetic diversity of microorganisms, cultivated plants, farmed and domesticated animals and of wild relatives, including socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing the loss of genetic diversity.



2018 - On track to achieve target

Targets

National Target 13: By 2020, the genetic diversity of microorganisms, cultivated plants, farmed and domesticated animals and of wild relatives, including socio-economically as well as culturally valuable species, is maintained, and

ES

strategies have been developed and implemented for minimizing the loss of genetic diversity.

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 13 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of Indicator	Trend	Status
Indicator C13.1: Number of plant genetic resources for food and agriculture protected, in the medium or long term, in conservation facilities	Positive	Good
Indicator C13.2: Number of animal genetic resources for food and agriculture protected, in the medium or long term, in conservation facilities	Positive	Fair
Indicator C13.3: Number of specimens in ex situ genetic banks of microorganism	Positive	Good
Indicator C13.4: Expenditures with the conservation of genetic resources	Positive	Fair
Indicator C13.5: Number of products derived from socio-biodiversity in the Minimum Price Policy for Socio-biodiversity-based Products (PGPM-Bio)	Positive	Fair
Indicator C13.6: Proportion of expenditures with food products derived from socio-biodiversity in the Food Acquisition	Positive	Fair

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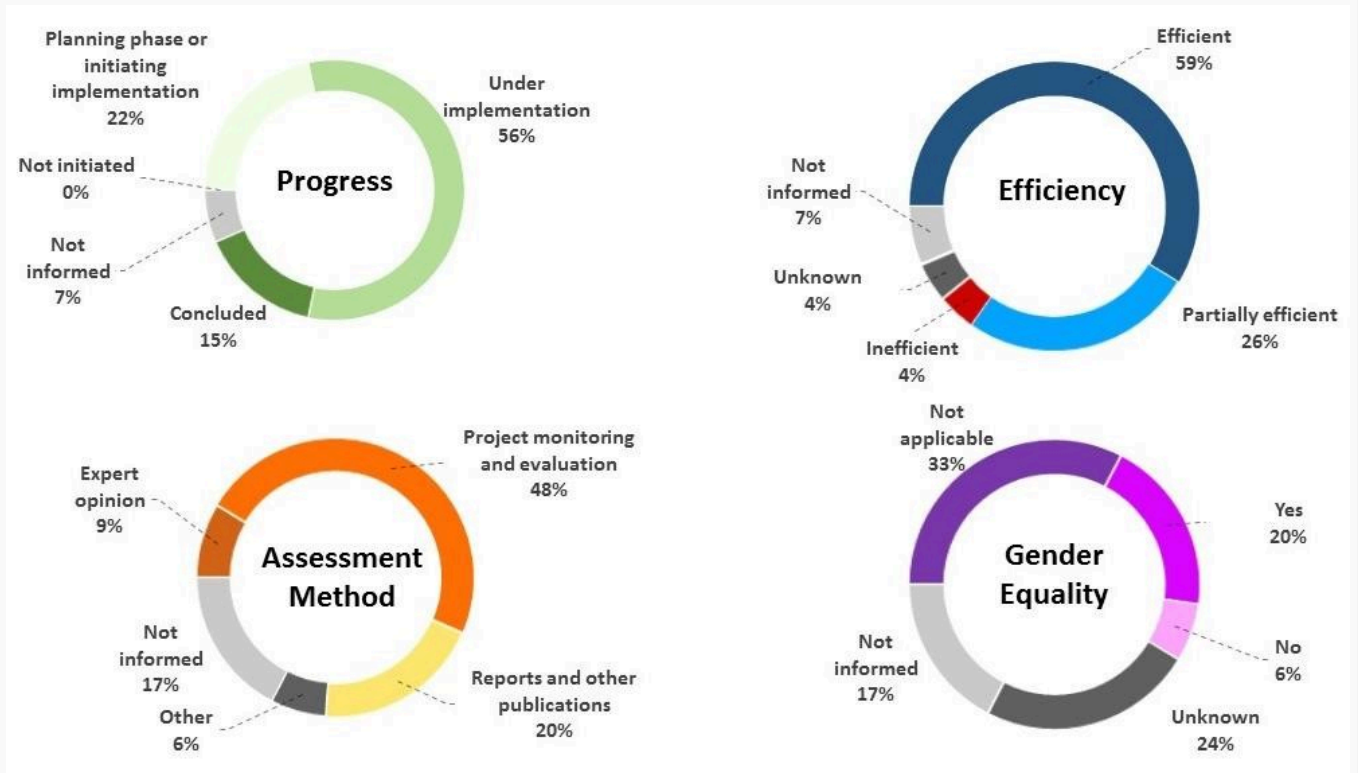
Program - PAA and National School Nutrition Program - PNAE.		
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Any other tools or means used for assessing progress.

Implementation of the Action Plan:

Target 13 counts with a set of 46 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan - NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 13 actions reveals that 15% of actions were concluded, 56% are under implementation, 22% are being planned or initiating implementation. No information was provided for 7% of actions. Most of the assessed actions have been considered efficient (59%), followed by partially efficient (26%). Only 4% of actions were considered inefficient. Most actions were assessed based on project monitoring and evaluation processes (48%) and reports and other publications (20%). Actions implementing activities related to gender equality represent 20% of the total.

Figure 158 - Progress in the implementation of Target 13



Source: MMA, 2018.

Relevant websites, links, and files

[Target 13 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 13 counts with the evaluation of 93% of the 46 actions proposed in the action plan, recent progress in projects and public policies and six indicators. The indicators are aligned with the main target objectives and are of national scope.

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Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

The target is monitored through periodic assessments of the implementation of actions of the National Biodiversity Strategy and Action Plan – NBSAP as well as through the assessment of six indicators.

- Indicator C13.1: Number of plant genetic resources for food and agriculture protected, in the medium or long term, in conservation facilities. The indicator addresses all and any collection of genetic resources, of any species used for food and agriculture, including wild relatives, that has the ex situ conservation as one of its objectives, as long as it possesses data available in its own genetic resources database, such as the Alelo Portal on Genetic Resources of Embrapa or the World Information and Early Warning System on Plant Genetic Resources for Food and Agriculture – WIEWS of the Food and Agriculture Organization of the United Nations – FAO.

- Indicator C13.2: Number of animal genetic resources for food and agriculture protected, in the medium or long term, in conservation facilities. The samples originate from all Brazilian regions and were collected at public research or learning institutions, as well as from the private initiative (farms and semen centers). Results are organized by conserved biological material and include species and races of bovines, goats, sheep, swine, birds, buffalos, equines, donkeys and fishes (native). Semen is registered by number of available doses (190 animals in 2009, and 661 animals in 2017). Embryos are registered by unit, and DNA samples by number of individuals.

- Indicator C13.3: Number of specimens in ex situ genetic banks of microorganism. The microbe genetic resources conserved for the medium and long term are comprised by the Embrapa Collections maintained at 22 decentralized research centers distributed in all Brazilian geographic regions. Most of the lineages maintained in the collection originate from the national territory. However, samples from other countries obtained through interchange with institutions of various countries are also maintained in the Embrapa collections. The availability of the AleloMicro System – a component of the Alelo Portal on Genetic Resources – for other institutions to insert information on microbe collections, through an Adhesion Term signed with Embrapa, may expand the information on the coverage of microbe genetic resources representative of various biomes, protected in microbe collections at the national level.

- Indicator C13.4: Expenditures with the conservation of genetic resources. This indicator presents the amount of financial resources available for Embrapa research activities allocated to all decentralized centers that work with the conservation of genetic resources in medium- or long-term facilities. For the most part, the conservation of genetic resources is carried out in medium- to long-term facilities. These facilities should possess the minimum operational conditions with enough quality to ensure the viability of conserved germplasm. Thus, the amount of resources expended with medium- to long-term conservation programs can be considered an indirect indicator to quantify the existing genetic variability of a given species.

- Indicator C13.5: Number of products derived from socio-biodiversity in the Minimum Price Policy for Socio-biodiversity-based Products – PGPM-Bio. The PGPM-Bio secures a minimum price for 17 products from extractive activities that contribute to the conservation of Brazilian biomes: assai, andiroba, babassu, baru, extractive rubber, buriti, extractive cocoa, Brazil nut, carnauba, juçara, macaúba, mangaba, murumuru, pequi, piassava, pine nut and umbu. Studies are being developed to add new species to this list, with the purpose of including new products such as licuri, managed pirarucu, among others. The National Supply Company – Conab supports the commercialization of these products and the development of extractive communities, through the Direct Subvention of Products from Extractive Activities – SDPE, which consists of the payment of a bonus when extractive workers provide proof of sale of an extractive product by a price below the minimum set by the federal government.

- Indicator C13.6: Proportion of expenditures with food products derived from socio-biodiversity in the Food

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Acquisition Program – PAA and National School Nutrition Program – PNAE. It is accepted that the promotion of the sustainable use of the number of native species currently used for food assists in mitigating problems related to simplified diet and strengthens biodiversity conservation and sustainable use. In the long term, the expansion of production and commercialization of native species and wild varieties of socioeconomic and/or cultural value will contribute to their conservation and to the income increase for family and extractive producers, in addition to the diversification and improvement of diets and nutritional status of beneficiaries of programs related to the food and nutritional safety of the population in general.

Other relevant website address or attached documents

[Indicators](#)

National Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, traditional peoples and communities, indigenous peoples and local communities, and the poor and vulnerable.



2018 - Progress towards target but at an insufficient rate

Targets

National Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, traditional peoples and communities, indigenous peoples and local communities, and the poor and vulnerable.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 14 - Additional information.docx](#)

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Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status
Indicator D14.1: Rural properties registered in CAR	Positive	Excellent

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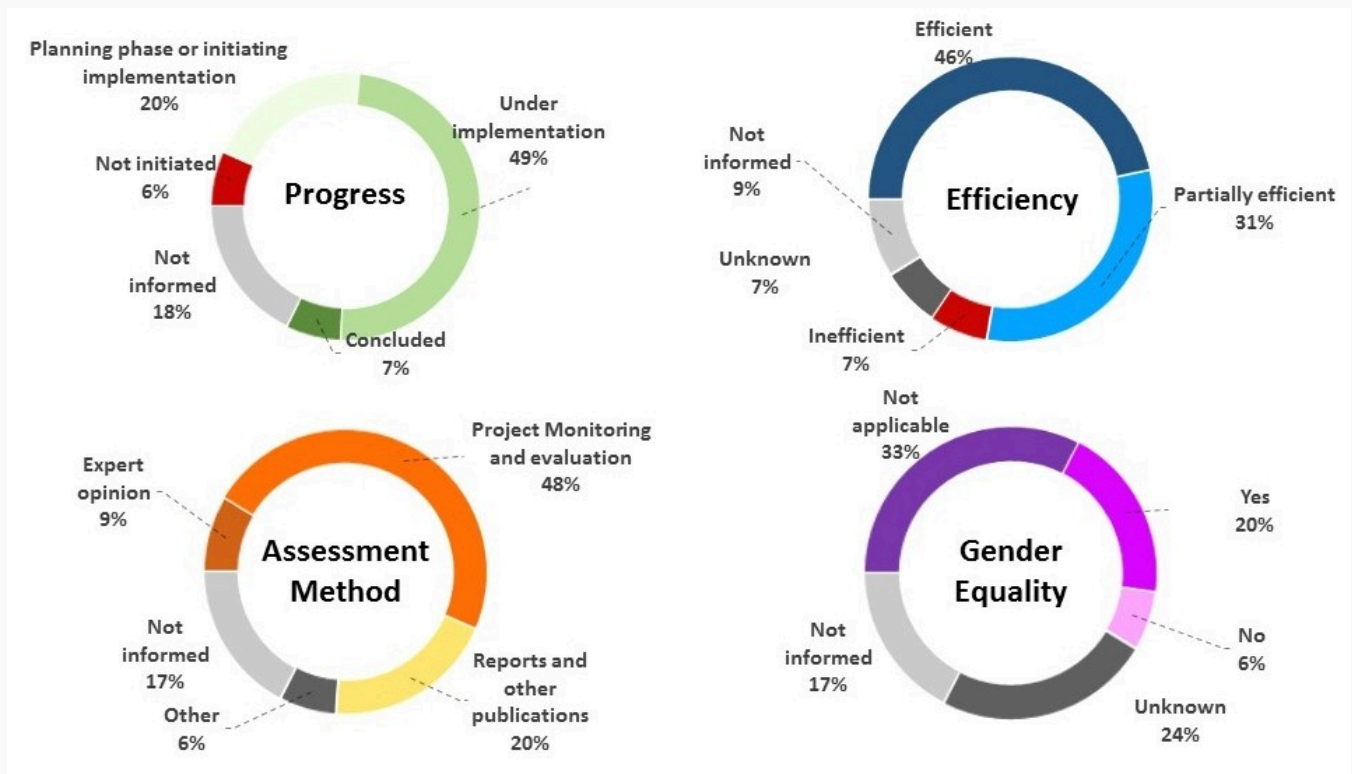
Any other tools or means used for assessing progress.

Implementation of the Action Plan:

Target 14 counts with a set of 45 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan – NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 14 actions reveals that 7% of actions were concluded, 49% are under implementation, 20% are being planned or initiating implementation, and only 6% have not initiated. No information was provided for 18% of actions. Most of the assessed actions have been considered efficient (46%), followed by partially efficient (31%). Only 7% of actions were considered inefficient. Most actions were assessed based on project monitoring and evaluation processes (48%) and reports and other publications (20%). Actions implementing activities related to gender equality represent 20% of the total.

Figure 166

Progress in the implementation of Target 14



Source: MMA, 2018.

Other considerations

According to the available indicator, combined with the managerial assessment of the NBSAP Action Plan, the country would be on track to exceed target 14 (blue arrow). However, the indicator is indirect and partial to represent target evolution and, therefore, the classification of “Progress towards target but at an insufficient rate” was selected. As previously mentioned, the available indicator’s assessment (progress in registrations in the Rural Environmental Registry – CAR) presents limitations, given that the Registry is only the first step towards the recuperation of ecosystems.

In the future, it is important for Brazil to monitor the status of ecosystem services and the impact of actions for the recuperation of native vegetation on the improvement of these services, to allow the monitoring of the next steps in the environmental adequation process of rural properties – which are related to the analysis and validation of CAR records by

EN

the State Environmental Agencies and adherence to the State Environmental Regularization Program by rural land owners for which environmental non-compliance was verified and, finally, to monitor the recuperation of native vegetation.

Relevant websites, links, and files

[Target 14 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 14 counts with the evaluation of 82% of the 45 actions proposed in the action plan, recent progress in projects and public policies and one indicator.

The current indicator is not capable of measuring progress towards the PLANAVEG and Brazilian NDC targets of recuperating 12 million hectares and does not evaluate the high diversity of ecosystem services important for the country. In the future, it will be important for Brazil to monitor the status of ecosystem services and the impact of actions for the recuperation of native vegetation on the improvement of these services.

Additionally, the indicator is not capable of informing on the target portion addressing the need to take into account the needs of women, traditional peoples and communities, indigenous peoples and local communities, and the poor and vulnerable. This aspect will need to be better evaluated through complementary indicators.

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Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

The target is monitored through implementation reports of the Action Plan and through the assessment of one indicator:

- Indicator D14.1: Rural properties registered in CAR. Between 2015 and 2016 the number of properties registered in the Rural Environmental Registry increased by 127%. It is expected that the increase of properties registered in the Registry will gradually become less significant, due to the reduction of the number of available non-registered properties.

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Other relevant website address or attached documents

[Indicators](#)

National Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions, including restoration of at least 15% of degraded ecosystems, prioritizing the most degraded biomes, hydrographic regions and ecoregions, thereby contributing to climate change mitigation and adaptation and to combatting desertification.



2018 - Progress towards target but at an insufficient rate

Targets

National Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions, including restoration of at least 15% of degraded ecosystems, prioritizing the most degraded biomes, hydrographic regions and ecoregions, thereby contributing to climate change mitigation and adaptation and to combatting desertification.

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Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 15 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status
Indicator D15.1: CO ₂ emission from land use change	Positive	Fair
Indicator D15.2: Variation of Native Vegetation Cover	Positive	Fair
Indicator D15.3: Area of Public Forests	Positive	Good
Indicator D15.4: Annual fire occurrences in Brazil	Positive	Good

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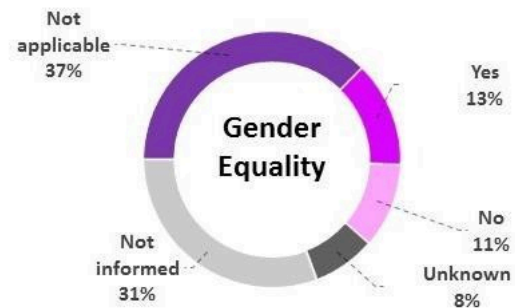
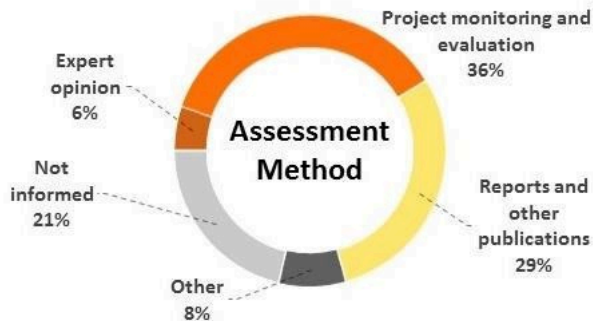
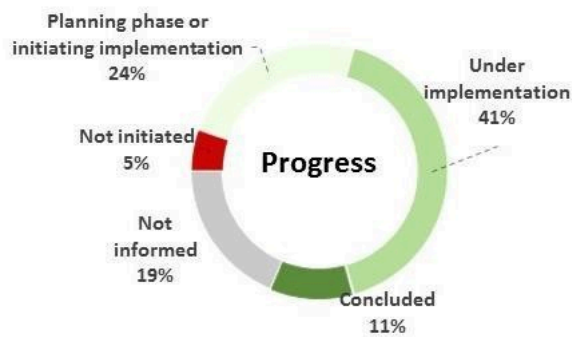
Any other tools or means used for assessing progress.

Implementation of the Action Plan:

Target 15 counts with a set of 75 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan – NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 15 actions reveals that 11% of actions were concluded, 41% are under implementation, 24% are being planned or initiating implementation, and only 5% have not initiated. No information was provided for 19% of actions. Most of the assessed actions have been considered efficient (37%), followed by partially efficient (32%). Only 3% of actions were considered inefficient. Most actions were assessed based on project monitoring and evaluation processes (36%) and reports and other publications (29%). Actions implementing activities related to gender equality represent 13% of the total.

Figure 177: Progress in the implementation of Target 15

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Source: MMA,2018

Other considerations:

When jointly considering the currently available indicators and the managerial assessment of the NBSAP Action Plan, the country would be on track to achieve target. Available data on the Brazilian emissions recorded, until 2015, satisfactory results regarding the emissions reduction targets. The data on control of forest fires and fire occurrences and actions for the designation of public lands recorded until 2018 also indicate satisfactory results regarding the reduction of forest fires and fire occurrences, and increase in designated public lands.

On the other hand, results concerning the implementation of actions for the recuperation of degraded ecosystems and restoration targets are still incipient. It is necessary to expand the efforts to monitor recuperation, clearly define the methodological directives and the baseline for monitoring and, above all, increase the promotion of actions for the recuperation of native vegetation and degraded ecosystems, as well as the associated carbon capture. Therefore, it is considered that the country presents progress towards target 15 achievement, but at an insufficient rate.

Relevant websites, links, and files

[Target 15 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 15 counts with the evaluation of 81% of the 75 actions proposed in the action plan, recent progress in projects and public policies and four indicators. However,

EN

the indicators currently considered are not capable of directly assessing regeneration and restoration progress in all biomes, nor the improvement of ecosystem resilience, nor the volume of carbon stocks. In the future, it is important for Brazil to develop mechanisms to assess ecosystem resilience to climate change and monitor the extension and impact of actions for the restoration of native vegetation on carbon capture.

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

The target is monitored through periodic assessments of the implementation of actions under the National Biodiversity Strategy and Action Plan - NBSAP and through the assessment of four indicators. In the future, it is important for Brazil to develop indicators capable of directly measuring the restoration progress of at least 15% of degraded ecosystems and capable of directly assessing progress to improve ecosystem resilience and the volume of carbon stocks.

- **Indicator D15.1:** CO₂ emission from land use change. Emissions from the Land Use Change and Forestry sector are mostly related to the conversion of forests for agriculture and livestock production. The sector presented a significant peak in emissions in 1995, mainly related to the intense conversion of forest areas into pastures in the Amazon biome (7,753,468 hectares). Between 1995 and 2004, a significant increase was observed in deforestation and associated emissions, which led to the development and implementation of the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon - PPCDAm, which resulted in the increased reduction of deforestation in the Amazon biome. In 2015, the analysis of the contribution of all sectors (energy, waste, agriculture) responsible of emissions and removal of greenhouse gases - GHG allows to conclude that the biome contributing the highest percentage of total country emissions was the Atlantic Forest, followed by Cerrado and Amazon. Recorded data inform emissions until 2015. The emission estimates between 2015 and 2018 have not yet been published, preventing the verification of changes in the reduction trends due to the changes in annual deforestation rates recorded since 2012.

- **Indicator D15.2:** Variation of Native Vegetation Cover. The monitoring of vegetation cover in Brazilian biomes and knowledge on the dynamics of land use change and cover constitute key information for the development and evaluation of the performance of policies on deforestation control and prevention and on territorial planning and regularization. In addition, the indicator allows the monitoring of progress towards the achievement of the Brazilian target on greenhouse gas emissions reduction. The time series on the variation of deforested area in non-Amazon Brazilian biomes (except for the Cerrado, which counts with a time series provided by PRODES Cerrado) indicates a strong deforestation reduction trend in the Caatinga (30%), Atlantic Forest (46%), Pampas (10%) and Pantanal (74%) biomes in the 2008-2009 period, in comparison with the previous 2002-2008 period. During the next assessed period of 2009-2010, an increase was observed for the Pampas (25%), Pantanal (47%) and Atlantic Forest (56%), while the reduction trend was maintained for the Caatinga (41%) during the same period. Deforestation rates decreased again during the 2010-2011 period for the Caatinga (56%), Pampas (20%) and Pantanal (22%). Records obtained by SOS Atlantic Forest Foundation also present a deforestation reduction trend. For the Cerrado, data indicate that a deforestation reduction trend is observed since the beginning of the data series, despite two recently occurred increase peaks in 2013 and 2015. Nevertheless, the next years show a reducing trend, even though the 2018 estimate indicates an increase in comparison with the previous year. It is not yet possible to state that the increasing trend will be maintained. For the Amazon, the PRODES data carry out the monitoring of the Legal Amazon - a region encompassing the area of the Amazon biome and part of the Cerrado biome. The trajectory of deforestation data indicates an increasing reduction trend in deforestation rates between 2004 and 2012 when compared to all previous years, which indicated high rates. Since 2012, when the Law on the Protection of Native Vegetation (Law nº 12.165/2012) was approved, variations are observed in the annual rates, with records indicating increased rates in 2013, 2015, 2016 and 2018; nevertheless, a longer period of time is necessary to identify a trend.

- **Indicator D15.3:** Area of Public Forests. Since the beginning of the time series in 2007 until 2013, an increase

EN

occurred in the identification of Public Forests, as a result of the mapping of public lands by the Legal Land Program and effective designation of these lands. Since 2013, the total area covered by public forests has stabilized, with an increasing number of designated lands due to the land titling and regularization efforts.

- **Indicator D15.4:** Annual fire occurrences in Brazil. From the regular satellite detection of fire occurrences, spatial and time trends in fire occurrences can be identified. Although the fire occurrences annually detected by the reference satellite record an annual average of almost 216,000 occurrences during the 1998-2017 period, large variations are observed (between 101,000 and 394,000 occurrences/year). In the recent past, the two worst years were 2007 and 2010, respectively with approximately 394,000 and 319,000 occurrences. On the other hand, 2013 presented approximately 128,000 occurrences. A reduction trend was also recorded for forest fires and fire occurrences in Brazil, with particular notice to the 75% reduction in fire occurrences in protected areas, resulting from actions of Integrated Fire Management - MIF, implemented by ICMBio and partners.

Other relevant website address or attached documents

[Indicators](#)

National Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.



2018 - On track to achieve target

Targets

National Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 16 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status	EN
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Indicator D16.1: Efficiency of the SisGen System

Positive

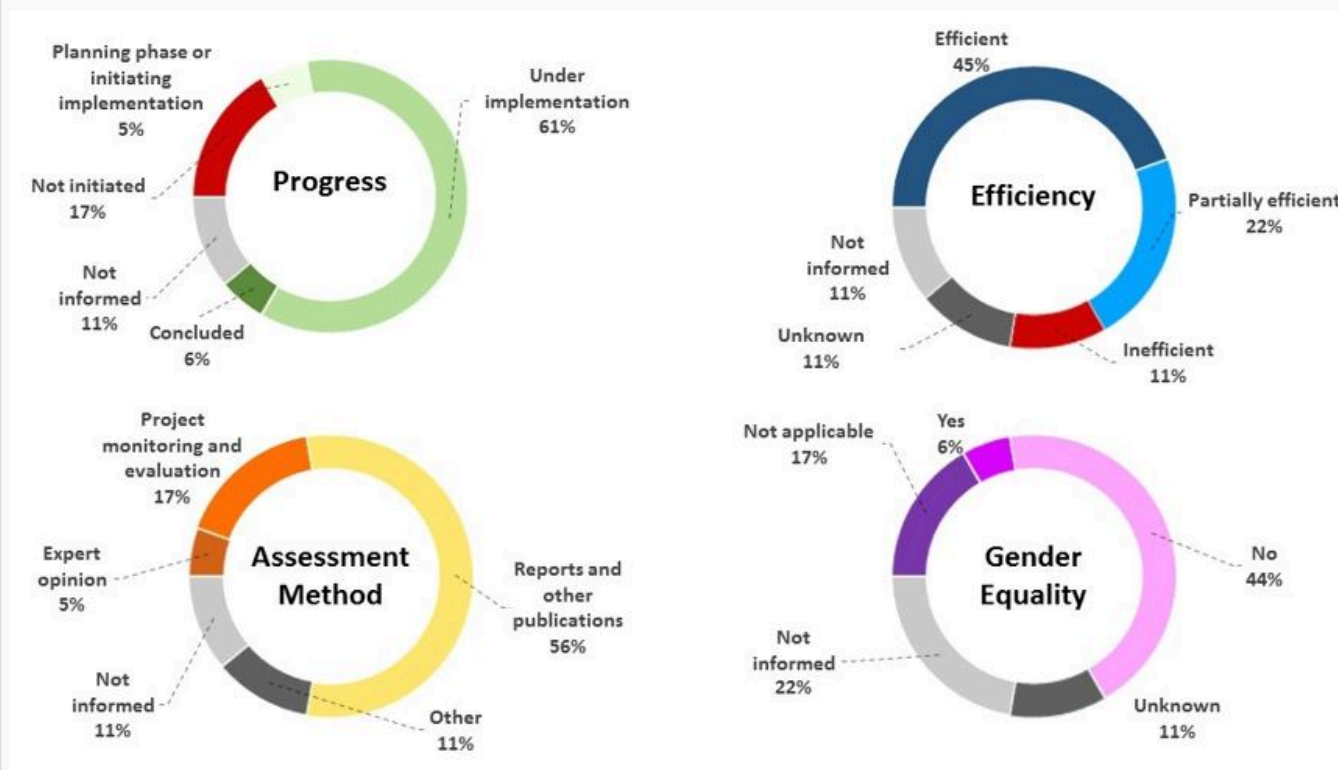
Good

Any other tools or means used for assessing progress.

Implementation of the Action Plan:

Target 16 counts with a set of 18 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan - NBSAP, as verified during the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 16 actions reveals that 6% of actions were concluded, 61% are under implementation, 5% are being planned or initiating implementation, and 17% have not initiated. No information was provided for 11% of actions. Most of the assessed actions have been considered efficient (45%), followed by partially efficient (22%). Inefficient actions represented 11% of the total. Most actions were assessed based on project monitoring and evaluation processes (17%) and reports and other publications (56%). Actions implementing activities related to gender equality represent 6% of the total.

Figure 179. Progress in the implementation of Target 16



Source: MMA, 2018.

Other considerations:

According to the indicator currently available, combined with the managerial assessment of the NBSAP Action Plan, the country would be on track to exceed target. However, the Brazilian target states that “by 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation”. Brazil is currently operating SisGen; however, it is considered that the country is on track to achieve target (green arrow) because the Nagoya Protocol has not yet been ratified by the country.

Relevant websites, links, and files

Target 16 - Relevant websites, web links and files.docx

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 16 counts with the evaluation of 89% of the 18 actions proposed in the action plan, recent progress in projects and public policies and one indicator that measures the efficiency of the National System for the Management of Genetic Heritage and Associated Traditional Knowledge - SisGen.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

The target is monitored through periodic assessments of the implementation of actions under the National Biodiversity Strategy and Action Plan - NBSAP and through the assessment of the indicator on SisGen efficiency.

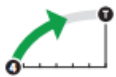
- Indicator D16.1: Efficiency of the SisGen System. There is an increasing trend for the number of records and legal instruments measured by the indicator, to the extent that the legislation is implemented, and users become better acquainted to the legal requirements and the use of SisGen. The numbers of the indicator reflect the increase in the efficiency of the management system of the national genetic heritage, from which valuable information can be obtained for the development and planning of related public policies. It should be mentioned that, on 6 November 2018, the deadline ended for the regularization of many access activities carried out without compliance with the previous legislation (in force between 2000 and 2015), which led to a significant increase in the number of SisGen records in 2018 (and, in consequence, to the increase of indicator numbers).

EN

Other relevant website address or attached documents

[Indicators](#)

National Target 17: By 2014, the national biodiversity strategy is updated and adopted as policy instrument, with effective, participatory and updated action plans, which foresee periodic monitoring and evaluation.



2018 - On track to achieve target

Targets

National Target 17: By 2014, the national biodiversity strategy is updated and adopted as policy instrument, with effective, participatory and updated action plans, which foresee periodic monitoring and evaluation.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 17 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status
Indicator E17.1 National Biodiversity Strategy and Action Plan	Positive	Good

EN

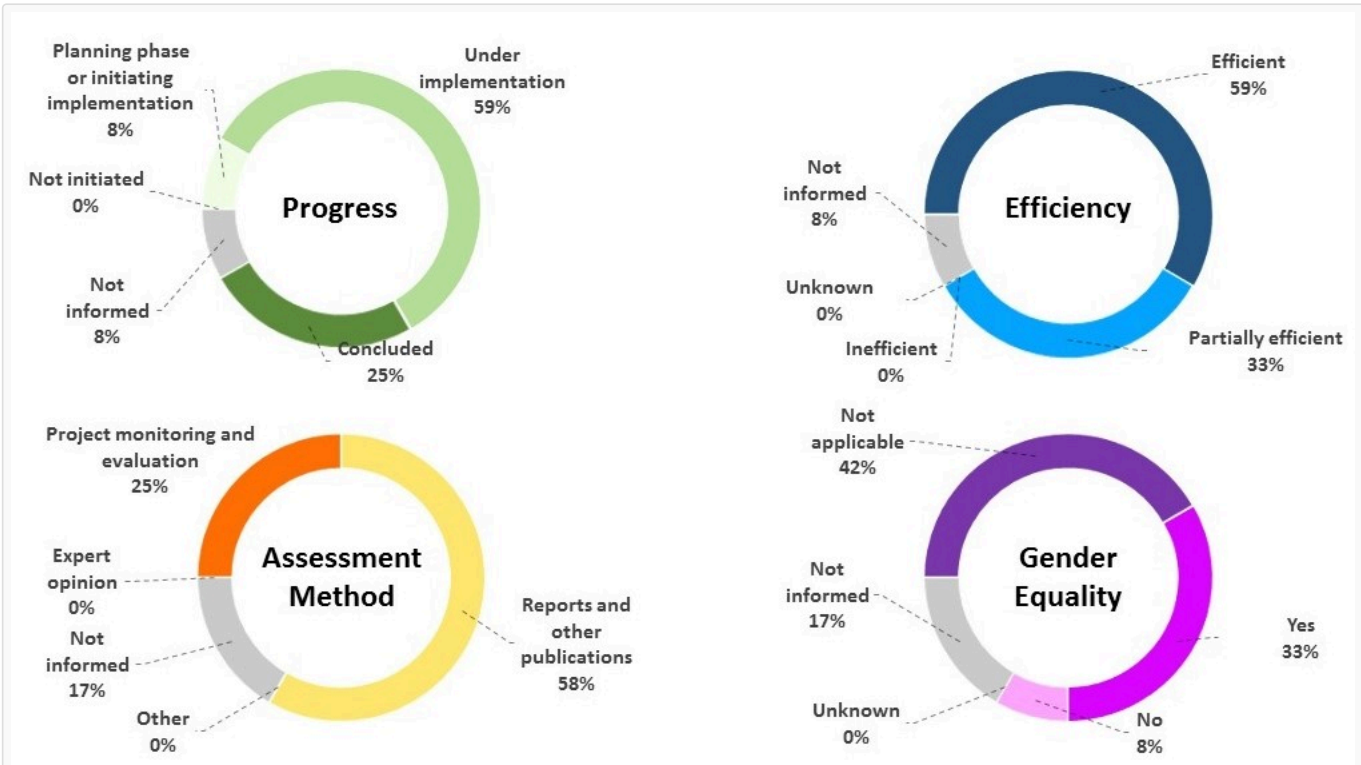
Any other tools or means used for assessing progress.

Implementation of the Action Plan:

Target 17 counts with a set of 12 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan - NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 17 actions reveals that all reported actions have been initiated, of which 25% of actions were concluded, 59% are under implementation, 8% are being planned or initiating implementation. No information was provided for 8% of actions. Most of the assessed actions have been considered efficient (59%), followed by partially efficient (33%). No inefficient actions were reported. Most actions were assessed based on reports and other publications (58%) and project monitoring and evaluation processes (25%). Actions implementing activities related to gender equality represent 33% of the total.

Figure 183: Progress in the implementation of Target 17

EN



Source: MMA, 2018.

Other considerations

According to the currently available indicators, combined with the managerial assessment of the NBSAP Action Plan, the country would be on track to exceed target 17 (blue arrow). However, given the status of the NBSAP preparation and implementation as previously reported, and as no additional effort was carried out to indicate that the target will be exceeded, it was deemed necessary to reassess target progress to: “on track to achieve target” (green arrow).

Relevant websites, links, and files

[Target 17 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 17 counts with the evaluation of 92% of the 12 actions proposed in the action plan, recent progress in projects and public policies and one indicator. The indicator, in combination with the additional assessments, provides robust information on target achievement. EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

The target is monitored through periodic assessments of the implementation of actions in the National Biodiversity Strategy and Action Plan - NBSAP and through the assessment of one indicator on the fulfillment of the NBSAP development stages. EN

- Indicator E17.1: National Biodiversity Strategy and Action Plan. The NBSAP stages presented satisfactory progress in the last six years, with 89% of actions implemented by two years before the deadline established for the National Biodiversity Targets (2020). The stage involving the “preparation of the plan for mobilizing financial resources” will probably present the greatest challenge to the evolution trend of the indicator. An initial effort was carried out to collect information on resources during the preparation of the NBSAP Action Plan; however, the obtained information was insufficient to develop the plan for mobilizing financial resources. The Biodiversity Finance Initiative - BIOFIN, which has the objective of periodically systematizing public expenditures on biodiversity to identify gaps and propose innovative complementary financing mechanisms for biodiversity conservation and sustainable use, presents advances on the theme. Its preliminary results are described under Target 20, Section III. BIOFIN-Brazil was led by the then Ministry of Planning, Development and Management - MP, in partnership with the then Ministry of Finance - MF[1], Ministry of the Environment - MMA and the United Nations Development Program - UNDP.

[1] Currently, the MP and MF responsibilities are under the Ministry of Economy.

Other relevant website address or attached documents

[Indicators](#)

National Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous peoples, family rural producers and traditional communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, in accordance with their uses, customs and traditions, national legislation and relevant international commitments, and fully integrated and reflected in the implementation of the CBD, with the full and effective participation of indigenous peoples, family rural producers and traditional communities, at all relevant levels.



2018 - On track to achieve target

Targets

National Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous peoples, family rural producers and traditional communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, in accordance with their uses, customs and traditions, national legislation and relevant international commitments, and fully integrated and reflected in the implementation of the CBD, with the full and effective participation of indigenous peoples, family rural producers and traditional communities, at all relevant levels.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to achieve target

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 18 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status	
Indicator E18.1: Area of Public Forests under Communal Use.	Positive	Good	EN
Indicator E18.2: Proportion of expenditures with socio-biodiversity food products under the Food Acquisition Program – PAA and under the National School Nutrition Program – PNAE.	Positive	Fair	
Indicator C18.3: Number of socio-biodiversity products under the Minimum Price Policy for Sociobiodiversity-based Products – PGPM-Bio.	Positive	Fair	

Any other tools or means used for assessing progress.

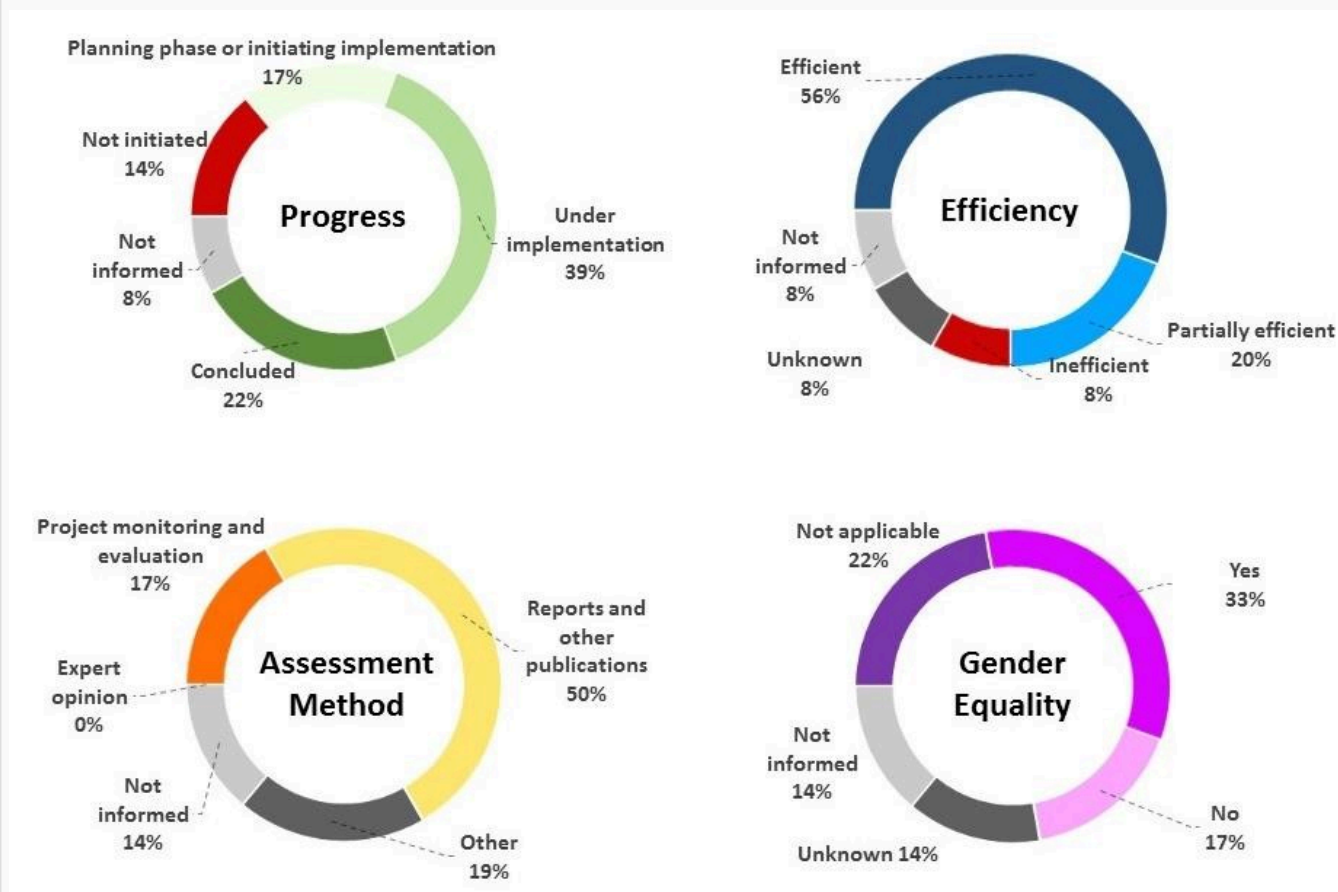
Implementation of the Action Plan:

Target 18 counts with a set of 36 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan – NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 18 actions reveals that 22% of actions were concluded, 39% are under implementation, 17% are being planned or initiating implementation, and 14% have not initiated. No information was provided for 8% of actions. Most of the assessed actions have been considered efficient (56%), followed by partially efficient (20%). Inefficient actions correspond to 8% of the total. Most actions were assessed based on project monitoring and evaluation processes (17%) and reports and other publications (50%). Actions implementing activities related to gender equality represent 33% of the total.

EN

Figure 192

Progress in the implementation of Target 18



Source: MMA, 2018.

Relevant websites, links, and files

[Target 18 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 18 counts with the evaluation of 92% of the actions proposed in the action plan, recent progress in projects and public policies and three indicators. The target indicators reflect progress in the environmental management of indigenous lands, in the communal use of public forests and in the promotion of policies supporting PCTAF, particularly those promoting sustainable socio-biodiversity production chains. The target indicators, combined with the additional assessments, provide robust information on progress towards target achievement.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

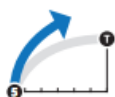
The target is monitored through periodic assessments of the implementation of actions under the NBSAP and through the assessment of the indicators mentioned above.

EN

Other relevant website address or attached documents

[Indicators](#)

National Target 19: By 2020, the science base and technologies necessary for enhancing knowledge on biodiversity, its values, functioning and trends, and the consequences of its loss, are improved and shared, and the sustainable use of biodiversity, as well as the generation of biodiversity-based technology and innovation are supported, duly transferred and applied. By 2017, the complete compilation of existing records on aquatic and terrestrial fauna, flora and microbiota is finalized and made available through permanent and open access databases, with specificities safeguarded, with a view to identify knowledge gaps related to biomes and taxonomic groups.



2018 - On track to exceed target

Targets

National Target 19: By 2020, the science base and technologies necessary for enhancing knowledge on biodiversity, its values, functioning and trends, and the consequences of its loss, are improved and shared, and the sustainable use of biodiversity, as well as the generation of biodiversity-based technology and innovation are supported, duly transferred and applied. By 2017, the complete compilation of existing records on aquatic and terrestrial fauna, flora and microbiota is finalized and made available through permanent and open access databases, with specificities safeguarded, with a view to identify knowledge gaps related to biomes and taxonomic groups.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

On track to exceed target

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 19 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status
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EN

Indicator E19.1: Expansion of the database of the National Forest Inventory.	Positive	Good
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Indicator E19.2: Total number of occurrence records for Brazilian biodiversity species	Positive	Excellent
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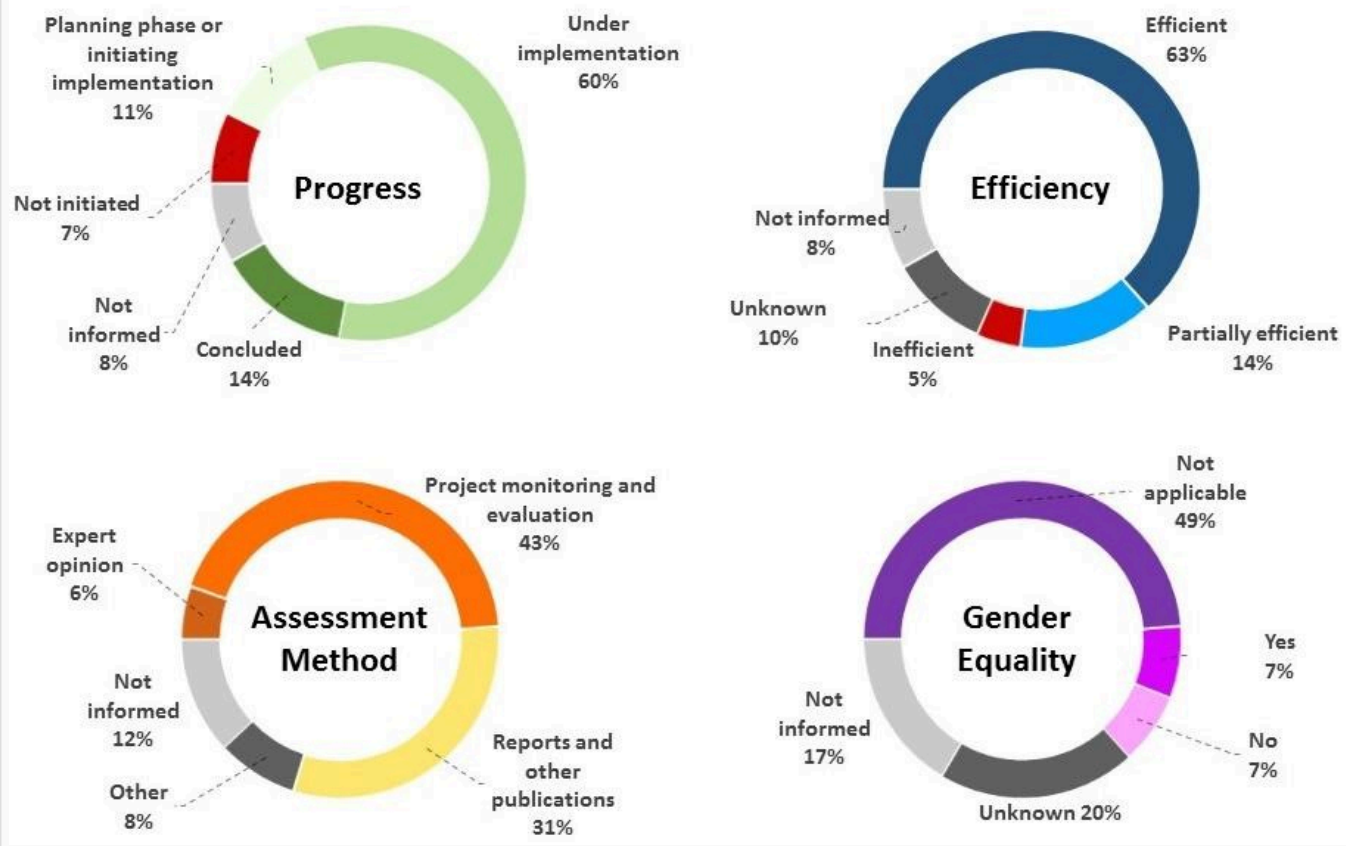
A new indicator will be included in the next assessments, named “Total number of environmental databases available in SiBBr”. The indicator measures the absolute increase of the environmental database, i.e., all databases or spatialized information layers containing environmental data published in SiBBr. Environmental data expressing status and variation of biotic, physical or socioeconomic characteristics are essential to understand the status and pressures on the environment and, particularly, on biodiversity. They assist in the identification of patterns and trends, and are easily connected to environmental issues and policies. As a time series is not yet available (only one assessment, in 2018), the indicator is not presented in this report. In 2018, 20 environmental databases were published in SiBBr.

Any other tools or means used for assessing progress.

Target 19 counts with a set of 109 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan - NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan. The assessment of implementation of Target 19 actions reveals that 14% of actions were concluded, 60% are under implementation, 11% are being planned or initiating implementation, and 7% have not initiated. No information was provided for 8% of actions. Most of the assessed actions have been considered efficient (63%), followed by partially efficient (14%). Only 5% of actions were considered inefficient. Most actions were assessed based on project monitoring and evaluation processes (43%) and reports and other publications (31%). Actions implementing activities related to gender equality represent 7% of the total.

Figure 205

Progress in the implementation of Target 19



EN

Source: MMA, 2018.

Relevant websites, links, and files

[Target 19 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on comprehensive indicator information

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 19 counts with the evaluation of 92% of the 109 actions proposed in the action plan, recent progress in projects and public policies and two indicators that measure progress of the forest inventory and of the SiBBr database with information on Brazilian biodiversity. The indicators, combined with the additional assessments, provide robust information on the progress towards target achievement.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is adequate

Monitoring system for the target

The target is monitored through periodic implementation assessment of NBSAP actions and through the assessment of two indicators, listed below.

- Indicator E19.1: Expansion of the database of the National Forest Inventory.

The trend of the results is an increase in the accumulated area of the national territory that was already inventoried. The main challenges to increase the number of sampling sites for field data collection are related to:

(i) bidding processes for hiring contractors to carry out the services: management of financial resources supporting the National Forest Inventory – IFN is complex, as resources are provided from three different international sources, in addition to federal government resources, managed by different agencies, with different procedures. In addition, resources from two of these sources are internalized into the budget of the Brazilian Forest Service – SFB, which renders its use very difficult, including due to budgetary restrictions;

(ii) data collection in the field: this is a task of difficult implementation, as it is necessary to travel great distances to access sites, involves adversities typical of field work (climate, inclement weather, distances, etc.) and is also conditioned to the obtention of permit to enter private properties, which is not easy, as often the responsible people believe it is an enforcement activity;

(iii) management of various simultaneous demands by the IFN coordination team: despite having a very reduced coordination team, this team needs to comply with internal bureaucracies, manage international resources and mainstream control processes and results analysis (which has been occurring through automated procedures).

- Indicator E19.2: Total number of occurrence records for Brazilian biodiversity species

The growth in the number of species occurrence records indicates a direct increase of knowledge on the patterns of species diversity in space and time. The compilation and organization of these data represent a challenge, as there is an enormous amount of not yet digitized data to be recovered and made available. The growth of the database will, therefore, indicate a linear increasing trend of the indicator, which represents an increased sharing of knowledge on Brazilian biodiversity.

EN

Other relevant website address or attached documents

<https://www.mma.gov.br/images/arquivo/80049/Indicadores%20MNBS%20-final%20final.pdf>

National Target 20: Immediately following the approval of the Brazilian targets, resources needs assessments are carried out for the implementation of national targets, followed by the mobilization and allocation of financial resources to enable, from 2015 on, the implementation and monitoring of the Strategic Plan for Biodiversity 2011-2020, as well as the achievement of its targets.



2018 - Progress towards target but at an insufficient rate

Targets

National Target 20: Immediately following the approval of the Brazilian targets, resources needs assessments are carried out for the implementation of national targets, followed by the mobilization and allocation of financial resources to enable, from 2015 on, the implementation and monitoring of the Strategic Plan for Biodiversity 2011-2020, as well as the achievement of its targets.

ES

Category of progress towards the implementation of the selected target

Rate of progresses toward the implementation of the selected target

Progress towards target but at an insufficient rate

Date the assessment was done

31 May 2018

Summary of the assessment of progresses toward the implementation of the selected target

[Target 20 - Additional information.docx](#)

EN

Indicators and Activities

Indicator(s) used in this assessment

Name of indicator	Trend	Status
Indicator E20.1: Evolution of biodiversity expenditures.	No Trend	Fair

EN

Any other tools or means used for assessing progress.

Implementation of the Action Plan:

Target 20 counts with a set of 10 actions proposed by institutions engaged in the National Biodiversity Strategy and Action Plan - NBSAP, as verified in the 2018 updating of the National Biodiversity Action Plan (in Annex). The assessment of implementation of Target 20 actions reveals that 10% of actions were concluded, 60% are under implementation, 20% are being planned or initiating implementation, and 10% have not initiated. Most of the assessed actions have been considered partially efficient (40%), followed by efficient (30%) and unknown (30%). Most actions were assessed based on reports and other publications (30%), project monitoring and evaluation processes (30%) and other means (30%).

EN

Figure 223: Progress in the implementation of Target 20



Source: MMA, 2018.

Relevant websites, links, and files

[Target 20 - Relevant websites, web links and files.docx](#)

Level of confidence

Level of confidence of the above assessment

Based on partial indicator information and expert opinion

Level of confidence of the above assessment

The assessment of progress towards the achievement of Target 20 counts with the evaluation of all actions proposed in the action plan, one indicator, and analysis of recent progress in public policies.

EN

Adequacy of monitoring information to support assessment

Monitoring related to this target is partial (e.g. only covering part of the area or issue)

Monitoring system for the target

The target is monitored through implementation reports of the Action Plan and through the assessment of one indicator.

EN

Other relevant website address or attached documents

[Indicators](#)

1. Awareness of biodiversity values

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The National Biodiversity Target 1 established by Brazil presents the same text as the Global Aichi Target 1, making the two targets equivalent. Therefore, all progress achieved in the implementation of this national target, which is on track to achieve target, contributes to the implementation of the Global Aichi Target 1.

For a detailed account of activities developed by Brazil as contribution to the achievement of the global target, please refer to Section III of this Report.

A summary of the activities developed by Brazil are presented below:

a) Implementation of capacity building campaigns:

- The Ministry of the Environment trained 43,671 people between 2015 and 2018 through face-to-face and distance learning courses in partnership with states, municipalities, civil society institutions and universities, focusing on biodiversity conservation, sustainable use and recuperation with socioenvironmental inclusion, environmentally friendly management of natural resources and multiple water uses;
- Capacity building on access and benefit sharing - the target audience is comprised by indigenous peoples, traditional communities and family rural producers, micro- and small companies, enforcement agents and academic sectors working with access to genetic heritage or to associated traditional knowledge;
- The Regional-Local "The Economics of Ecosystems and Biodiversity" - TEEB project trained 502 key actors on ecosystem services management between 2012 and 2017, mainly reaching the business (53%) and political (30%) sectors;
- Capacity building on water resources management - the target audience of training actions is comprised by public servants, representatives of instances of the National Water Resources Management System - SINGREH, opinion leaders, water users and society in general, particularly the young audience;
- Capacity-building on remote sensing techniques to combat deforestation - Capacitree;
- Pronatec Green Grant - the target audience of the program is comprised by traditional peoples and communities living in territories addressed by the Green Grant and extractive workers living in sustainable use protected areas or on the buffer zone of full protection protected areas;
- Center for Capacity Building on Biodiversity Conservation - [ACADEBio](#) - created in 2009 to supply the demand of the training and capacity building processes of ICMBio staff, it also aggregated capacity building activities for partners such as agencies of the National Environment System - SISNAMA and universities involved in the processes of protected area management and biodiversity management.

b) Information dissemination through portals accessed through the internet, such as:

- Brazilian Biodiversity Information System - SiBBr, created in 2014. This is a national database storing relevant biodiversity-related content. The platform integrates open access data on biodiversity and facilitates access to them. The main objective of the platform is to support scientific production, the public policy development processes and the decision-making processes related to biodiversity. Among the SiBBr tools are the spatial data infrastructure - IDE SiBBr, decision support module - MAD, which organizes the available information and automatizes decision processes, and Biodiversity & Nutrition - database with nutrition information and recipes of foodstuffs derived from Brazilian native species;
- Portal of the National Water Resources Information System - SNIRH, which provides information accessible to society and government, organized by themes - hydrographic division, water quantity and quality, water uses, water availability, critical hydrological events, water resource plans, regulation and enforcement of water resources and programs targeting the conservation and management of water resources;
- Biodiversity Portal, managed by the Chico Mendes Institute of Biodiversity Conservation - ICMBio, with the objective of making available to Brazilian society the data and information on Brazilian biodiversity generated or received by the Ministry of the Environment and its subordinate agencies;
- National Registry of Protected Areas - CNUC, an integrated database system that aggregates standardized

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information on protected areas created and managed by the three levels of government, as well as by private citizens (Private Reserve of the National Heritage – RPPN), which comprise the National Protected Areas System – SNUC;

- Catalogue of the Brazilian Flora – Reflora, coordinated by the Rio de Janeiro Botanical Garden, is part of SiBBR and has the objective of publishing descriptions, identification keys and illustrations of all species of plants, algae and fungi known to Brazil.

c) Editing and publication of informative content such as^[1]:

- Brazilian Diagnostic and Summary for Decision Makers – Biodiversity and Ecosystem Services, prepared by the Brazilian Platform of Biodiversity and Ecosystem Services – BPBES;
- Thematic Report and Summary for Decision Makers – Pollination, pollinators and food production, prepared by BPBES;
- Environmental Potency of Biodiversity: an innovative pathway for Brazil. Special Report of the Brazilian Climate Change Panel – PBMC and BPBES;
- Thematic Report and Summary for Decision Makers – Water: Biodiversity, ecosystem services and human well-being in Brazil, prepared by BPBES;
- Thematic Report and Summary for Decision Makers on Landscapes and Ecosystem Restoration, prepared by BPBES;
- Outlook of water resources Brazil 2017, prepared by the National Water Agency – ANA;
- Inter-relations between Biodiversity and Climate Change, which contains recommendations for integrating biodiversity in the implementation of the United Nations Framework Convention on Climate Change;
- Strategy of the National Biodiversity Monitoring Program, an interesting compilation of publications containing methodology and recommendations for biodiversity monitoring in Brazil, launched at the end of 2018;
- Strategy of the Program on the Environmental Monitoring of Brazilian Biomes;
- Red Book of the Brazilian Threatened Fauna, containing assessment and list of threatened fauna species, published by ICMBio in 2018;
- Red Book of the Brazilian Flora, containing assessment and list of threatened flora species, published by CNCFlora/JBRJ in 2013 (see also the Red Book of Brazilian Flora: Rare Plants of the Cerrado and Red Book of the Endemic Plants of Rio de Janeiro State, published by CNCFlora/JBRJ in 2014 and 2018).

d) Opinion polls to verify people’s understanding on biodiversity and its value:

- An opinion poll carried out by the Union for Ethical Biotrade – UEFT in 2018 indicated that most interviewed Brazilian had heard of biodiversity (91%) and approximately half of them were capable of adequately define biodiversity (49%). Figure 5 under Section III, Target 1 displays the variation since the beginning of the poll in Brazil, in 2010, until 2018.
- IBOPE Inteligência opinion poll, requested by WWF-Brazil in 2018, revealed that most Brazilians would like to have more contact with nature (91%) and value natural landscapes when travelling (82%). These numbers increased in comparison to the previous poll carried out in 2014, when 84% would like to have more contact with nature and 62% considered natural landscapes as travel destination.
- It is considered that awareness activities are capable of influencing behavioral changes in people, organizations and governments; however, they still reach a modest number of people. Over 147,000 people have been trained on themes related to biodiversity conservation, use and benefit sharing and related themes by the various capacity building initiatives, 1,900 of which were foreign.
- A research on Google Trends indicates a high level of search for the “biodiversity” theme during the last 5 years, even though there is a diminishing trend of these searches during the Brazilian holiday season, each year (see Figure 6 under Section III, Target 1).

[1] See the complete list of references in Section III, under “Relevant websites, web links and files” of the corresponding

target(s).

2. Integration of biodiversity values

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

In addition to the incorporation of biodiversity values into national and local development strategies and poverty reduction strategies, the National Biodiversity Target 2 also included the geodiversity and socio-diversity values, and stated that, in addition to integrating these values into the strategies mentioned by the Aichi target, they should also be integrated into the poverty and inequality reduction strategies, and also added that the biodiversity, geodiversity and socio-diversity values should be incorporated into planning procedures. Thus, the National Target 2 is considered more ambitious than the Global Aichi Target 2. To the extent that all elements of the Aichi Target 2 are present in the National Biodiversity Target 2, progress towards its achievement effectively contribute to the implementation of the Aichi Target 2.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A brief summary of developed activities is presented below:

- Development of the Regional-Local TEEB project targeting: a) integration of biodiversity and ecosystem services in public policies and corporate action; b) development of directives for integrating ecosystem services into management processes; c) improvement of natural resources use and management in fast-growing cities and the metropolitan regions that surround them; d) improvement of local government conditions for conserving biodiversity through the effective and equitable management of protected areas and other conservation measures;
- The Brazilian Agenda 21 represented an important planning process and instrument for sustainable development and social justice. The percent of municipalities that initiated the process of developing this instrument in all of Brazil increased from 18.1% (1,010) to 22.0% (1,225), and this growth was observed in all population size classes and in almost all large regions. Municipalities and communities organized themselves under the Local Agenda 21 format, including by creating the Agenda through municipal laws, and their work continued even after the global succession of the Agenda 21 by the Millennium Goals (2000) and later by the Sustainable Development Goals (2015). Preparation of Local Sustainable Development Plans by the Agenda 21 Forums, comprised by government and civil society, and responsible for the construction of local priorities structuring plans through projects and actions for the short, medium and long-term. They are considered planning instruments that take into consideration the conservation and sustainable use of biodiversity and ecosystem services. The National Confederation of Municipalities - CNM is working towards the SDG deadlines and drawing attention to the role of municipalities in the 2030 Agenda;
- The Ecological-Economic Zoning - EEZ is a territorial management mechanism consisting of the delimitation of environmental zones and attribution of compatible uses and activities according to the characteristics (potential and restrictions) of each of them, and seeks to make socioeconomic development and environmental conservation compatible. Its objective is the sustainable use of natural resources and the balance of existing ecosystems. In 2018, Brazil achieved the milestone of 89.71% of the national territory covered by federal and state EEZ initiatives.
- In 2018, the Ministry of the Environment - MMA published the second complete updating of the Priority Areas for Biodiversity Conservation, Sustainable Use and Benefit Sharing for all Brazilian continental biomes and for the entire coastal and marine zone (Territorial Sea and Exclusive Economic Zone). Open access was provided to maps and information on areas classified as biologically important and by action urgency, in addition to recommended priority actions for each area. The priority areas are a public policy instrument to guide the development of actions on research, biodiversity inventory, recuperation of degraded areas and of overexploited or threatened species, environmental licensing, enforcement, identification of potential sites for the creation of protected areas, ecological corridors, promotion of sustainable use, environmental regularization actions;

Brazil has made progress concerning the national environmental economic accounting theme. IBGE, as the

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agency responsible for official statistics, has already incorporated National Accounts for Water through the TEEB Project mentioned above, and plans to conclude by 2019 the studies on the National Accounts for Forests and Energy.

Other activities contributing to the achievement of the Aichi Biodiversity Target at the global level

Under the Ramsar Convention, Brazil prepared a Strategy for the conservation and sustainable use of wetlands in Brazil.

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3. Incentives

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The National Biodiversity Target 3 did not name incentives as “harmful”, but rather “which can affect biodiversity”, and stipulated that these incentives should be reduced or reformed, not eliminated as proposed by the Aichi target. Brazil also stated that changes should minimize impacts, rather than avoid impacts. The National Biodiversity Target 3, in addition to envisaging consistency and compliance with the CBD, includes the consistency and compliance with other international commitments, and states that regional socioeconomic conditions should also be considered, in addition to the national conditions. It is therefore considered that the National Biodiversity Target 3 was more conservative and less ambitious than the Global Aichi Target 3. Nevertheless, all progress in the implementation of this National Target contributes to the implementation of the Aichi Target 3.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A summary of activities carried out by Brazil as contribution to the achievement of this target is presented below:

- In 2018, 16 Brazilian states had already developed specific regulations to link the additional transfer of resources originating from the Value-added Tax on Services and Circulation of Goods – ICMS to the adoption of environmental criteria, which became known as “Ecological ICMS”;
- The Green Grant is an income transfer program for families living in extreme poverty, inhabiting relevant areas for environmental conservation. It functions as an incentive for communities to continue using, sustainably, the territories they inhabit. This benefit targets people developing activities involving the sustainable use of natural resources in federal Extractive Reserves, National Forests, Sustainable Development Reserves and Environmentally Differentiated Settlements of the Agrarian Reform. The number of families benefitted by the program presented a growing trend from 2011 to 2015. This number reduced in 2016 and 2017, but still remained above the initial 2011 number, with over 47,000 beneficiary families. The total invested amount presented similar trends, with over R\$ 63 million disbursed in 2016;
- A similar program in the state of Amazonas, the Forest Grant, transfers resources to families living inside state protected areas. The number of program beneficiaries increased significantly since it was launched, with over 10,000 families and approximately 40,000 annual beneficiaries since 2014;
- The Artisanal Fisherman Unemployment Insurance for Fisheries Suspension Periods (*Seguro Defeso*) supports artisanal fishermen during the periods of fisheries suspension (*defeso*) to protect the reproductive periods of fish and crustacea (established by Law N° 10.779/2003). Over 500,000 fishermen are benefitted each year, with over R\$ 2 billion disbursement;
- The Minimum Price Policy for Sociobiodiversity-based Products – PGPM-Bio ensures a minimum price for 17 extractive products that contribute to the conservation of Brazilian biomes: assai, andiroba, babassu, baru, extractive rubber, buriti, extractive cocoa, Brazil nut, carnauba, juçara, macaúba, mangaba, murumuru, pequi, piassava, pine nut and umbu. PGPM-Bio completed 9 years of operation in 2018, with over R\$ 49 million already transferred to thousands of extractive workers throughout the country, particularly those located in the Cerrado and Amazon biomes. The volume of subsidized products and the amount transferred have significantly grown in the past few years;

The Procel Seal serves the purpose of a simple and effective tool that allows consumers to distinguish, among the available equipment and domestic appliances in the market, which ones are more energy efficient and consume less energy. Since its creation in 1993, partnerships were established between the National Metrology

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Institute - Inmetro and agents such as manufacturers, university researchers and laboratories, with the objective of promoting the availability, in the Brazilian market, of increasingly efficient equipment. To that end, consumer and performance indexes are established for each equipment category. Each equipment applying for the Seal must be submitted to tests in laboratories appointed by Eletrobrás. Only products that achieve these indexes are granted the Procel Seal. The estimates of achieved energy economy present an increasing trend from 2012 to 2017.

4. Use of natural resources

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The Aichi Target 4 envisions that the adoption or implementation of sustainable production and consumption plans should limit the impacts of the use of natural resources, while the National Biodiversity Target 4 states that the adoption or implementation of sustainable production and consumption plans should mitigate or avoid the negative impacts from the use of natural resources. It is considered that the two targets are equivalent and, therefore, the progress obtained for this national target contributes to the implementation of the Aichi Target 4.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A summary of activities carried out by Brazil as contribution to the achievement of this target is presented below:

- Implementation of the Action Plan for Sustainable Production and Consumption - PPCS, which is the base document for actions implemented by the government, productive sector and society to direct Brazil to sustainable production and consumption patterns. The Plan coordinates the main environmental and development policies of the country, in particular the National Climate Change Policy and the Solid Waste Policy, contributing to the achievement of their targets through sustainable production practices and consumer engagement in this initiative;
- Implementation of the Environmental Agenda in Public Administration - A3P, a program of the Ministry of the Environment with the objective of encouraging public agencies to implement sustainability practices. The A3P Program targets governmental agencies at the three levels: federal, state and municipal; and the three governmental bodies: executive, legislative and judiciary;
- The quest for improved energy efficiency is part of the planning to better use energy resources and reduce the environmental impacts generated by economic activities. Regarding energy intensity, smaller numbers indicate greater efficiency in the use of energy. The energy intensity results in Brazil present a trend limited to light variations along the last several years;
- To address the scenario of million tons of generated waste and their disposal, the National Solid Waste Policy was created by Law nº 12.305, of 2010, which established, among other matters, the concept of shared responsibility for the life cycle of products. Instruments and regulations were created for the management of different types of waste, attributing targets and responsibilities to minimize socioenvironmental impacts, and reduce pressure on natural resources through the reuse of materials;
- The adequate final disposal of oils, given their polluting potential, is regulated since 2005 and forbids any disposal of used or contaminated oil on soil, underground, inland waters, territorial sea, exclusive economic zone and through the sewage and residual water systems. In addition, the burning or incineration of used or contaminated lubricating oil are no longer considered adequate recycling or disposal options. Producers and importers are required to collect all available oil or cover the costs of the entire collection of used or contaminated lubricating oil effectively carried out, in the same proportion as they placed these products in the market, according to progressive targets;
- The Brazilian energy matrix counts with approximately 42% participation of renewable sources in its composition, reaching 81.9% when focusing the electric sector. The latter has been challenged by the variation of the rainfall regime, which directly impacts energy generation, given that 65% of the Brazilian electric matrix is comprised of hydroelectric power plants. In June 2018, the renewable energy sources totaled 81.9% of the installed capacity for electric energy generation, and 87.8% of the total production verified in the country. Renewable sources reached 42.9% of the total energy distributed in the country in 2017, while non-renewable sources represented 57.1%. Brazil presented significant progress in the increase of wind and solar energy

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generation, with percent increase of 20% and 57% in 2018, respectively;

- Since 2012, the Brazilian consumer can generate his/her own electric energy from renewable sources or qualified co-generation and can provide the surplus to the local distribution network. This is the distributed micro- and mini-generation of electric energy, an innovation that can combine monetary economy, socioenvironmental awareness and self-sustainability;
- Overall, the implementation and recent improvement of water resources management actions, particularly those targeting the management of water demands in the country, indicate a positive trend in the efficiency of water use by the main water resources user sectors.

5. Loss of habitats

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The Aichi Target 5 stresses the loss of forests, while the National Biodiversity Target 5 encompasses all biomes and establishes a reference date for measuring. It is considered that the two targets are equivalent; therefore, all progress in the implementation of this National Target, which is on track to achieve target, contributes to the implementation of the Aichi Target 5.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A summary of activities carried out by Brazil as contribution to the achievement of this target is presented below:

- The vegetation cover monitoring of the Legal Amazon has been carried out since 1988. The other Brazilian biomes have been monitored since 2002. In 2015, the Environmental Monitoring Program of Brazilian Biomes – PMABB was launched with the objective of mapping and monitoring deforestation, assessing the distribution of remaining vegetation and the variation of the land use dynamics, fire occurrences, selective timber extraction and vegetation recuperation;
- Regular satellite detection of fire occurrences, which enables the assessment of spatial and time trends of the fire occurrences in the Brazilian territory, which has been carried out since 1998;
- Institutionalization of two action plans for the prevention and control of deforestation: one for the Legal Amazon – the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm), and the other for the Cerrado – the Action Plan for the Prevention and Control of Deforestation and Fire Occurrences in the Cerrado – PPCerrado. Deforestation recorded for 2018 corresponds to a 72% reduction in comparison to the total area deforested in 2004, which is when PPCDAm was initiated, and a 60% reduction of the target set by the National Climate Change Policy;
- Implementation of the MapBiomas project, which published in 2018 a set of mapping data that enables the analysis of territorial occupation anywhere in Brazil, year by year, since 1985. The tool allows the unveiling of the history of land use and occupation along 33 years. For example, it is possible to identify if forest areas were converted into pastures or agricultural crops and, eventually, if once abandoned, grew once more a forest formation or another type of native vegetation. Thus, it is possible to capture both the conversion of native vegetation into alternative land uses and those areas that were recuperated and are once more covered with native vegetation;
- Adoption of a new model of environmental enforcement since 2008 by the Brazilian Institute of the Environment and Renewable Natural Resources – IBAMA, agency responsible for environmental enforcement at the federal level. This new model was conceived based on scientific studies carried out by IBAMA staff in collaboration with researchers of the Minas Gerais Federal University – UFMG. When areas presenting higher illegal deforestation risk are identified, rural landowners are monitored and receive alert messages from the Institute advising not to break the law. By June 2018, Ibama had delivered 25,200 alert messages to rural landowners in 59 municipalities of 8 states of the Legal Amazon. Rural landowners are advised on the need to require previous authorization to the state environmental agency before carrying out any vegetation suppression and receive information on the administrative, civil and criminal consequences of illegal deforestation. With this action, IBAMA also contributes to create awareness among landowners on the legal pathway for legal vegetation conversion in the region;

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Implementation of the Rural Environmental Registry – CAR, which is a governmental electronic registry of national scope, required for all rural properties, with the purpose of integrating the environmental information on rural properties and holdings. Registration in CAR is the first step to obtain the environmental regularization of the property.

6. Sustainable fisheries

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The National Biodiversity Target 6 agrees with the Aichi Target 6, but establishes that the safe ecological limits should be scientifically established. It is considered that the two targets are equivalent; therefore, progress in the implementation of this National Target contributes to the implementation of the Aichi Target 6.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A summary of activities carried out by Brazil as contribution to the achievement of this target is presented below:

- Publication of the National List of Brazilian Threatened Fauna Species – Fish and Aquatic Invertebrates, in 2014, which assessed the extinction risk of 5,149 fish and aquatic invertebrates, including all vertebrates described for the country. The results of the assessment indicate that 475 species (9%) have been classified as threatened, of which 99 marine fish, 1 hagfish, 310 inland fish and 66 aquatic invertebrates. The Red Book of Threatened Fauna published by ICMBio in 2018 presents detailed information on each of these threatened species. Approximately 90% of marine fish species considered threatened have overfishing as the main cause of their status;
- Preparation of Species Recuperation Plans, which are documents establishing the directives, objectives and measures to promote the conservation and populational recuperation of threatened fish and aquatic invertebrate species and, when environmentally viable, indicate the sustainable use limits to be authorized by the responsible environmental agencies. These documents can be produced for a single species or for a group of species presenting similarities in their biology, ecology, distribution and/or the main impacts that affect them. Until present, nine Recuperation Plans were prepared for species listed in MMA Administrative Ruling nº 445/2014;
- The model of the Recuperation Plans was discussed with various sectors and considered existing models successfully adopted in other countries. In 2018, this model was revised by the Working Group created by MMA Administrative Ruling nº 201, of 31 May 2017, and an updated version was approved in 2018. The eventual use of species of socioeconomic importance depends on 3 steps: a) preparation of the Recuperation Plan, which must present technical recommendation for regulating the sustainable use or for maintaining the prohibition of capturing the species; b) publication of a regulation by the Ministry of the Environment, where the Recuperation Plan is recognized as well as the possibility or not of using the species, according to the measures recommended in the plan and as established by the MMA Administrative Ruling nº 73, of 28 March 2018; and c) when the use of the species is authorized, a fisheries regulation must be published for compliance with the measures defined in the Recuperation Plan. As ruled by national legislation, this regulation must be published by the Ministry of Agriculture, Livestock and Supply – MAPA;
- Expansion of the marine area covered by protected areas (PA), in 2018, to 26.36% of the Brazilian marine area (corresponding to the Territorial Sea combined with the Exclusive Economic Zone). The marine area protected by PAs is an instrument that can potentially protect part of the marine fish stocks;
- Public expenditures with the specific programs and actions targeting fisheries activities identified in the Multi-Year Plans – PPA and in the analyzed federal government budgets totaled R\$ 867 million between 2005 and 2015. A decrease in budgetary implementation was observed since 2011, reaching its smaller amount (R\$ 11.4 million) in 2015, when the Ministry of Fisheries and Aquaculture was extinct and had its functions transferred to the Ministry of Agriculture, Livestock and Supply – MAPA;
- The Ministry of the Environment is responsible for coordinating and implementing the *National Coastal Management Plan* in Brazil, in coordination with the representative agencies at the federal, state and municipal levels;

The National Policy for Sea Resources – PNRM – is subordinate to the Code of Conduct for Responsible Fisheries

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and has the objective of promoting the exploitation and sustainable use of resources of the sea, of waters overlying the seabed, of the seabed and its subsurface, and of adjacent coastal areas.

7. Areas under sustainable management

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The National Biodiversity Target 7 requests the dissemination of sustainable management practices in agriculture, livestock, aquaculture, silviculture, extractive activities, forest management and fauna management, but not that production areas are already producing sustainably, which would be a subsequent step. Thus, it is considered that the national target is more conservative and less ambitious than the global biodiversity target. Therefore, all progress achieved in the implementation of this National Target, which is on track to achieve target, contributes for the implementation of the Aichi Target 7.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A summary of activities carried out by Brazil as contribution to the achievement of this target is presented below:

- Increase in agriculture productivity: between 1977 and 2017, grain production increased over five times, growing from 47 million tons to 237 million tons, while the planted area increased only by 60%;
- Implementation of the Sectoral Plan for Climate Change Mitigation and Adaptation for the Consolidation of a Low Carbon Economy in Agriculture - ABC Plan. The main objective of the ABC Plan is to promote reduced emissions from agriculture, as requested under the National Climate Change Policy - PNMC. The plan encourages the adoption of sustainable production systems that ensure the reduction of greenhouse gas - GHG emissions while raising the income of rural producers, particularly with the expansion of the following techniques: recuperation of degraded pastures, integration crop-livestock-forest - ILPF and agroforestry systems - SAFs, no-till planting - SDP, biological nitrogen fixation - FBN and planted forests;
- Increase in the number of organic production units registered in the Ministry of Agriculture, Livestock and Supply. A significant increase of approximately 400% was observed between 2010 and 2017, from 5,406 to 20,050 units. The number of registered producers also increased from 5,934 to 17,451 between 2012 and 2017.
- Introduction of the integrated production program in Brazil in 2001, which already encompasses over 60 food production systems in the country, including fruits, grains, roots, oleaginous plants, tubers, greens, flowers, medicinal plants, in addition to species grown for biofuel production, meats, milk and honey. The program provides the enabling conditions for supporting the transformation of conventional production into technological, sustainable, traceable and certified production - options that provide greater value-added to the final product and fulfill market requirements. Producers who voluntarily engaged in the program have recorded a >80% reduction in the consumption of agricultural chemicals, have significantly increased soil protection and the availability of flowering herbal plants between crop lines to meet the foraging needs of pollinators and biological control agents, and a significant decrease in the contamination by agricultural chemicals residues, toxins and microorganisms that present risk to human health;
- Over 70% market expansion for biological control products in Brazil in 2018. Companies dedicated to biological control increased from 3 in 2008 to 79 in August 2018, and registered products increased from 1 to 200 during this period. According to research carried out by the Brazilian Association of Biological Control Companies - ABCBio, 57% of producers are familiar with biological control products and 39% use this technology, mainly associated to the use of agricultural chemicals. The rate of adoption of biological control for soy and coffee production is of up to 20%; for sugar cane, beans, apple and grapes, between 20.1% and 40%; and for potato, greens, melon, strawberry and tomato is over 40%;
- Implementation, from 2010 to 2015, of the project on the Conservation and Management of Pollinators for Sustainable Agriculture through an Ecosystem Approach (Pollinators of Brazil), with resources from the Global Environmental Facility - GEF. The project supported activities, particularly those carried out by networks (promoted through the Call for Proposal of the Ministry of Science and Technology - MCT / National Scientific and Technological Development Council - CNPq / Agribusiness Sectoral Fund - CT-Agro nº 24), of research, knowledge generation and dissemination, addressing: (i) seven crops (apple, Brazil nut, canola, cashew, cotton, melon and tomato); (ii) monitoring and taxonomy of bees; (iii) information technology; (iv) species conservation status /

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landscape ecology; and (v) protected areas and neighboring landscapes;

- Launching of the first thematic report on pollinators, pollination and food production, in 2019, through the Brazilian Platform of Biodiversity and Ecosystem Services [BPBES](#). This report indicated that 76% of plants used for food production in Brazil depend on ecosystem services and estimated that, in 2018, the economic return of the pollination service in Brazilian agricultural production is of R\$ 43 billion per year. The report informs that pollinators can potentially improve production and sustainability of national agriculture;
- Establishment of a dialogue, initiated in 2016, that led to the request to update CONAMA Resolution nº 346/2004, which regulates the use of native bees. IBAMA Normative Instruction nº 2, of 9 February 2017, is also particularly relevant by establishing the directives, requirements and procedures for the assessment of agricultural chemicals concerning their risk to pollinator insects, using bees as indicator organisms. In addition, five species of bees considered threatened are classified as “Endangered – EN” (*Melipona capixaba*, *M. rufiventris*, *M. scutellaris*, *Partamona littoralis*) and “Vulnerable – VU” (*Arhysoyage cactorum*) and are included in the official national list of threatened fauna (MMA Administrative Ruling nº 444/2014);

Implementation of the Law on Management of Public Forests, which has the objective to conserve the vegetation cover of Brazilian forests through the improvement of the life quality of communities living around them and by promoting formal economy based on products and services from managed forests, through the forest concessions policy. Since 2006, the government can grant to corporations and communities the right to manage public forests to extract timber, non-timber products and to offer tourism services.

8. Pollution

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The National Biodiversity Target 8 has the same text of the Global Aichi Target 8, which makes them equivalent. Thus, all progress achieved in the implementation of this National Target contributes to the implementation of the Aichi Target 8.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

Brazil has instruments that contribute to the target’s objectives, such as:

- National Water Quality Assessment Program – PNQA, with the main objective of providing to society appropriate information on the quality of Brazilian superficial waters, to support decision makers in the definition of public policies for the recuperation of water quality, contributing to the sustainable management of water resources;
- Conama Resolution nº 357/2005, which rules on the classification of water bodies and environmental directives for their categorization, and establishes the conditions and standards for effluent discharge;
- Installed National Water Quality Monitoring Network, with over 2,000 sampling sites spread throughout the country and the planned additional installation of other 4,000 sampling sites;
- National Water Resources Policy, which envisions the preparation and implementation of water resources plans to guide water management and the implantation of the necessary base and mechanisms for its implementation (water resource plans, categorization of water bodies under user classes, water use permits – including with the definition of differentiated prices, according to the Payer Pollutant Principle –, billing and information system);
- National Solid Waste Policy, which establishes the shared responsibility for the products’ life cycle. Until the end of 2018, seven reverse logistics agreements had been implemented (unusable tires, used or contaminated lubricating oil, plastic containers of lubricating oils, batteries, fluorescent light bulbs of sodium and mercury vapor and mixed light, packaging in general and steel packaging), and two others are being discussed (electric and electronic products and their components, and medicines).
- Conama Resolution nº 420/2009, which establishes the criteria and guiding values for soil quality regarding the presence of chemical substances and establishes directives for the environmental management of areas contaminated by these substances as a result of human activities;

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- Conama Resolution nº 362/2005, which prohibits any disposal of used or contaminated lubricating oil on soils, underground, inland waters, territorial sea, exclusive economic zone and sewage or residual water collection systems. Manufacturers and importers are required to collect all available oil or pay for all collection of used or contaminated lubricating oil effectively carried out, in the same proportion of oil they place in the market, according to progressive targets;
- Conama Resolution nº 416, which rules on the prevention of environmental degradation caused by unusable tires and their environmentally adequate disposal, and establishes that manufacturers and importers of new tires with unit weight above 2.0 kg (two kilograms) are required to collect and provide adequate disposal to existing unusable tires in the national territory;
- CONAMA Resolution nº 491/2018, which establishes the air quality standards and regulates the following air quality parameters: total suspended particles – TSP, inhalable particles – PM₁₀ and PM_{2.5}, sulfur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂) and lead (Pb). The same resolution also establishes the criteria for acute air pollution events. It should be noted that, for a state to declare Attention, Alert and Emergency, the forecast of unfavorable meteorological conditions for pollutant dispersal is also required in addition to the concentration levels reached;

Watershed Decontamination Program – Prodes, created by the National Water Agency – ANA in March 2001, also known as “treated sewage acquisition program”. The program was established to implement wastewater treatment plants and reduce the water pollution levels observed in the Brazilian watersheds. This is an innovative initiative because it does not finance works or equipment, but rather pays for achieved results, i.e., for the effectively treated sewage. Prodes consists in the concession of financial incentives by the federal government in the form of payment for treated sewage to sanitation service providers who invest in the implantation, expansion and operation of wastewater treatment plants – ETEs, as long as the conditions established by contract are met. From 2001 to 2011, 55 ETEs were contracted, involving a total contract amount of R\$ 200.18 million and total implementation investments by service providers of R\$ 720 million. The program’s target for 2016-2019 is to remove 72,000 tons of pollutant charge from the Biochemical Oxygen Demand – BOD.

Other activities contributing to the achievement of the Aichi Biodiversity Target at the global level

Brazil is signatory of the following conventions related to the themes addressed by the target:

- o International Convention on Oil Pollution Preparedness, Response and Co-operation – OPRC/1990;
- o International Convention for the Prevention of Pollution from Ships – MARPOL 73/78, which establishes rules for the prevention of pollution by oil, hazardous substances transported in bundles, containers, portable tanks or road and railroad tank-wagons;
- o Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter – London Convention ’72, which has the objective of promoting individual and collective effective control of all sources of contamination of the marine environment and the particular commitment for the adoption of practicable steps to prevent pollution of the sea by dumping of wastes and other matter that can be hazardous to human health, harm biological resources and marine life, and damage conditions or interfere in other legitimate applications of the sea;
- o Stockholm Convention, which determined that Party States adopt control measures related to all steps of the life cycle – production, import, export, use and final disposal – of the substances known as Persistent Organic Pollutants – POPs listed in its Annexes;
- o Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Brazil coordinated the preparation of a publication on used lead-acid batteries and led the revision of the guide on used tires, among other;
- o Minamata Convention on Mercury, which targets the control of the use of mercury to protect human health and the environment;
- o Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer, committing Brazil to adopt actions to reduce emissions of Ozone Depleting Substances – ODS, nationally promulgated in 1990 through Decree nº 99.280;
- o International Convention on Civil Liability for Oil Pollution Damage, of 1969, ratified by Brazil, which establishes the limits of civil liability for damage to third parties caused by oil spills at sea;

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United Nations Convention on the Law of the Sea, which defines the territorial sea, adjacent zone, exclusive economic zone and continental shelf, delineating international rules to prevent, reduce and control marine pollution, as well as for the conduction of scientific research, marine technology transfer, and the settlement of disputes on the use of the sea through peaceful means.

9. Invasive Alien Species

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The National Biodiversity Target 9 highlights the implementation of the National Strategy on Invasive Alien Species, envisions the participation of states in the preparation of a policy and the implementation of action plans. It is considered that the national and global targets are equivalent. Therefore, all progress achieved in the implementation of this National Target contributes to the implementation of the Aichi Target 9.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

In summary, Brazil is developing a national strategy for invasive alien species, including the implementation of initiatives with positive impacts for Target 9, as listed below:

- Revision and update, in 2018, of the National Strategy on Invasive Alien Species, originally published in 2009, which resulted in the development of a strategic plan for a 12-year period (2018-2030). The National Strategy has the objective of guiding the implementation of measures to avoid the introduction and dispersion and to significantly reduce the impact of invasive alien species on Brazilian biodiversity and ecosystem services, control or eradicate invasive alien species. Still in 2018, the participatory preparation of the Implementation Plan for the National Strategy was concluded, for a six-year period (2018-2024), where priority actions are defined for the realization of the National Strategy;
- Establishment of specific local policies and programs for invasive alien species. Local preparation of official lists of invasive alien species;
- Publication of the diagnostic and control of invasive alien species in protected areas by the Chico Mendes Institute for Biodiversity Conservation – ICMBio, in 2013. This report includes papers containing a broad list of species present in federal and state protected areas in the country. In turn, the Ministry of the Environment published the Report on Marine Invasive Alien Species in 2009 and the Report on Invasive Alien Species of Brazilian Inland Waters in 2016. This report recorded the presence of 163 potentially invasive alien species in national inland waters, including microorganisms, invertebrates, reptiles, amphibians and aquatic macrophytes. In 2018, the Oswaldo Cruz Foundation published the Report on Invasive Alien Species that Threaten Human and Animal Health.
- Establishment, in 2005, of a continually updated National Database on Invasive Alien Species;

Action Plans for the Prevention, Contention and Control: the federal government prioritized invasive alien species of national relevance for the definition and implementation of control actions and mitigation of impacts. For each prioritized species – wild boar (*Sus scrofa*), Orange cup coral (*Tubastraea coccinea* and *T. tagusensis*) and golden mussel (*Limnoperna fortunei*) –, National Prevention, Control and Monitoring Plans were prepared between 2016 and 2018, with the participation of governmental agencies, academia, private sector and society. Action Plans of Prevention, Contention and Control with a regional focus were also prepared.

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10. Vulnerable ecosystems

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The Aichi Target 10 mentions impact reduction of the multiple anthropogenic pressures on coral reefs and other ecosystems generally affected by climate change, while the National Biodiversity Target 10 restricted the other ecosystems to the marine and coastal ones only. It is considered that the national target was more conservative. Therefore, all progress achieved in the implementation of this National Target, which is on track to achieve target,

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contributes to the implementation of the Aichi Target 10.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

In summary, Brazil adopted the following initiatives:

- Creation of protected areas. Currently, only 0.19% (12,144.12 hectares) of the coral reef area at the estuary of the Amazonas River (6,511,962.34 hectares), recently discovered, is protected in PAs. Low biodiversity protection in PAs is also observed for deep-sea corals and mesophotic corals (60,420.69 hectares and 224,611.49 hectares, respectively). On the other hand, shallow reef occurrences are better protected in PAs (60,335.65 hectares of a total 76,556.8 hectares of occurrence area). Challenges apparently reside on the maintenance of the rich biodiversity that occurs in coral reefs, which may be possible through the creation of new protected areas;
- Implementation of the National Action Plan for the Conservation of Coral Environments – PAN Corals, which consists of an action plan addressing 52 threatened species, with the main objective of improving the conservation status of coral environments by reducing anthropic impacts, increasing protection and knowledge, promoting sustainable use and socioenvironmental justice. The Plan is comprised of nine specific objectives and their respective actions, with an implementation period planned until 2021 and annual supervision and monitoring of the implementation process;
- Also under an ecosystem approach, preparation of the National Action Plan for the Conservation of Threatened and Socioeconomically Important Species of the Mangrove Ecosystem – PAN Mangrove, which establishes conservation actions for 74 target species, of which 20 are threatened species featured in the MMA Administrative Rulings nº 444 e 445/2014, 9 are present exclusively in state lists, and 45 are socioeconomically important species that are not threatened, indicated by representatives of Traditional Peoples and Communities. The Plan was designed for a five-year period (2015-2020) and is organized around 11 specific objectives and their respective actions, and annual supervision and monitoring of the implementation process;
- Generation of data from over 10 years of monitoring reef environments in Brazil through the National Coral Reef Conservation Program – Reef Check Brazil, which applies the *Reef Check* participatory methodology to monitor representative shallow coral reef environments along the Brazilian coast since 2002;
- Implementation of the Marine and Coastal Protected Areas Project – GEF Mar, a federal government project developed and implemented in partnership with private and civil society institutions to promote the conservation of marine and coastal biodiversity. The project supports the implementation of a representative and effective system of Marine and Coastal Protected Areas in Brazil and the identification of mechanisms for its financial sustainability;
- Second update of the priority areas and actions for the conservation of the coastal and marine biodiversity, with the use of free software especially developed to select areas based on the analysis of criteria and data defined by the user. Four workshops were carried out with the participation of over 200 experts on the coastal and marine zone, in addition to representatives of governmental agencies, non-governmental organizations, traditional communities and private sector. The concluded update was published through MMA Administrative Ruling nº 463, of 18 December 2018;
- Implementation of the TerraMar Project with the objective of supporting the integrated environmental territorial management of the continental and marine space, to contribute to biodiversity conservation. The project supports the strengthening of the environmental territorial management, implementation of conservation and sustainable use measures for the marine and coastal biodiversity, development of strategies to integrate environmental quality monitoring initiatives, and promotes the capacity building and training of participatory networks at the project's target areas.
- Environmental education actions with the implementation of the awareness campaign “Responsible Conduct in Beaches and Coral Reefs”;
- Development of the “long-term ecological research program – PELD”, which established a network of reference sites since 1999 for scientific research on ecosystem ecology. The “Abrolhos Network”, “Oceanic Islands” and “PELD Tamandaré” are relevant PELD sites for the achievement of Target 10;
- Development of the Live Coral Project, a partnership between the Live Coral Institute, National Museum/UFRJ and Friends of the National Museum Association, in addition to other research and education institutions. The

project counts with over 13 years of experience and positive results for the knowledge and conservation of coral environments throughout Brazil, in addition to carrying out capacity building courses on environmental education for various education professionals and training for tourism professionals of the municipalities of southern Bahia. The Live Coral also counts with a university extension program reaching college students from 17 coastal states. The project carries out communication actions addressing various audiences, focusing on coral reefs;

- Implementation, until 2017, of the Project on the Effective Mangrove Conservation and Sustainable Use in Brazilian Protected Areas - GEF-Mangrove, which supported the implementation of PAN Mangroves and carried out the diagnostic of threat evolution, such as impacts from shrimp farming, urbanization, predatory tourism and fisheries, pollution by oil and sewage, and tree cutting. In total, 120 protected areas in Brazil contain mangroves, encompassing an area of 12,114 km², which represents 87% of the ecosystem in the entire national territory;
- Publication of the Atlas of Brazilian Mangroves in 2018, by ICMBio. The Atlas presents historical aspects of the origin of the term *mangrove* and of the discovery of mangroves in Brazil, the different formations of mangrove, the characteristic species of this ecosystem, the adaptations developed to occupy these areas, and also describes the differences among mangroves along the various segments of the Brazilian coast, their conservation status, socioeconomic use and pressures in each segment. The status of mangroves and of the protected areas in which they occur is also presented, in addition to the threats to this ecosystem, a socioeconomic diagnostic of the sustainable use protected areas and a study on the financial sustainability of protected areas containing mangroves in Brazil. Another important issue presented by the Atlas concerns the ecosystem services provided by mangroves. The publication presents the current knowledge on mangrove recuperation targeting their conservation and maintenance of the species and ecosystem services, and also the activities developed under the GEF-Mangrove Project and the framework for the establishment of a National Strategy for the Conservation and Sustainable Use of Mangroves and, finally, the maps of mangrove areas in Brazil.
- Recognition of a new Ramsar site named "Amazonas Estuary and its Mangroves", which is part of the largest continuous corridor of mangroves on the planet, interconnecting 23 protected areas (federal and state), totaling 3.8 million hectares;

Implementation of the National Climate Change Adaptation Plan - PNA (MMA Administrative Ruling nº 150, of 10 May 2016). The Brazilian Ramsar Strategy envisions the incorporation of information on climate change in the management plans of protected areas (including the Ramsar sites), particularly regarding the prevention and control of fire.

Other activities contributing to the achievement of the Aichi Biodiversity Target at the global level

Regarding international initiatives, Brazil is part of the International Coral Reef Initiative - ICRI since 2006, for which the Ministry of the Environment and the Pernambuco Federal University are the focal points. The objectives of the Initiative are to: encourage the adoption of best practices on sustainable management of coral reefs and associated ecosystems; develop capacity and raise awareness at all levels on the plight of coral reefs around the world (www.icriforum.org). To achieve these objectives ICRI involves its over 60 members, among 37 countries, 23 international non-governmental organizations, 8 global intergovernmental organizations and multilateral environmental agreements, among other regional organizations and programs. Brazil actively participated in the ICRI annual meetings from 2006 to 2012, participating again in 2018.

In addition, Brazil was part of the International Coral Reef Policy Advisory Committee, invited by the United Nations Environment Program - UNEP to prepare the document "*The analysis of global and regional policy instruments and governance mechanisms related to the protection and sustainable management of coral reefs*".

In 2012, the United Nations - UN organized a meeting which generated the Manila Declaration on the problem of waste at sea. In 2017, the United Nations Ocean Conference was held, when various countries, including Brazil, pledged approximately 1,400 voluntary commitments on the matter. In 2017, the Brazilian government undertook the Voluntary Commitment to "Develop a national strategy to combat waste at sea". This commitment was internalized in the governmental administrative structure as an activity under the Federal Action Plan for the Coastal Zone 2017-2019.

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11. Protected areas

The National Biodiversity Target 11 envisions the conservation of 30% of the Amazon and 17% of the other biomes, exceeding the global target, which envisions the conservation of 17% of all terrestrial areas. It is considered that the national target is more ambitious than the global target (almost double the global target for approximately half the country). Therefore, all progress achieved in the implementation of the National Target, which is on track to achieve target, contributes to the implementation of the Aichi Target 11.

Brazil considers several forms of territory protection for Target 11 accountability, including Protected Areas – PAs (*unidades de conservação* – UC under Law nº 9.985/2000, which establishes the National Protected Areas System – SNUC) and other protected areas or effective area-based conservation measures – OECMs as long as they maintain native vegetation, such as indigenous lands, quilombola territories, legal reserves, permanent preservation areas, among others. The manner in which these different protection regimes or OECMs will be accounted and incorporated into Target 11 is still under technical discussion. Currently, the official Brazilian statistics used to verify the achievement of Target 11 refer to SNUC protected areas and Indigenous Lands.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A brief summary of activities carried out by Brazil is presented below:

- Brazil achieved great progress towards the achievement of Target 11. In 2018, Brazil reached the milestone of approximately 18.08% protection of terrestrial areas and 26.36% of marine areas. All biomes, except for the Pantanal, had their PA networks expanded. Most of this expansion occurred in the Amazon, where protection increased from 26.61% to 28.08%. According to information in the National Protected Areas Registry – CNUC, 8.83% of the Caatinga, 8.26% of the Cerrado, 9.50% of the Atlantic Forest, 3.14% of the Pampas and 4.55% of the Pantanal are currently protected;
- Indigenous Lands comprise 12.6% of the national territory and provide important protection to a large territorial area of the country, particularly in the Amazon biome;
- Although Brazil has already exceeded the percent protection established by the Aichi Target 11, it is important to note that this Target does not address area alone. There is still progress to be achieved concerning the qualifier aspects, which envision the effective and equitable management of areas and address the ecological representativeness and connectivity issues. Considering these important matters, the Ministry of the Environment is working on the development of indicators to enable the gauging of protected area equitable and effective management criteria, as well as their ecological representativeness;
- To enable the maintenance and conservation of all protected areas, the Brazilian government is developing a broad set of political strategies under various instruments, such as the CNUC and the National Strategic Plan on Protected Areas – PNAP, and in national or regional programs and projects such as the Amazon Region Protected Areas Program – ARPA, Marine and Coastal Protected Areas Program – GEF Mar, Project on biodiversity conservation, restoration and management strategies for the Caatinga, Pampas and Pantanal biomes – GEF Terrestrial, and the Ecological Corridors Project;
- In 2018, Brazil instituted the National Landscape Connectivity Program through Administrative Ruling nº 75, of 26 March 2018. The Program has the objective of promoting ecosystem connectivity and landscape management in the Brazilian territory through integrated public policies to enable sustainable development, promote synergy between nature conservation, maintenance of ecological processes and the socioeconomic and cultural prosperity, and contribute to the reduction of climate change effects on the environment. It is expected that the Program will contribute to the integration of actions for improving connectivity rates at the regional and national scale in the next years;
- A small increase was observed in enforcement actions in federal protected areas in 2016 and 2017 in comparison with 2015. In addition, an adjustment is observed in action planning since 2017, resulting from the planning enhancement for actions implemented through the Annual Enforcement Planning – PLANAF, as compared to the implementation achieved in previous years;
- From 2010 to 2018, there was a 79% increase in the number of federal PAs with a management plan, reaching the number of 195 (58%) PAs under direct management of governmental agencies in 2018, and 139 PAs still with no management plan (42%);
- Application of two methods for assessing management effectiveness of protected areas. The Management

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Analysis and Monitoring System - SAMGe indicated in 2016 that 47% of PAs responded to the assessment request, which resulted in the average effectiveness index of 57.12%. In 2018, the index obtained was 47.89%; however, 313 PAs were assessed, while in 2016 only 156 PAs were assessed. The Rapid Assessment and Prioritization of Protected Area Management - RAPPAM method applied to the full protection PAs in 2015 indicated an effectiveness distribution of 12% PAs in the Low class, 58% Fair (from 40% to 60% effective) and 31% High effectiveness; for the sustainable use PAs the performance was even better, with 18% with Low effectiveness, 33% Fair and 49% High;

- There is a growing trend for federal PAs with established management councils. In 2018, the benchmark of 285 established councils was reached, totaling 85.3% of the 334 federal protected areas.

Other activities contributing to the achievement of the Aichi Biodiversity Target at the global level

Under the Ramsar Convention, Brazil established a Strategy for the conservation and sustainable use of wetlands in Brazil.

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12. Preventing extinctions

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The National Biodiversity Target and the global target are equivalent. Therefore, all progress achieved in the implementation of this national target contributes to the implementation of the Aichi Target 12.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A brief summary of activities carried out by Brazil is presented below:

- Brazil is one of the most biodiverse countries in the world - between 10% and 15% of all currently known species occur in Brazil. The Taxonomic Catalogue of Brazilian Fauna indicates that 118,847 animal species have already been recorded, among vertebrates and invertebrates, and the List of Species of the Brazilian Flora (online Flora of Brazil 2020) already counts with 46,737 recorded species. Brazil is one of the countries housing the largest number of plant species in the world, of which 40% are endemic, with the Angiosperms groups presenting the highest rate of endemism (56%);
- Assessments on the conservation status of fauna and flora were published in 2013 and 2014, informing the current lists of threatened species;
- Currently, 1,173 species of the Brazilian fauna are considered threatened, of which 66.7% count with a National Action Plan. The main identified threats are: habitat loss due to agriculture expansion and large infrastructure works; overexploitation and illegal traffic, and invasive alien species;
- To ensure that threatened species are under some conservation measure, the Brazilian government launched, in 2018, the National Strategy for the Conservation of Threatened Species (MMA Administrative Ruling nº 444, of 26 November 2018);
- From 2013 to 2018, the Rio de Janeiro Botanical Garden, through the National Center for Flora Conservation - CNCFlora, assessed the conservation status of 6,450 species of the Brazilian flora, which represents approximately 14% of the total number of known Brazilian native plant species until 2018, according to the Flora of Brazil. Of the total assessed species, 3,033 were considered threatened, or 47% of the assessed plants and 6.5% of all Brazilian plant species. Of the total number of threatened species, 32.6% count with National Action Plans;
- The Red Book of the Endemic Flora of Rio de Janeiro State was published in 2018, as a result of the assessment of endemic and threatened species. This publication determined that, despite the small territorial size of the state in comparison to the country size, it represents an important area for Atlantic Forest biodiversity, presenting a high number (884) of endemic species. The study identified 513 (58%) threatened species, of which 139 "Critically endangered - CR" (16% of the total), 285 "Endangered - EN" (32%) and 89 "Vulnerable - VU" (10%). The families with the highest numbers of endemic species in the state are also those with the highest numbers of threatened species;

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- Implementation of the GEF Pro-Species Project, initiated in 2018 with the main objective of promoting initiatives to reduce threats and strengthen the conservation status of threatened species;
- The sites of the Brazilian Alliance for Zero Extinction - BAZE Sites were officially recognized in 2018. This instrument recognized those areas housing the last refuges of threatened species under the “endangered” or “critically endangered” categories, and presenting a geographical distribution restricted to one or few sites very close to each other;
- Preparation and implementation of recuperation plans for threatened fish and aquatic invertebrate species. Until present, 9 Recuperation Plans were prepared for threatened species;

Implementation of the National Biodiversity Monitoring Program - Monitora Program, under the Chico Mendes Institute for Biodiversity Conservation - ICMBio. This is a continuous and long-term institutional program targeting the monitoring of the status of biodiversity and associated ecosystem services, to support the conservation effectiveness assessment of the protected areas system, the adaptation to climate change and the use and management of protected areas managed by ICMBio, as well as the conservation strategies for threatened species in the entire national territory. The Program was established by Normative Instruction nº 3, of 4 September 2017, and has three subprograms: Terrestrial, Continental and Marine-coastal.

Other activities contributing to the achievement of the Aichi Biodiversity Target at the global level

In addition to the Convention on Biological Diversity - CBD, ratified and promulgated through Legislative Decree nº 2, of 8 February 1994 and Decree nº 2.519, of 16 March 1998, Brazil is also signatory of the following conventions, which contribute to the achievement of the global target:

- Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere, recognized by Legislative Decree nº 3 of 1948 and Decree nº 58.054, of 23 March 1966;
- Convention on International Trade in Endangered Species of Wild Fauna and Flora - CITES, ratified and promulgated by Brazil through Legislative Decree nº 54, of 24 June 1975, and Decree nº 92.446, of 7 March 1986;
- Ramsar Convention on Wetlands of International Importance, ratified and promulgated by Brazil through Legislative Decree nº 33, of 16 June 1992 and Decree nº 1.905, of 16 May 1996;
- United Nations Convention on the Law of the Sea - UNCLOS, ratified by Brazil through Legislative Decree nº 5, of 9 November 1987 and Decree nº 1.530, of 22 June 1995;
- United Nations Framework Convention on Climate Change - UNFCCC, ratified and promulgated through Legislative Decree nº 1, of 3 February 1994 and Decree nº 2.652, of 1 July 1998;
- United Nations Convention to Combat Desertification - UNCCD, ratified and promulgated by Brazil through Legislative Decree nº 28, of 12 June 1997 and Decree nº 2.741, of 20 August 1998;
- Convention on the Conservation of Antarctic Marine Living Resources - CCAMLR, ratified by Brazil through Legislative Decree nº 33, of 5 December 1985, and promulgated through Decree nº 93.935, of 15 January 1987 and Decree nº 94.401, of 3 June 1987;
- Inter-American Convention for the Protection and Conservation of Sea Turtles - IAC, ratified by Brazil through Legislative Decree nº 91, of 14 October 1999 and promulgated through Decree nº 3.842, of 13 June 2001;
- International Convention for the Regulation of Whaling - ICRW, ratified by Brazil through Legislative Decree nº 14, of 9 March 1950 and Legislative Decree nº 77, of 5 December 1973. Promulgated in Brazil through Decree nº 28.524, of 18 August 1950 and Decree nº 73.497, of 17 January 1974, amended in 23 January 1974;
- International Convention for the Conservation of Atlantic Tunas - ICCAT, approved by Decree-Law nº 478, of 27 February 1969 and promulgated through Decree nº 65.023, of 20 August 1969;
- International Convention for the Prevention of Pollution from Ships - MARPOL, approved through Legislative Decree nº 60, of 19 April 1995 and promulgated through Decree nº 2.508, of 4 March 1998;
- International Convention for the Control and Management of Ships' Ballast Water and Sediments - BWM Convention. Brazil ratified the text of the Convention and approved it through Legislative Decree nº 148, of 15 March 2010;
- Agreement on the Conservation of Albatrosses and Petrels, under the CMS. Approved through Legislative

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Decree nº 187, of 15 July 2008 and promulgated through Decree nº 6.753, of 28 January 2009;

- Memorandum of Understanding on the Conservation of Migratory Sharks. Member since 24 October 2017;
- Memorandum of Understanding on the Conservation of Southern South American Migratory Grassland Bird Species and their Habitats, under the CMS. Enacted on 26 August 2007;
- Convention on the Conservation of Migratory Species of Wild Animals – CMS. The National Congress approved the CMS text through the Legislative Decree nº 387, of 15 October 2013, and the Convention was promulgated through Decree nº 9080, of 16 June 2017.

There are also non-governmental organizations – NGOs in the countries that are involved in species conservation projects. Some of these NGOs and/or their respective species conservation projects are listed below:

- **Albatross Project** – non-governmental organization aiming at reducing incidental catch of albatrosses and petrels. Its main project is the development of research to support public policies and the promotion of environmental education targeting fishermen and schools. One of the results of this effort is the development of protection measures for these birds, social awareness on the importance of the existence of albatrosses and petrels for the marine environment and the adhesion of fishermen to the measures that reduce the capture of these birds in Brazil;
- **SAVE BRASIL** – the SAVE BRASIL counts with a Program for the Conservation of Marine Birds, with the main objective of ensuring the long-term conservation of shorebirds and their habitats. Actions and projects are carried out under the Program for the Conservation of Marine Birds and are aligned with the National Action Plan for the Conservation of Marine Birds – PAN Shorebirds, with the Shorebirds Program and the BirdLife Program on Migratory Birds and Flyways in the Americas;
- **OCEANA Brasil** – the Oceana seeks to protect and increase ocean biodiversity through changes in public policies in countries holding most of the global marine resources. Oceana is committed to promote science-based management of fisheries and restoration of the world’s oceans;
- **Tamar Project** – the main mission of Tamar is to carry out research, conserve and work with the five species of marine turtles that exist in Brazil, all currently threatened, protecting approximately 1,100 km of beaches in 25 feeding, nesting, growing and resting areas of these animals on the coast of oceanic islands and in nine Brazilian states. The project is internationally known as one of the most successful experiences in conservation and functions as a model to other countries, particularly because it directly involves communities in its socioenvironmental initiatives. The National Program for the Conservation of Marine Turtles, implemented in cooperation with the Brazilian Marine Turtles Protection and Research Center – Tamar Center – connected to the Directorate of Biodiversity of the Chico Mendes Institute for Biodiversity Conservation – ICMBio under the Ministry of the Environment, and the Pro-Tamar Foundation – non-governmental, non-profit organization established in 1988 and considered of Federal Public Interest since 1996;
- Brazilian Society for the Study of Elasmobranchs – **SBEEL** – this Society, established in 1997, is a non-profit civil organization of scientific-cultural nature. Its main objectives are: unite people interested in developing studies on elasmobranchs, defended by their legitimate associated rights; promote and support the study of elasmobranchs in education and research areas and community activities, for the conservation and sustainable use of the elasmobranch fauna;
- **Humpback Whale Institute** – the Humpback Whale Institute – IBJ is a civil society organization of public interest (OSCIPI) with the mission of “conserving humpback whales and other cetaceans in Brazil, contributing to the conciliation of human activities with the preservation of the natural heritage”;
- **Right Whale Project** – based at the National Center for the Conservation of the Right Whale, on the Itapirubá Beach, Imbituba, SC, the Project develops long-term research and conservation activities on right whales;
- **Spinning Dolphin Project** – this project is implemented by the Spinning Dolphin NGO and is funded by Petrobras. The project’s mission is to develop research, environmental education and community actions to support the conservation of spinning dolphins in Fernando de Noronha, as well as the conservation of marine biodiversity;
- Friends of the Manatees Association – **AMPA** – this Association was established 14 years ago with the objective of promoting research and protection of the Amazon aquatic mammals.

In 2016, during COP-17, Brazil was co-proponent of four amendment proposals for the CITES Appendices, all of which were approved and resulted in the following: a) *Carcharhinus falciformes*, a shark species, will figure in

Appendix II; b) sharks of the *Alopias* genus will figure in Appendix II: *A. superciliosus*; *A. vulpinus*; *A. pelagicus*; c) rays of the *Mobula* genus will figure in Appendix II: *M. tarapacana*; *M. japonica*; *M. mobular*; *M. thurstoni*; *M. eregoodootenkee*; *M. kuhlii*; *M. hypostoma*; *M. rochebrunei*; and *M. munkiana*; d) plants of the *Dalbergia* genus will figure in Appendix II, except for species already included in Appendix I: the genus includes trees, bushes and lianas, with approximately 250 species in the tropics and 304 on the entire planet. Additionally, Brazil authored a document that was also approved, proposing the finance of the recuperation of species included in Appendix I, which present higher extinction risk, and for which no project or financing is ongoing. The document presented by Brazil highlighted the existence of 975 species listed in Appendix I, of which 623 (64%) are classified under some threat category according to the criteria of the International Union for the Conservation of Nature - IUCN, and, of this fraction, the populations of 429 species (44%) are in decline.

13. Agricultural biodiversity

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The National Biodiversity Target included the maintenance of the genetic diversity of microorganisms, being considered more ambitious than the global target. Therefore, all progress achieved in the implementation of the national target, which is on track to achieve target, contributes to the implementation of the Aichi Target 13.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A brief summary of activities carried out by Brazil is presented below:

- Institutionalization of a list of socio-biodiversity species for their commercialization *in natura* or as processed products, under the operations carried out by the Food Acquisition Program - PAA (Inter-ministerial Administrative Ruling nº 284, of 30 May 2018). This is an important instrument to guide the acquisition of food and other public policies targeting the conservation of the diversity of species of nutrition value;
- Implementation of the Biodiversity for Food and Nutrition Project - BFN, with the objective of conserving and promoting the sustainable use of biodiversity in programs that contribute to improve food safety and human nutrition. The project valued the food and nutritional importance of species related to agrobiodiversity and recovered the previous cultural value of many of these species. In addition, the project supported the increase in the number of native species currently used in diets, the mitigation of problems related to simplified diets and the strengthening of agrobiodiversity conservation and sustainable use, particularly through the incorporation of mainstreaming actions in programs and strategies of national food and nutrition safety and sovereignty;
- Publication, by the Special Secretariat of Family Agriculture and Agrarian Development - SEAD, of the Administrative Ruling nº 129/2018, instituting the Socio-biodiversity Seal, connected to the Identification Seal of Family Agriculture Participation - SIPAF, as a measure to benefit producers who cultivate native species of their regions and to promote the production of native biodiversity;
- Increase, from 2016 to 2017, of payments made under the Minimum Price Policy for Sociobiodiversity-based Products - PGPM-Bio to edible socio-biodiversity products, from R\$ 505,000 to R\$ 1.2 million;
- Increase in acquisitions, under the Food Acquisition Program - PAA of socio-biodiversity products based on species listed in Administrative Ruling nº 284/2018. Even though the total annual budget decreased from R\$ 430 million in 2016 to approximately R\$ 360 million in 2017, an increase was observed in the proportion of expenditures with socio-biodiversity products, from 2.75% in 2016 to 5.02% of the disbursed total in 2017;
- Significant increase in the number of conserved samples of plant genetic resources for food and agriculture in the 1976-2016 period, reaching 112,000 samples. The time series of the number of animal genetic resources protected between 2009 and 2017 indicates a significant increase in the number of conserved samples. Embrapa holds 21 collections of microorganisms distributed through 18 research centers in various Brazilian states, encompassing approximately 45,000 lineages of microorganisms;
- Implementation of the QUALIVEG, QUALIANI and QUALIMICRO projects by Embrapa, initiated in 2016. The objective of the projects is to map current conditions of the plant genetic banks, animal conservation centers and microorganism collections maintained by Embrapa throughout the national territory, to adjust them to

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international quality standards;

- Launch (2014) and consolidation of a new information system on genetic resources managed by Embrapa - [Alelo Portal](#). The portal counts with three information systems (animals, microorganisms and plants), which enable access to information related to the conserved genetic resources, essential for activities of interchange and use of germplasm. Information is uploaded by germplasm curators and their teams, in a decentralized manner, and its public pages are of open access, emphasizing the importance of transparency in governmental information;
- Implementation of the Global Action Plan for the Conservation and Sustainable Use of Plant Resources for Food and Agriculture.

Other activities contributing to the achievement of the Aichi Biodiversity Target at the global level

Brazil is signatory of the International Treaty on Plant Genetic Resources for Food and Agriculture - IT PGRFA (approved through Legislative Decree nº 70 of 18 April 2006 and promulgated through Decree nº 6.476, of 5 June 2008.

Brazil participates in the PROCITROPICOS - a network including the national research institutions of Brazil (EMBRAPA), Bolivia (INIAP), Colombia (CORPOICA), Ecuador (INIAP), Peru (INIA), Suriname (CELOS) and Venezuela (INIA). The PROCITROPICOS mission is to promote and implement cooperation activities of research, development and innovation for sustainable tropical agriculture.

In addition, Brazil participates in the Forum for the Americas on Agricultural Research and Technology Development (FORAGRO). This forum is a space for discussion and agreement on the most important issues facing agriculture in the Americas and, along with other actors, it forms part of the Hemispheric Agrifood Technology and Innovation System. The Inter-American Institute for Cooperation in Agriculture - IICA is in charge of the FORAGRO Technical Secretariat.

Brazil also participates in the Amazon Cooperation Treaty Organization - ACTO (or OTCA, in Portuguese and Spanish), which is an international organization established to promote the conservation of the Amazon basin and regulate the Amazon development through international cooperation. The Amazon Cooperation Treaty was developed and signed on 3 July 1978 by Bolivia, Brazil, Colombia, Ecuador, Guiana, Peru, Suriname and Venezuela.

Furthermore, Brazil participates in the Cooperative Program for the Development of Agricultural Technology in the Southern Cone - PROCISUR, established in 1980 with support from the Interamerican Development Bank - IDB. This is a joint initiative of the National Agricultural Research Institutes of the Southern Cone and of the International Cooperation for Agriculture.

Lastly, Brazil is part of the Research Network on Pollination and Sustainable Management of Pollinators - POLINFRUT. The Network developed research, education and extension activities in the municipalities of Ibicoara and Mucugê, state of Bahia, under the Project for the "Conservation and Management of Pollinators for Sustainable Agriculture through an Ecosystem Approach" (FAO / GEF / UNEP / FUNBIO). This project was supported by the Global Environment Facility - GEF and was implemented in seven countries: Brazil, South Africa, India, Pakistan, Nepal, Ghana and Kenya.

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14. Essential ecosystem services

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The National Biodiversity Target was more ambitious than the global target by listing other actors (traditional peoples and communities) to have their needs considered. Therefore, all progress achieved in the implementation of this national target contributes to the implementation of Aichi Target 14.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A brief summary of activities carried out by Brazil is presented below:

- Some of the most important ecosystems concerning the provision of essential services are located in Permanent Preservation Areas - APPs and Legal Reserves - RLs (defined under Law nº 12.651/2012 - Law on

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the Protection of Native Vegetation), which, in turn, are mostly located inside private rural properties;

- Programs for the recuperation and restoration of degraded ecosystems in Brazil have increased significantly in the last two decades as a result of the active participation of the Ministry of Justice and state Secretariats of the Environment to promote compliance with the 1965 Forest Code. Even though the revision of the 1965 Forest Code carried out in 2012 reduced by 41 million hectares the total area to be restored in Brazil, the progress obtained in the governance of the recuperation/restoration demands and the creation of the Rural Environmental Registry - CAR paved the way to the large-scale implementation of recuperation;
- Between 2015 and 2016, the number of rural properties registered in CAR increased by 127%, demonstrating a growing movement by rural landowners interested in promoting the environmental compliance of their areas;
- Development of the 1st Brazilian Diagnostic on Biodiversity & Ecosystem Services and Summary for Decision Makers, by the Brazilian Platform of Biodiversity and Ecosystem Services - BPBES;
- Preparation of the Thematic Report on Pollination, Pollinators and Food Production in Brazil by BPBES. Of the 141 Brazilian agricultural crops, 85 depend on pollination carried out by animals. Approximately 80 families and 469 species of plants are cultivated in agroforestry systems. Over 245 species of the Brazilian flora are used as base for cosmetic and pharmaceutical products, and at least 36 native plant species are recorded as phytotherapics;
- Preparation of the Thematic Report and Summary for Decision Makers on Landscape and Ecosystem Restoration, by BPBES;
- CAR and the Environmental Regularization Programs - PRAs; the National Policy on the Recuperation of Native Vegetation - PROVEG, through the National Plan for the Recuperation of Native Vegetation - PLANAVEG are the main Brazilian public policy initiatives focusing on the recuperation of degraded areas and their ecosystem services;
- Adjustment carried out in the 2018/2019 Agriculture and Livestock Plan - Plano Safra -, which enabled to finance the acquisition of inputs for the recuperation of permanent preservation areas and legal reserves under the recurrent cost category. This facilitates the environmental adjustment of rural properties. Another novelty of the new Plano Safra is the raising of the finance ceiling and interest reduction for environmental recuperation projects;
- In 2018, MMA published the "Priority Index of Forest Restoration for Water Safety: An application for metropolitan regions in the Atlantic Forest", with the objective of identifying micro-watersheds and headwaters that require priority activities of forest restoration and ecosystem conservation to secure the water supply of the largest metropolitan regions in the Atlantic Forest;
- Implementation of the Water Producer Program - PPA of the National Water Agency - ANA, as a means to promote the development of water resource conservation initiatives, and which is based on the National Water Resources Policy (Law nº 9.433/1997). The Program promotes capacity building, facilitates regional partnerships and offers Payment for Ecosystem Services - Water PES -, applicable as a means to remunerate and/or compensate rural producers for the environmental services generated in their properties, encouraging the adoption of good management practices in their production and conservation areas;
- Development of the study "Priority areas for recuperation in the Atlantic Forest". This study applied multiple criteria for prioritization: biodiversity conservation objectives, carbon sequestration, minimization of conflicts with agriculture, and minimization of recuperation costs;

Amazon Fund Call for Proposals nº 02/2017 - Recuperation of vegetation cover: with the objective of selecting projects on the recuperation of vegetation cover to receive non-reimbursable financial support from the Amazon Fund, with the purpose of increasing native vegetation cover in the Legal Amazon and strengthening the technical and management structure of the production chain of the vegetation cover recuperation/restoration sector, in the context of the environmental regularization process of rural holdings/properties established by Law nº 12.651/2012 (Law on the Protection of Native Vegetation). The total amount of resources allocated to projects selected through this Call for Proposals was R\$ 200 million.

Other activities contributing to the achievement of the Aichi Biodiversity Target at the global level

There are activities being carried out which are aligned with the Brazilian Nationally Determined Contribution - NDC established under the Paris Agreement of the UNFCCC in September 2016. The Brazilian NDC envisions the

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15. Ecosystem resilience

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

It is considered that the national target and the global target are equivalent. Therefore, all progress achieved in the implementation of this National Target contributes to the implementation of the Aichi Target 15.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A brief summary of activities carried out by Brazil is presented below:

- Between 2005 and 2015, a significant emissions reduction of 1,572,859.30 Gg CO₂eq was reached by the Land Use Change and Forestry Sector, exceeding the total emissions reduction target established by the Brazilian NDC of 1,013,185.98 (= 2,738,340.49 /2005 - 1,725,154.51/2015 Gg CO₂eq). Between 2005 and 2015, this sector reduced its contribution from 70% of the national emissions (1,904,665.40 of 2,738,340.49) to 24% (331,806.10 of 1,368,151.90 Gg CO₂eq). Thus, it is noted that the total country's emissions were reduced and the measures to control deforestation were effective to achieve this reduction. Recorded data register emission until 2015. Emissions estimates for the 2015-2018 period have not yet been published to allow verification of changes in reduction trends, given the increase in deforestation rates recorded since 2012;
- The time series of the Project on the Satellite Monitoring of Deforestation in Brazilian Biomes - PMDBBS on the variation in deforested area at the non-Amazon biomes (except for the Cerrado, which counts with a time series provided by PRODES Cerrado) indicates a steep reduction trend for the Caatinga (30%), Atlantic Forest (46%), Pampas (10%) and Pantanal (74%) biomes in the 2008-2009 period in comparison with the previous 2002-2008 period. The next assessment period of 2009-2010 indicates an increase for the Pampas (25%), Pantanal (47%) and Atlantic Forest (56%), while the deforestation rate for the Caatinga continued to reduce (41%). Deforestation rates reduced again during the next 2010-2011 period for the Caatinga (56%), Pampas (20%) and Pantanal (22%). No records were made during this period for the Atlantic Forest;
- The Cerrado data provided by PRODES Cerrado indicate that, since the beginning of the data series, a reduction trend in deforestation is observed, despite two increase peaks recently occurred in 2013 and 2015. However, a reduction trend is observed for the next years, even with the high estimate for 2018 in comparison with 2017. It is not yet possible to identify whether the trend will continue to increase;
- The Project on the Satellite Monitoring of Deforestation in the Legal Amazon - PRDES monitors deforestation in the Legal Amazon, which is a region encompassing the entire Amazon biome and part of the Cerrado biome. Still, it is possible to infer that deforestation rates have reduced significantly in the Amazon since 2004 when compared to all the previous years, which recorded high rates. Since the beginning of the implementation of the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon - PPCDAm, the deforestation rates have decreased. During the 6-year period of 2012-2018, four years registered an increase in deforestation rates (2012-2013, 2014-2015, 2015-2016, 2017- 2018); nevertheless, a longer time interval is necessary to identify a trend;
- The National Registry of Public Forests - CNFP is a planning instrument for forest management that gathers georeferenced data on Brazilian public forests, to inform public managers and society through a database of maps, images and relevant data and information for forest management. CNFP data support the processes of designating public forests to community use, creation of protected areas and granting of forest concessions. The total area of public forests registered in 2018 corresponds to approximately 309.7 million hectares, or 36.3% of the Brazilian territory. In 2018, public forests recorded in CNFP according to the type of forest use were divided into the categories of: Indigenous Lands (37.2%), community use protected areas (8.9%), protected areas (26.7%), rural settlements (4.8%), non-designated lands (21.4%), military areas and others (1%) (SFB, 2019, accessed on 05 August 2019). Between 2007 and 2018, Brazil advanced significantly in the process of designating public lands. In 2007, 165 million hectares were designated and, by 2017, this total increased to 246 million hectares. Until 2018, the Brazilian Forest Service had established forest concession contracts in six National Forests (Flonas) in Pará and Rondônia, comprising 1,018,671.85 hectares under forest concession regime, which will be sustainably managed by 10 companies for 40 years;

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- The regular satellite detection of fire occurrences allows to assess space and time trends of fire occurrences in the Brazilian territory. Records for the 1999-2013 period present an annual average of 182,000 fire occurrences, with large yearly variation (between 100,000 and 250,000 occurrences/year). Along this period, different trends are observed. Between 2006-2013, an average of 156,000 fire occurrences was recorded. The two worst years of the recent past were 2004 and 2010, registering 270,000 and 250,000 occurrences, respectively. On the other hand, 2013 registered 115,000 occurrences. Since 2015, a reduction in the number of fire occurrences is observed until 2018, which presented the second smaller record of average annual fire occurrences since the beginning of the time series;
- PLANAVEG, launched by Inter-ministerial Administrative Ruling nº 230, of 14 November 2017, represents a great opportunity for carbon capture and improving the adaptation of important ecosystems to climate change through native vegetation restoration initiatives. The objective of PLANAVEG is to expand and strengthen public policies, financial incentives, markets, good agriculture and livestock practices, and other necessary measures for the recuperation of native vegetation in, at least, 12 million hectares by 2030, mainly in permanent preservation areas and legal reserve, but also in degraded low-productivity areas;
- The Atlas of Brazilian Mangroves was published in 2018. This publication presents, among other information, the ecosystem services provided by mangroves, the current knowledge on mangrove recuperation targeting its conservation and maintenance of species and ecosystem services and, finally, presents the framework for the establishment of a National Strategy for the Conservation and Sustainable Use of Mangroves;
- Data from the Amazon TerraClass indicate that in 2014 there were 94,248.02 km² classified as secondary vegetation which remained in this category for at least 6 years, i.e., that would be undergoing a recuperation process;
- A study published by researchers and members of the Pact for the Restoration of the Atlantic Forest demonstrated that, between 2011 and 2015, the Atlantic Forest had between 673,510 and 740,555 hectares under recuperation;
- The development of systems for monitoring forest recuperation and the recuperation of degraded ecosystems is an important step to be taken towards monitoring the policies on recuperation of native vegetation and degraded ecosystems in the country. Initiatives exist for assessing recuperation in the Atlantic Forest and Amazon biomes. However, these initiatives need to be expanded to the entire national territory and integrated to the systems for monitoring deforestation and vegetation remnants in rural properties.

16. Nagoya Protocol on ABS

Description of how and to what extent your country has contributed to the achievement of this Aichi Biodiversity Target

It is considered that the national target and the global target are equivalent. Therefore, all progress achieved in the implementation of this National Target, which is on track to achieve target, contributes to the implementation of the Aichi Target 16.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A brief summary of some activities carried out by Brazil and that contribute to the achievement of this Target is presented below:

- Even though Brazil did not ratify the Nagoya Protocol, it was one of the first countries to adopt a national legislation on the theme, in the form of the Provisional Measure MP nº 2.052, of 29 June 2000. After a series of revisions, this provisional measure was consolidated into the MP nº 2.186-16, of 23 August 2001. However, the experience acquired during the implementation of this regulatory framework with the status of law emphasized the need of enhancing legislation efficiency to achieve the objectives of the Convention on Biological Diversity in Brazil, particularly regarding benefit sharing;
- On 20 May 2015, Law nº 13.123 was published, revoking MP nº 2.186-16/2001 and creating a more modern system for managing access and benefit sharing in Brazil, in line with all requirements of the Nagoya Protocol. The most recent legislation rules on the Sharing of Benefits resulting from the economic use of finished products or reproductive materials by agricultural activities, when developed from access to genetic heritage or to

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associated traditional knowledge;

- The sharing of benefits can occur as monetary or non-monetary compensation. The Law establishes the negotiation, collection and application according to the type of access that originated the product for which sharing is due;
- There is also the possibility of paying resources from Benefit Sharing into the National Fund for Benefit Sharing - FNRB, as monetary compensation. In such cases, the amount to be shared will be the amount defined in Law nº 13.123/2015 as 1% (one per cent) of the annual net income obtained from the economic use of the finished product or reproductive material;

Brazil is currently implementing the FNRB and improving the online platform of the National System for the Management of Genetic Heritage and Associated Traditional Knowledge - SisGen. SisGen was established in 2017 and presented, along 2018, a significant increase in the records and requests for access and shipping. This increase demonstrates that society has been using the system to the extent that the legislation is implemented, and users become more familiarized with the obligations required by Law

17. NBSAPs

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The National Biodiversity Target anticipated the date of adoption of the National Biodiversity Strategy to 2014 and included periodic monitoring and evaluation of its implementation. It is considered that both targets are equivalent. Therefore, all progress achieved in the implementation of this National Target, which is on track to achieve target, contributes to the implementation of the Aichi Target 17.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A brief summary of activities carried out by Brazil is presented below:

- Updating of the National Strategy, which was carried out in several steps, from 2010 until present: (i) the definition of new national targets for the 2011-2020 cycle through the participatory process of the Dialogues on Biodiversity; (ii) the multi-sectoral construction of contributions to a Governmental Action Plan for the Conservation and Sustainable Use of Biodiversity; (iii) the creation of the Brazilian Biodiversity Panel - PainelBio; (iv) the discussion on indicators for the national targets for 2020, with strong technical support from PainelBio; (v) the structuring of the preliminary document of the National Biodiversity Strategy and Action Plan - NBSAP and construction of its main elements; (vi) invitation to other social sectors to engage in the NBSAP; (vii) preparation of the 2nd version of the NBSAP, expanded;
- Following the completion of the first version of the NBSAP, which focused mainly on the programs carried out by the MMA Secretariat of Biodiversity, the MMA led a process to mobilize its other secretariats, subordinate agencies and other governmental and non-governmental institutions. During the preparation process of the second version of the NBSAP, 231 institutions were invited to engage in the process, presenting their contributions. Complementary actions reported during the monitoring process to inform the 6th National Report by institutions engaged in the NBSAP Action Plan, combined with actions by institutions not engaged in the NBSAP, increased to 1,032 the total number of actions included in the NBSAP Action Plan, distributed among the 20 biodiversity targets. At the end of this process, the adhesion of new institutions increased to 66 the number of institutions reporting biodiversity-related actions in the NBSAP Action Plan;
- This rich process to update the National Strategy mobilized the participation of various sectors and produced analyses and information of great importance to Brazilian biodiversity, such as the joint identification of the main causes for the loss of its elements, as well as the 26 consequences of the process of biodiversity loss, of which the extinction of species and the loss of traditional knowledge feature as most evident, in the federal government's opinion;
- The NBSAP construction incorporated issues related to gender equality. Brazil hosted in 2016 the workshop on "Mainstreaming the Gender Perspective into the National Biodiversity Strategy and Action Plan", with the participation of women representing indigenous peoples, quilombolas, social organizations, non-governmental organizations, urban and rural zones, and female university researchers;

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- During the NBSAP preparation, recommendations were proposed to include, in the Brazilian biodiversity conservation strategy, actions related to the sustainable development goals, including health, food safety, poverty eradication and improvement of water resources management. These discussions resulted in a better integration of the NBSAP with actions proposed in forums working directly with the implementation of the SDGs in Brazil;

The dynamic and multisectoral character of the NBSAP requires it to be periodically monitored and updated. The assessment of implementation of the actions included in the national biodiversity action plan, including actions reported in 2018, reveals that 12% of actions were concluded, 54% are under implementation, 15% are being planned or initiating implementation, and only 7% have not yet initiated. Actions with no information represented 12% of the total. According to the institutions that carried out this assessment, most evaluated actions were considered efficient (51%) and partially efficient (25%). Only 3% of actions in the action plan were considered inefficient. Most actions were assessed through reports and other types of publications (38%), or project monitoring and evaluation processes (31%). Actions implementing activities related to gender equality represented 11% of the total. These data indicate that the Brazilian NBSAP is under active implementation and should fulfill most of the proposed actions by 2020.

18. Traditional knowledge

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

It is considered that the national target and the global target are equivalent. Therefore, all progress achieved in the implementation of this National Target, which is on track to achieve target, contributes to the implementation of the Aichi Target 18.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A brief summary of activities carried out by Brazil is presented below:

- The National Policy for the Sustainable Development of Traditional Peoples and Communities – PNPCT was established in 2007 through Decree nº 6.040. The Policy is a federal government action to promote the sustainable development of traditional peoples and communities, emphasizing the recognition, strengthening and safeguarding their territorial, social, environmental, economic and cultural rights, with respect and valuation of their identities, forms of organization and institutions;
- According to the estimate of the National Coordination of Black Rural Quilombola Communities – Conaq, Brazil houses between 5,000 and 6,000 quilombola communities. Of these, 2,997 are certified by the Palmares Cultural Foundation and 151 territories are titled by the National Institute of Agrarian Reform – INCRA, and 1,692 land tenure regularization processes are currently under analysis. The Working Group on Territorial and Environmental Management of Quilombola Territories is an initiative to promote the protection, conservation and sustainable management of natural resources and the cultural valuation of quilombola territories, addressing the group of quilombola communities certified by the Palmares Cultural Foundation, regardless of the land tenure status of their territories;
- The Indigenous Lands ensure the well-being and preservation of the culture of indigenous peoples, and currently correspond to a significant territorial extension totaling 12.6% of the national territory, performing biodiversity conservation functions similar to those of protected areas. In the Legal Amazon, indigenous lands cover 108 million hectares and represent 21.1% of the area. Satellite images reveal that the lands inhabited by indigenous peoples are those most preserved facing the expansion of the economic frontier and deforestation, particularly in the Amazon. This scenario places indigenous peoples and their territories in a crucial position regarding public policies for biodiversity conservation and sustainable use;
- In 2008, the federal government initiated the process to construct the National Policy for the Territorial and Environmental Management of Indigenous Lands – PNGATI, a public policy with the objective of creating space and opportunities for indigenous peoples and the government to dialogue on the objective of improving the management of biodiversity, natural resources and traditional knowledge of indigenous peoples. The Project for Environmental Management in Indigenous Lands – GATI initiated in 2010 and has the main objective of strengthening indigenous management, sustainable use and conservation of natural resources practices and

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social inclusion of indigenous peoples, consolidating the contribution of Indigenous Lands as essential areas for the conservation of biological and cultural diversity in Brazilian forest biomes. The number of indigenous lands with Territorial and Environmental Management Plans of Indigenous Lands – PGTAs has increased in the last several years. Since 2012, 64 indigenous lands prepared or revised their PGTAs. Currently, of the 449 ratified or regularized indigenous lands, 91 have PGTAs;

- Strengthening of family agriculture through the National School Nutrition Program – PNAE. Law nº 11.947, of 16 June 2009, determines that at least 30% of the amount transferred to states, municipalities and the Federal District by the National Education Development Fund – FNDE to PNAE should be used to acquire foodstuffs directly from family agriculture and rural family entrepreneurs or their organizations, prioritizing the settlements of the agrarian reform, traditional indigenous communities and quilombola communities;
- The total area of public forests allocated to community use in Brazil has significantly increased in the last decades, from less than 34 million hectares in 1990 to over 157 million hectares in 2017. This increase is mainly due to the effective effort carried out to identify and designate public lands, particularly Indigenous Lands and responding to demands presented by traditional peoples and communities for the creation of extractive reserves – RESEX and sustainable development reserves – RDS. Approximately 51% of the area registered as public forests was designated to Traditional Peoples and Communities and Family Agriculture Producers – PCTAF: 37.2% are Indigenous Lands, 8.9% are sustainable use protected areas, and 4.8% are settlements of the agrarian reform;
- Socio-biodiversity is represented by the interaction of local communities, indigenous peoples and family agricultural producers with a set of biodiversity species. These different communities conserve, manage and use the different components of socio-biodiversity sustainably. The recuperation, conservation and sustainable use of socio-biodiversity species contributes to the conservation of *crioula* varieties and species adapted to local contexts. The promotion of sustainable extractive activities of socio-biodiversity contributes to food safety, income generation and social inclusion;

The Minimum Price Policy for Sociobiodiversity-based Products – PGPM-Bio ensures minimum prices for 17 extractive products that assist in the conservation of Brazilian biomes: assai, andiroba, babassu, baru, extractive timber, buriti, extractive cocoa, Brazil nut, carnauba, juçara, macaúba, mangaba, murumuru, pequi, piassava, pine nut and umbu. Studies are being developed to include new socio-biodiversity products in this policy. The National Supply Company – Conab supports the commercialization of these products and the development of extractive communities, through the Direct Subvention to Extractive Products – SDPE, which consists of the payment of a bonus when extractive producers attest the sale of an extractive product for a price below the minimum amount defined by the federal government.

19. Biodiversity knowledge

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

The National Biodiversity Target specifies that, by 2017, the complete compilation should occur of existing records on aquatic and terrestrial fauna, flora and microbiota, and that this information should be made available through permanent databases. It is considered that the National Target is more ambitious than the global target. Therefore, all progress achieved in the implementation of this National Target, which is on track to exceed target, contributes to the implementation of the Aichi Target 19.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A brief summary of activities carried out by Brazil is presented below:

- Development of the Program on the National Biodiversity Research System – SISBIOTA Brazil, implemented from 2009 to 2017, with an investment of approximately R\$ 44 million in 39 research networks in all Brazilian biomes. The main objectives of the program are to promote the progress of knowledge and expand national research on biodiversity; inform public policies; promote education and scientific dissemination; and train human resources;
- Development of the Biodiversity Research Program – PPBio, established in 2004 with national scope and the

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objective of promoting the development of research, training and capacity building of human resources and institutional strengthening in the area of research and development of biological diversity, in compliance with the Directives of the National Biodiversity Policy. PPBio is structured around three main components: Biological Inventories, Biological Collections and Thematic Projects, and counts with various Regional Centers and Partner Projects around the country;

- Implementation and consolidation of the Long-Term Ecological Research Program - PELD, which represents a pioneer initiative and a strategic vision of the federal government by coordinating, since 1999, a network of reference sites for scientific research on Ecosystem Ecology. Through PELD, the National Scientific and Technological Development Council - CNPq promotes the generation of qualified knowledge on ecosystems and the biodiversity they house. PELD also encourages the transfer of generated knowledge to civil society to contribute to the environmentally sustainable development of the country;
- Implementation of the Plants of Brazil Program: Historical Recuperation and Virtual Herbarium for the Understanding and Conservation of Brazilian Flora - REFLORA. The REFLORA Program has the objective of retrieving and making available to Brazil and to the world, images and information on samples of the Brazilian flora collected in the 18th, 19th and 20th centuries by foreign missions, and that are deposited with foreign herbaria. Currently, the Virtual Herbarium makes available over 2 million plant specimens with open access, with images repatriated from eight foreign herbariums;
- Implementation of the Program for Capacity Building on Taxonomy - PROTAX, resulting from discussions held by scientific societies, which for years have indicated the lack of taxonomists and their importance for the country to generate and understand Brazilian biodiversity, particularly given the large territorial size of the country and its megadiversity;
- Consolidation of the 14 National Research and Conservation Centers distributed through nine states, under the Chico Mendes Institute for Biodiversity Conservation - ICMBio, which is responsible for the management of 335 protected areas corresponding to approximately 9% of the national territory, in all biomes. It is also responsible for the conservation strategies of the Brazilian threatened fauna, including the process of assessing the conservation status of threatened species;
- Carrying out scientific research at the Rio de Janeiro Botanical Garden on various Botany themes, such as taxonomy, anatomy, morphology, physiology, biogeography, phytogeography, ecology and conservation, as well as on history of science, phytopathology and other themes associated to botanical gardens. JBRJ also houses the National Center for Flora Conservation - CNCFlora, which has the following attributions:
 - Organize and manage available scientific information on species of the Brazilian flora and associated ecological processes through an information system capable of informing the assessments of the extinction risk and plan actions for the conservation of these species;
 - Assess the conservation status of species of the Brazilian flora, informing the periodic update of the Official National List of Brazilian Threatened Flora Species;
 - Prepare and publish the National Action Plans for the Conservation of Threatened Species - PAN for the species of the Brazilian flora, in coordination with the Chico Mendes Institute for Biodiversity Conservation - ICMBio, and implement, within its jurisdiction, the actions planned in the PANs for species of the Brazilian flora;
 - Raise and mobilize resources for the implementation of the Project of the "National Strategy for the Conservation of Threatened Species (GEF Pro-Species)", in coordination with the Ministry of the Environment;
 - Formalize the cooperation acts or instruments with foreign partners for PAN preparation; and
 - Prepare maps of species occurrence and priority areas for the conservation of threatened species of the Brazilian flora;
- Implementation of the National Forest Inventory - IFN, one of the main inventories carried out by the federal government to produce information on the Brazilian forest resources. The IFN collects data directly in the forests - natural and planted - including the collection of botanic and soil samples, measurement of trees and interviews with local inhabitants. Thus, the quality and condition of forests are assessed, as well as their importance to people. IFN has national scope and applies standardized methodology for all biomes. Data collections are carried out at sites systematically distributed every 20 km throughout the country;
- Implementation of the Information System on Brazilian Biodiversity - SiBBr, which is an online platform that

consolidates existing information on Brazilian biodiversity. Its objective is to support scientific production and the development of public policies and decision making associated to environmental conservation and the sustainable use of natural resources, through incentives and facilitation of digitization, internet publication, integration of open access data, and use of information on Brazilian biodiversity;

- Establishment of the initiative Brazilian Platform of Biodiversity and Ecosystem Services – BPBES, which seeks to place the issues related to the conservation and sustainable use of biodiversity and ecosystem services at the core of the country’s development model. The initiative systematizes scientific and traditional knowledge on biodiversity, ecosystem services and their relations with human well-being, and make them available in accessible language, contributing to bring scientific knowledge and public policies closer together and inform decision makers. Formally constituted as a working group of the Brazilian Society for the Progress of Science – SBPC, the BPBES initiated its activities at the end of 2015 and counts with financial support from CNPq and from the BIOTA/FAPEST Program, and support from the Brazilian Sciences Academy – ABC and the Brazilian Foundation for Sustainable Development – FBEDS. Until present, five reports/diagnostics were published;
- Publications: Environmental Potency of Biodiversity: an innovative pathway for Brazil. Special Report of the Brazilian Panel on Climate Change and of the Brazilian Platform of Biodiversity and Ecosystem Services;

Establishment of the Biodiversity and Ecosystem Services Synthesis Center – Sinbiose, in 2018, and which was formally instituted by CNPq in 2019, with the mission of producing syntheses of data and concepts according to high international standards, emphasizing projects related to current biodiversity and ecosystem services issues, leading to socially relevant results. The Center should function as an intermediary body between science and politics, supporting the development of scenarios, strategies and solutions for this theme. It should also identify knowledge gaps and emerging environmental issues.

20. Resource mobilization

Description how and to what extent the country has contributed to the achievement of this Aichi Biodiversity Target

It is considered that the national target and the global target are equivalent. Therefore, all progress achieved in the implementation of this National Target contributes to the implementation of the Aichi Target 20.

For a more detailed account of activities developed by Brazil as contribution to the achievement of the global biodiversity target, please refer to Section III of this Report.

A brief summary of activities carried out by Brazil is presented below:

- Most resources allocated to biodiversity conservation and sustainable use in Brazil originate from the public sector. For that reason, expenditures related to this theme are directly impacted by the macroeconomic scenario of the country. Total budgetary resources of the Ministry of the Environment – MMA planned in the Annual Budgetary Law – LOA presented a reduction of approximately 20%, from R\$ 4,978,363,247.68 in 2012 to R\$ 3,975,510,512.00 in 2017. Effectively spent resources related to a given budget year correspond to the paid amount + paid RAP (residual payments). In this case, there is an increase of approximately 7.6% in total amounts between 2012 and 2017, from R\$ 2,989,489,958.14 to R\$ 3,215,910,408.48. The total amount effectively spent (paid amount + paid RAP) by MMA and its subordinate agencies was R\$ 18,606,577,961.44 between 2012 and 2017;
- The crosscutting aspect of the environmental theme causes other ministries to also implement actions that contribute to the achievement of biodiversity conservation targets. Non-budgetary sources, as well as the establishment of national or international partnerships, have been applied as alternative to directly or indirectly implement biodiversity conservation actions, contributing to the achievement of the established targets;
- Studies have been carried out to understand and assess the scenario of biodiversity conservation finance and identify the existing needs to achieve the Aichi Targets and the Sustainable Development Goals – SDGs, the origin of existing resources, existing and possible financing mechanisms for direct or indirect biodiversity conservation actions, including problems related to the implementation and monitoring of initiatives. The resulting publications and studies are informing the progress on themes such as payment for ecosystem services, fine conversion, Ecological ICMS, public and private financing structures, among others;
- Studies carried out by the Biodiversity Finance Initiative – BIOFIN, managed by the United Nations

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Development Program - UNDP, targeting the management improvement of nature and ecosystem services through the increase and use of knowledge on mechanisms and solutions that enable nature conservation and sustainable development, are still being finalized and should contribute to enhance available information by 2030. The preliminary results of this Initiative are described in Section III, under Target 20. It should be noted that the analyses reveal that the environmental theme fulfills its crosscutting role with the other agenda and different sectoral agencies, but also demonstrate that the agencies responsible for environmental policies work with little resources for implementing actions under their responsibility to support crosscutting policies;

- The Amazon Fund is notably one of the main investors in conservation projects in the country. Since its establishment, the Fund has already supported over 100 projects, disbursing a total of R\$ 1.011 billion;
- The Economics of Ecosystems and Biodiversity Initiative, known by its acronym TEEB and dedicated to study the economic values of biodiversity and biodiversity loss, produced, in partnership with the Brazilian government, studies and publications that collaborate to identify pathways for financing biodiversity conservation, as detailed in Section III, Target 20.

Description of country's contributions to the achievement of the Aichi Biodiversity Targets, please describe how and to what extent these contributions support the implementation of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals:

As established on the Technical Note "[Biodiversity and the 2030 Agenda for Sustainable Development](#)", prepared by the CBD, the 2030 Agenda for Sustainable Development sets out an ambitious framework of universal and indivisible goals and targets to address a range of challenges. Biodiversity and ecosystems feature prominently across many of the Sustainable Development Goals - SDGs and associated targets. Biodiversity is at the center of many economic activities, particularly those related to crop and livestock agriculture, forestry, and fisheries. Globally, nearly half of the human population is directly dependent on natural resources for its livelihood, and many of the most vulnerable people depend directly on biodiversity to fulfill their daily subsistence needs.

The Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets adopted under the Convention on Biological Diversity has been recognized as setting the global framework for priority actions on biodiversity.

The 2030 Agenda is consistent with other existing international commitments, including the Strategic Plan for Biodiversity. The SDGs and the Strategic Plan are mutually supportive and reinforcing, and therefore the implementation of one contributed to the achievement of the other.

To monitor the implementation of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals - SDGs, Brazil created a National Commission for the Sustainable Development Goals through Decree nº 8.892, of 27 October 2016, with the purpose of internalizing, disseminating and providing transparency to the process of implementing the 2030 Agenda in Brazil. The National Commission of the SDGs is a joint commission with 32 representatives, among leading and substitutes, of civil society and governments. The National Commission of the SDGs - CNODS incorporated, in its 2017-2019 Action Plan, the task to adjust the global targets to the Brazilian context and to define indicators to monitor their achievement. To that end, the Commission delegated to the Research Institute on Applied Economics - Ipea the responsibility of coordinating the preparation of a proposal to adjust the global SDG targets, and to the Brazilian Institute of Geography and Statistics - IBGE the responsibility of developing their indicators, considering both institutions as permanent technical advisors to the CNODS.

The [IBGE website](#) presents the current status of the already defined indicators and of those under development for the SDGs in Brazil.

It should be noted that the Brazilian National Biodiversity Targets - NBT possess 70 indicators and the SDGs possess, until present, 65 developed indicators, 77 under analysis/ construction, 48 with no data, 47 with no global methodology, and 7 are not applicable to Brazil.

There are six indicators that are shared by both initiatives:

(NBT A4.1 and SDG 7.3.1) Energy intensity measured in terms of primary energy and GDP;

(NBT A4.5 and SDG 7.2.1) Renewable energy share in the Internal Energy Supply;

(NBT A4.6 and SDG 6.4.1) Evolution of water use efficiency in Brazil;

(NBT B6.1 and SDG 14.5.1) Coverage of protected areas in relation to marine areas;

(NBT B8.1 and SDG 6.6.1) Change in aquatic ecosystems over time;

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(NBT C13.1 and SDG 2.5.1) Number of plant genetic resources for food and agriculture, secured in either medium- or long-term conservation facilities.

Section V. Description of the national contribution to the achievement of the targets of the Global Strategy for Plant Conservation

Brazil has national targets related to the GSPC Targets

Details on the specific targets

The Global Strategy for Plant Conservation (GSPC) is comprised of 16 targets and has the objective of reducing the loss of plant diversity, improving the conservation status of threatened species and contributing to the development of sustainable practices in sectors such as wild harvesting and agriculture (Sharrock *et al.*, 2018). The strategy was initially adopted by the Conference of the Parties (COP) of the Convention on Biological Diversity (CBD) in its sixth meeting (COP-6) in 2002 and, later, the strategy’s targets were updated during COP-10 in 2010, given the progress achieved. During the strategy’s evaluation it was decided that GSPC implementation should be promoted as part of the Strategic Plan for Biodiversity 2011-2020, in parallel to the achievement of the Aichi Targets.

Initially, the Brazilian Network of Botanical Gardens adopted an Action Plan for the Brazilian Botanical Gardens for the 2004 - 2014 period, to promote GSPC implementation in Brazil and containing 20 targets. In 2006, the Ministry of the Environment published the first National Biodiversity Action Plan (PAN-Bio), containing many actions related to GSPC and, in 2016, the country adopted the revised and expanded National Biodiversity Strategy and Action Plan (NBSAP) for the 2016 - 2020 period, with 20 national targets and many GSPC-related actions.

In August 2017 the Rio de Janeiro Botanical Garden organized a roundtable during the 68 National Botany Congress in Rio de Janeiro to discuss GSPC implementation in Brazil and, in 2018, jointly edited with the [Rodriguésia journal](#) a special volume (See: [Rodriguésia 69\(4\), 2018](#)) on the progress highlights towards the achievement of GSPC targets in Brazil, except for targets 4 and 5. The completed topics of Section V of the 6 National Report to the CBD are presented below, including a summary of progress towards GSPC targets in the past few years and the link to the original publications.

Some of the National Biodiversity Targets are related to the GSPC targets. This relationship and the identification of actions that contribute to the achievement of targets was verified by Dalcin and Jackson (2018) in an assessment of the existing network available in Brazil for the achievement of the Global Strategy for Plant Conservation (GSPC) targets for 2020 in the country. The approach uses the NBSAP (2017 version) and other key documents to identify and map institutions, roles and actions related to each of the GSPC targets.

Table 24 - National Biodiversity Targets, their actions and relationship with the GSPC targets

National Biodiversity Targets	Nº of actions in the NBSAP action plan	Related GSPC target	Nº of actions related to the GSPC and with cited responsible agent
Target 1	60	14	52
Target 2	34		-
Target 3	41		-
Target 4	26	12	12

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Target 5	38	4, 5	32
Target 6	20		-
Target 7	60	6	44
Target 8	22	6	6
Target 9	28	10	24
Target 10	8		-
Target 11	90	4, 5	84
Target 12	34	2, 7, 8, 11	27
Target 13	18	8, 9, 12*	14
Target 14	34	4	19
Target 15	55	8	35
Target 16	18		-
Target 17	9		-
Target 18	29	13	16
Target 19	80	1, 3	77
Target 20	10		-

*This target does not appear in this position in the Dalcin and Jackson (2018) paper; however, it was considered here because it does have a correspondence to the national biodiversity target.

Source: Modified from Dalcin and Jackson (2018).

References for Section V

CERATI, T. M. Education and training in Brazilian botanical gardens: are we achieving GSPC targets? CERATI, 2018. In: **Rodriguésia** 69(4) In: *Rodriguésia* 69(4): p. 1603-1612, 2018. Available at: <http://rodriguesia.jbrj.gov.br/FASCICULOS/GSPC/GSPCartigos.pdf>. (Accessed on: 15 Feb. 2019)

DALCIN, E. & JACKSON, P. W. A Network-wide visualization of the implementation of the Global Strategy for Plant Conservation in Brazil. In: **Rodriguésia** 69(4): p. 1613-1639, 2018. Available at: <http://rodriguesia.jbrj.gov.br/FASCICULOS/GSPC/GSPCartigos.pdf>. (Accessed on: 15 Feb. 2019)

DECHOUM, M. S.; SAMPAIO, A. B.; ZILLER, S. R.; ZENNI, R. D. Invasive species and the Global Strategy for Plant Conservation: how close has Brazil come to achieving Target 10? DECHOUM *et al.*, 2018. In: **Rodriguésia** 69(4), p. 1567-1576, 2018. Available at: <http://rodriguesia.jbrj.gov.br/FASCICULOS/GSPC/GSPCartigos.pdf>. (Accessed on: 15 Feb. 2019)

HANAZAKI, N.; ZANK, S.; FONSECA-KRUEL, V. S. & SCHMIDT, I. B. Indigenous and traditional knowledge, sustainable harvest, and the long road ahead to reach the 2020 Global Strategy for Plant Conservation objectives. HANAZAKI *et al.*, 2018. In: **Rodriguésia** 69(4): p. 1587-1601, 2018. Available at: <http://rodriguesia.jbrj.gov.br/FASCICULOS/GSPC/GSPCartigos.pdf>. (Accessed on: 15 Feb. 2019)

INSTITUTO DO PATRIMÔNIO HISTÓRICO E ARTÍSTICO NACIONAL. **Sistema Agrícola Tradicional do Rio Negro** [Traditional Agriculture System of the Rio Negro]. IPHAN, 2010. Available at: <http://portal.iphan.gov.br/pagina/detalhes/75>. (Accessed on: 15 Feb. 2019)

MARTINS, E.; MARTINELLI, G.; LOYOLA, R. Brazilian efforts towards achieving a comprehensive extinction risk assessment for its known flora. MARTINS *et al.*, 2018. In: **Rodriguésia** 69(4): p. 1529-1537, 2018. Available at:

<http://rodriguesia.jbrj.gov.br/FASCICULOS/GSPC/GSPCartigos.pdf>. (Accessed on: 14 Feb. 2019)

MINISTÉRIO DO MEIO AMBIENTE. **Planaveg: Plano Nacional de Recuperação da Vegetação Nativa** [Planaveg: National Plan for the Recuperation of Native Vegetation] / Ministério do Meio Ambiente, Ministério da Agricultura, Pecuária e Abastecimento, Ministério da Educação. – Brasília, DF: MMA, 2017. 73 p. Available at: https://www.mma.gov.br/images/arquivos/florestas/planaveg_plano_nacional_recuperacao_vegetacao_nativa.pdf. (Accessed on: 14 Feb. 2019)

PÁDUA, J. G. Conservation of crop genetic resources in Brazil in the context of the target 9 of the Global Strategy for Plant Conservation. PÁDUA, 2018. *In: Rodriguésia* **69(4)**: p. 1557-1565, 2018. Available at: <http://rodriguesia.jbrj.gov.br/FASCICULOS/GSPC/GSPCartigos.pdf>. (Accessed on: 15 Feb. 2019)

RIBEIRO, B. R.; MARTINS, E.; MARTINELLI, G.; LOYOLA, R. The effectiveness of protected areas and indigenous land in representing threatened plant species in Brazil. RIBEIRO et al., 2018. *In: Rodriguésia* **69(4)**: p. 1539-1546, 2018. Available at: <http://rodriguesia.jbrj.gov.br/FASCICULOS/GSPC/GSPCartigos.pdf>. (Accessed on: 15 Feb. 2019)

SCARANO, F. R.; SILVA, J. M. C. Production and international trade: challenges for achieving targets 6 and 11 of the Global Strategy for Plant Conservation in Brazil (Review article/Artigo de revisão). SCARANO e SILVA, 2018. *In: Rodriguésia* **69(4)**: p. 1577-1585, 2018. Available at: <http://rodriguesia.jbrj.gov.br/FASCICULOS/GSPC/GSPCartigos.pdf>. (Accessed on: 14 Feb. 2019)

SHARROCK, S.; HOFT, R.; DIAS, B. F. S. An overview of recent progress in the implementation of the Global Strategy for Plant Conservation – a global perspective. *In: Rodriguésia* **69(4)**: p. 1489-1511, 2018. Available at: <http://rodriguesia.jbrj.gov.br/FASCICULOS/GSPC/GSPCartigos.pdf>. (Accessed on: 13 Feb. 2019)

SILVEIRA, F. A. O; TEIXIDO, A. L.; ZANETTI, M.; PÁDUA, J. G.; ANDRADE, A. C. S. de; COSTA, M. L. N. da. Ex situ conservation of threatened plants in Brazil: a strategic plan to achieve Target 8 of the Global Strategy for Plant Conservation. SILVEIRA et al., 2018. *In: Rodriguésia* **69(4)**: p. 1547-1555, 2018. Available at: <http://rodriguesia.jbrj.gov.br/FASCICULOS/GSPC/GSPCartigos.pdf>. (Accessed on: 15 Feb. 2019)

THE BRAZIL FLORA GROUP. Brazilian Flora 2020: Innovation and collaboration to meet Target 1 of the Global Strategy for Plant Conservation (GSPC). BFG, 2018. *In: Rodriguésia* **69(4)**: p. 1513-1527, 2018. Available at: <http://rodriguesia.jbrj.gov.br/FASCICULOS/GSPC/GSPCartigos.pdf>. (Accessed on: 14 Feb. 2019)

UNITED NATIONS ENVIRONMENT PROGRAMME/CONVENTION ON BIOLOGICAL DIVERSITY/ SUBSIDIARY BODY ON IMPLEMENTATION. **Progress in Implementation of the Targets of the Global Strategy for Plant Conservation**. UNEP/CBD/SBI, 2016. Available at: <https://www.cbd.int/doc/meetings/sbi/sbi-01/information/sbi-01-inf-32-en.pdf>. (Accessed on: 14 Feb. 2019)

Information on any active networks for plant conservation

According to Dalcin and Jackson (2018), there are strong ongoing initiatives dedicated to the implementation of these targets at a wide variety of sectors, as shown by the existence of institutions that provide data, technical support and infrastructure to these initiatives. In many cases, the engagement of specific institutions can be voluntary, and, in some cases, these actions are not necessarily recognized by these organizations as contributing to the GSPC. The authors also state that there is a lack of documents, reports and academic papers to support the monitoring and evaluation of the implementation of GSPC targets for 2020. However, the results obtained suggest the existence of a very significant and diversified network of agents capable of supporting the actions that are directly or indirectly related to the GSPC targets.

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Major measures taken by your country for the implementation of the Global Strategy for Plant Conservation

The creation of the National Center for Plant Conservation (CNCFlora), an organization connected to the Research Institute of the Rio de Janeiro Botanical Garden, under the Ministry of the Environment, with objectives and responsibilities greatly consistent with various GSPC targets. The creation of the Chico Mendes Institute for the Conservation of Biodiversity in 2007, under the Ministry of the Environment, responsible for the management of federal protected areas and for the conservation of threatened species. The actions implemented by the Brazilian Network of Botanical Gardens under the Action Plan for the Brazilian Botanical Gardens for the 2004-2014 period. The expansion and consolidation of the National System of Protected Areas, created in 2000, particularly in the Amazon. The launch, in 2010, and continuous updating of the National List of Plants and Fungi, followed by the Online Flora of Brazil 2020. The continuous updating of the National Red Lists of Threatened Plants (most recently updated in December 2014) and the growing number of threatened plants included in the National

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Action Plans for their conservation. The continuous identification and updating of the Priority Areas for the Conservation, Sustainable Use and Benefit Sharing of Biodiversity for each biome in the country since 1998 (second updating concluded in 2018). The expansion of the infrastructure and *ex situ* collections of the National Center of Genetic Resources and Biotechnology (CENARGEN), connected to Embrapa – Brazilian Agricultural Research Corporation, which holds important collections of *crioula* races and wild relatives of cultivated species, including threatened species. The updating, in 2012, of the Forest Code (current Law on the Protection of Native Vegetation), which consolidated the conservation requirements for private rural lands and established the Rural Environment Registry. The adoption of the National Biodiversity Targets and climate change targets associated to the NBSAP, revised in 2016, of the NDC under the Paris Agreement of 2015, and of the National Plan for Climate Change Adaptation (PNA) of 2016.

1. An online flora of all known plants

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

On track to achieve target at national level

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: 35% of species with morphological description.

Results / activities: Online flora updated with 46,611 species.

Expectations for 2020: between 80% and 90% of the morphological descriptions of terrestrial species completed and updated, if there is financial stability to maintain permanent human capital and improve the information and development system.

Suggestion for 2020-2030: Implement a task force for Algae and Fungi. Expand the collection of samples in the Amazon, for which there is less knowledge than for the rest of the country.

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

The GSPC target 1 proposes the creation of an online flora containing information on the plant species in the country with the objective of ensuring a good level of knowledge about plant diversity. Target 1 was implemented through three successive projects coordinated by the Rio de Janeiro Botanical Garden (JBRJ): the project List of Species of the Brazilian Flora, built between 2008 and 2015; the virtual herbarium Reflora, developed from 2008 to 2015; and the project Flora of Brazil 2020, launched in 2016, containing morphological descriptions of all Brazilian plants.

The project List of Species of the Brazilian Flora was closed in November 2015 with the publication of scientific papers and databases on the compilation of the list of Brazilian plant species. In 2016 the project Flora of Brazil 2020 was launched, which later gave origin to an online platform that integrates databases containing information on the Brazilian plant species and presents additional features such as the publication of morphological descriptions, identification keys and illustrations of specimens (high resolution images of the pressed herbarium specimens and photographs of live plants in the field).

BFG (2018) report that, in 2018, the Flora of Brazil 2020 database contained 121,989 names of species and infra-species categories, of which 90% were verified by experts and are available through the webpage <<http://floradobrasil.jbrj.gov.br>>. The numeric records of visitors to the Reflora system (Flora of Brazil 2020 and Virtual Reflora Herbarium) obtained through Google Analytics indicate a growing number of users, as well as an increase in average visitation time length. Data indicate over 3,700,000 viewings of the webpage, including 64.1% of repeat visitors and 35.8% of new visitors, with an average visit time above 12 minutes. The study indicates significant progress towards the achievement of target 1. However, the authors note that despite the significant numbers achieved by Flora of Brazil 2020 and the commitment of the Brazilian botanical community to improve the database and the system's interface, it is fundamental to ensure continuous support to the project to keep information updated.

The Brazilian flora project currently involves 770 Brazilian and foreign taxonomists affiliated to 203 institutions, representing the largest biodiversity research network in Brazil. Most of these experts are also engaged in the network for target 2.

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Detailed information on the progress towards target 1 is available in the BFG (2018) paper.

2. An assessment of the conservation status of all known plant species, as far as possible, to guide conservation action

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: 19% of known plant species assessed.

Results / activities: 7,691 of 38,224 native species assessed; 3,268 threatened species and 2,113 species included in the official national list of threatened species.

Expectations for 2020: Achievement of this target may reach 50% if financial stability is secured to maintain permanent human capital, improve the information system and develop tools for rapid risk assessment, and if an increase is obtained in the network of collaborators.

Suggestion for 2020-2030: Financial stability to maintain the permanent CNCFlora staff; enhancement of the system and tools to improve rapid risk assessment. All threatened species should be included in the official national list and in the global list (see Martins *et al.* 2018).

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

Target 2 establishes that countries should carry out the assessment of the extinction risk of its flora by 2020. Target 2 has achieved progress because of the creation of the National Center for Plant Conservation – CNCFlora in 2009. Before this center was created, only 472 species were recognized as threatened in Brazil. The work carried out by CNCFlora from 2011 until present assessed the risk of extinction of 19% (7,691) of Brazilian native species, identifying a total of 3,268 species that are considered threatened. Detailed information on the progress towards target 2 is available in the Martins *et al.* (2018) paper.

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3. Information, research and associated outputs, and methods necessary to implement the Strategy developed and shared

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: Fair achievement.

Results / activities: Ongoing.

Expectations for 2020: It is necessary to carry out inventories in insufficiently explored areas to minimize the geographical bias of information on the distribution of species, particularly in the Amazon biome, and enhance knowledge on unknown species. Additionally, it is necessary to improve alignment and prioritization in relation to GSPC targets and objectives.

Suggestion for 2020-2030: Financial stability to allow investments in permanent human capital for the analysis and synthesis of data on plant conservation to inform decision makers. Inventories in areas with information gaps.

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

Target 3 is difficult to measure given the large volume of information, research and associated production in Brazil and the challenge of assessing and monitoring research and the materials produced that had effective impact on

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conservation.

In the document [UNEP/CBD/SBI/1/INF/32](#) Brazil reported that the project Lists of Brazilian Plant Species (2008-2015) had identified regional and taxonomic information gaps that needed to be addressed to allow the country to successfully conclude the Global Strategy for Plant Conservation by 2020, despite the significant progress achieved in the area. In addition, it was identified that the Brazilian Amazon still lags behind the rest of the country regarding flora inventories, collections and information on its biodiversity. Important publications for the GSPC in Brazil include the special edition on GSPC published by the *Rodriguésia* journal, the [National Strategy for the *ex situ* Conservation of Threatened Species of the Brazilian Flora](#), the [Catalogue of Brazilian Plants and Fungi](#) and the online platform of the [Flora of Brazil 2020](#).

A significant increase was observed in the biodiversity research efforts in Brazil along the last two decades, despite the recent scarcity of public funding as a result of the economic recession of the last three years. Some significant efforts of large scale research must be highlighted: the BIOTA Program of São Paulo state, since 1999; the PELD Program – Long Term Ecological Research, since 1999; the PPBio Program – Biodiversity Research Program, since 2004; the PROTAX – Taxonomy Capacity Building Program, since 2005; the calls for proposals from SISBIOTA – National Biodiversity Research System, since 2009; among others (for more information on these and other programs, please refer to Section III, Target 19).

4. At least 15 per cent of each ecological region or vegetation type secured through effective management and/or restoration

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: Between 30 and 40%.

Results / activities: Mapping of Priority Areas and Territorial Action Plans.

Expectations for 2020: It is not possible to achieve this target by 2020. It is necessary to integrate action plans, management plans and restoration plans. The vast extension of areas requiring restoration further complicates the achievement of this target.

Suggestion for 2020-2030: Integration and implementation of the various conservation plans and instruments.

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

Brazil has six officially recognized terrestrial biomes: the Amazon (currently with 28.08% of its territory in Protected Areas and 25.1% in Indigenous Lands), the Cerrado (currently with 8.26% in Protected Areas and 4.4% in Indigenous Lands), the Caatinga (currently with 8.83% in Protected Areas and 0.2% in Indigenous Lands), the Atlantic Forest (currently with 9,50% in Protected Areas and 0.98% in Indigenous Lands), the Pantanal (currently with 4.55% in Protected Areas and 1.6% in Indigenous Lands), and the Pampas (currently with 3.14% in Protected Areas and 0.02% in Indigenous Lands). In addition, the country possesses a Coastal and Marine Zone, including the Exclusive Economic Zone (currently with 26.36% in Protected Areas). Thus, two of these biomes have over 15% of their territories formally protected (> 50% in the Amazon and > 25% in the Marine Zone), three others have between 9% and 12% of their territories under protection (Caatinga, Cerrado and Atlantic Forest), and two have less than 5% of their area under protection (Pampas and Pantanal).

Strong efforts have been employed to go from intentions to practical actions and to reach the necessary scale in biogeographical regions that are very different and harbor a high diversity of ecosystems and vegetation types. CNCFlora has been mapping the priority areas for the conservation of threatened species in Brazil and identifying areas of high concentration of threatened species under high degree of threat. The identification of these priority areas has allowed CNCFlora to establish a new approach for the action plans, replacing traditional action plans for taxonomic groups with territorial action plans, which allow greater integration among action plans for threatened species, management plans and restoration plans in a given territory. Additionally, Brazil reports in the document [UNEP/CBD/](#)

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SBI/1/INF/32 that the National Forest Inventory (IFN) is an important tool for the achievement of target 4. The IFN has the objective of monitoring vegetation and storing useful and detailed information on the structure, composition and conservation status of forests to inform public policies and governmental actions, decision makers, and the private sector. The area already inventoried by IFN has significantly increased since 2011, from 578,004 hectares to 197,452,423 hectares by 2017. Another initiative that can potentially contribute to target 4 is the National Plan for the Restoration of Native Vegetation (Planaveg), launched through the Inter-ministerial Administrative Ruling nº 230, of 14 November 2017, with the objective to expand and strengthen public policies, financial incentives, markets, good agricultural and livestock practices and other measures necessary for the restoration of native vegetation in, at least, 12 million hectares by 2030. The Planaveg has as its main targets the permanent preservation areas (APP), legal reserves (RL) and degraded areas with low productivity (MMA, 2017).

5. At least 75 per cent of the most important areas for plant diversity of each ecological region protected with effective management in place for conserving plants and their genetic diversity

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: 30%.

Results / activities: Mapping of priority areas, territorial action plans and management plans for protected areas; creation of new protected areas.

Expectations for 2020: It is not possible to achieve Target 5 by 2020. It is necessary to integrate action plans for threatened species, management plans for protected areas, restoration plans and the creation of protected areas.

Suggestion for 2020-2030: Integration of conservation and management instruments.

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

CNCFlora has been mapping the priority areas for the conservation of threatened species in Brazil and identifying areas of high concentration of threatened species under high degree of threat. The identification of these priority areas has allowed CNCFlora to establish a new approach for the action plans, replacing traditional action plans for taxonomic groups with territorial action plans, which allow greater integration among action plans for threatened species, management plans and restoration plans in a given territory.

The following are the [main studies](#) that were carried out:

- LOYOLA, R. *et al.* *Áreas prioritárias para conservação e uso sustentável da flora brasileira ameaçada de extinção [Priority areas for the conservation and sustainable use of the Brazilian threatened flora]*. Rio de Janeiro: Andrea Jakobsson Estúdio & Instituto de Pesquisas Jardim Botânico, 82 p., 2014.
- LOYOLA, R.; MACHADO, N. *Áreas prioritárias para a conservação da flora ameaçada de extinção da Serra do Espinhaço Meridional [Priority areas for the conservation of the threatened flora of the Meridional Espinhaço Mountain Range]*. In: POUGY, N. *et al.* (Orgs.). *Plano de ação nacional para a conservação da flora ameaçada de extinção da serra do Espinhaço meridional [National action plan for the conservation of the threatened flora of the meridional Espinhaço mountain range]*. Rio de Janeiro: Andrea Jakobsson Estúdio: Instituto de Pesquisas Jardim Botânico, p. 49-77, 2015.
- LOYOLA, R.; MACHADO, N.; VILA-NOVA, D.A. *Prioridades espaciais para a conservação da flora ameaçada de extinção de Grão Mogol - Francisco Sá [Spatial priorities for the conservation of the threatened flora of Grão Mogol - Francisco Sá]*. In: POUGY, N. *et al.* (Orgs.). *Plano de ação nacional para a conservação da flora ameaçada de extinção de Grão Mogol - Francisco Sá [National action plan for the conservation of the threatened flora of Grão Mogol - Francisco Sá]*. Rio de Janeiro: Andrea Jakobsson Estúdio: Instituto de Pesquisas Jardim Botânico, p. 49-69, 2015.
- LOYOLA, R. *et al.* *Áreas prioritárias para conservação da flora endêmica do Estado do Rio de Janeiro [Priority areas for the conservation of the endemic flora of Rio de Janeiro state]*. Rio de Janeiro: I Graficci, 60 p., 2018.

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6. At least 75 per cent of production lands in each sector managed sustainably, consistent with the conservation of plant diversity

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: No percentage available.

Results / activities: Ongoing.

Expectations for 2020: It is not possible to achieve target 6 by 2020.

It is necessary to increase compliance with this target in the agricultural sector and achieve stronger application of the legal framework by the government, in addition to making incentive mechanisms available to promote implementation and compensation, such as: (1) promote the protection of native ecosystems within agricultural lands, (2) create incentive mechanisms for conservation and restoration, (3) coordinate non-governmental agreements to refrain deforestation based on commodities, and (4) allow certification and identification protocols for native timber and certification for cultures and beef (SCARANO; SILVA, 2018).

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

Scarano and Silva (2018) performed a qualitative analysis of the degree of progress achieved by Brazil for GSPC targets 6 and 11. According to this publication, Brazil created various innovative policies to promote the sustainability of these sectors, which, however, still need to be actually implemented to generate tangible results, as until now they have been demonstrating a variable success rate. The authors note that although a reduction has occurred in the conversion of habitats due to the expansion of rural production, the absolute number of hectares of native ecosystems converted into agriculture, pasture or silviculture is still high, particularly in the Cerrado and in the Amazon. It is necessary to apply legislation and other incentive mechanisms to promote compliance and compensation.

The Brazilian law on the protection of native vegetation, Law nº 12.651 of 25 May 2012 – usually known as the “New Forest Code” –, based on its previous version, i.e. Law nº 4.771 of 15 September 1965 or “Forest Code”, determines the preservation or restoration of native vegetation in specific portions of all private properties: along rivers, lakes, water catchment areas, slopes and mountain tops (Permanent Preservation Area – APP) and the maintenance of an additional percentage of each rural property (Legal Reserve – RL) to be conserved with native vegetation, but which has its sustainable use allowed through sustainable forest management. The minimum percentage for the Legal Reserve in properties located within the Legal Amazon is 80% in forest-covered areas; 35% in areas covered with cerrado; and 20% in areas covered with natural grasslands. In all other Brazilian regions, the Legal Reserve percentage is 20%. Under this context, since 2012 all rural landowners or undocumented land holders were requested to upload into the Rural Environmental Registry (CAR) the georeferenced information on the compliance of these environmental requirements. Compliance with the environmental requirements of Law nº 12.651 can be verified through the information uploaded in CAR and, consequently, it is possible to identify the need for regularization of compliance deficits by applying the Environmental Regularization Program (PRA), with the restoration of vegetation remnants in APP, Areas of Restricted Use and Legal Reserves, as well as compensation of Legal Reserve on another site within the same biome, according to specific normative details defined by states and the Federal District. Still according to this Law, financial institutions can only grant agriculture credit of any type to rural properties that are registered in CAR. By April 2019, georeferenced information regarding compliance was [uploaded](#) by landowners for more than 5 million rural properties.

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7. At least 75 per cent of known threatened plant species conserved in situ

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

On track to achieve target at national level

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: 67%.

Results / activities: There are 1,405 species (67%) of the official national list with at least one record of presence within a protected area (PA) or indigenous land (TI). Only 29 species (1.3%) seem to be completely protected (i.e., 100% of their distribution) by the PA and TI system.

Expectations for 2020: It is difficult to assess the achievement of this target because of the continuous progress under Target 2 (assessment of the conservation status of species), of the different levels of species representation within protected areas and given the unequal distribution pattern of sampling records in the country.

Suggestion for 2020 - 2030: Expand the biodiversity inventories, particularly in poorly sampled PAs, increase infrastructure investments in PAs as well as staff training, enhancement of management plans, institutional capacity and public engagement.

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

Ribeiro *et al.* (2018) assessed the current efficiency of the Brazilian network of protected areas (PAs) and indigenous lands (TIs) concerning representativity of threatened species. The study indicated that the number of species present in PAs and TIs varies according to the type of data used. Ribeiro *et al.* (2018) verified the occurrence records and reported that 699 threatened plant species (33%) are completely outside of these protected areas, and that 1,405 species (67%) have at least one record of occurrence within at least one PA or TI. The number of species not represented inside protected areas reduced when polygons of species distribution were considered. In this case, only 219 (10%) of the species are supposedly unprotected. The authors advise that the results should be interpreted with caution, given that there is a greater concentration of species records for the country's Northeast and Southeast (i.e., for the Atlantic Forest and Caatinga biomes), and that the occurrence of a species in itself inside a given PA or TI does not warrant effective conservation in the long term.

The study's results suggest that Brazil is underway to achieve GSPC target 7 in terms of absolute numbers. However, the government needs to allocate resources to adequately manage and improve the conservation status of its threatened flora, including through the expansion of the area cover and representativeness of protected areas.

Detailed information on the progress towards target 7 is available in the Ribeiro *et al.* (2018) paper.

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8. At least 75 per cent of threatened plant species in ex situ collections, preferably in the country of origin, and at least 20 per cent available for recovery and restoration programmes

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: 21%.

Results / activities: There are 452 threatened species conserved *ex situ*, of which 440 are conserved in arboretums or greenhouses, 52 in seed banks, 18 in field banks, and eight species conserved *in vitro*.

Expectations for 2020: It is not possible to achieve target 8 by 2020. To enhance implantation, it is necessary to: (1) promote coordinated effort between government and scientific community to boost research initiatives, international partnerships and public policies, including the restructuring of the Brazilian network of botanical gardens; (2) improve cooperation and communication among authorities and conservation institutions to allow access to and sharing of data (including online databanks and protocols to assess germplasm quality, monitor and integrate *ex situ* and *in situ* conservation strategies); (3) increase economic investment and human capital for the quantitative and qualitative updating of adhesions to seedbanks, particularly in under-represented biomes; and (4) prioritize the collection of species according to their occurrence and threat status, decentralizing sampling efforts and storage in the entire national territory.

Suggestion for 2020 - 2030: Revise the *ex situ* conservation target in Brazil to 50% of species. Integration of the various institutions involved with the theme; structuring and creation of new botanical gardens and reduction

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of the phylogenetic and geographical bias of *ex situ* conservation collections. Improve the national infrastructure of seedbanks, establishing at least one well-structured seedbank in each region of the country.

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

The growing rates of habitat destruction and species loss reinforce the importance of *ex situ* conservation strategies. This approach has been gaining global force and the reluctance of depending on *ex situ* conservation is rapidly giving way to a more optimistic and strategic view. Silveira *et al.* (2018) report updated information on the Brazilian progress towards Target 8 based on an assessment of the number of threatened species that are conserved in *ex situ* collections in Brazil. The assessed database contains full plants (live collections), seeds (seedbanks) and tissue cultures (in vitro). Of the 2,113 threatened species, at least 452 (21.4%) are conserved in *ex situ* collections, representing a 4% increase for live collections and a 96% increase for seeds as compared to previous assessments. The study suggests that it is not likely that Brazil should achieve Target 8 by 2020, despite recent progress. The paper by Silveira *et al.* (2018) also presents proposals for public policies and strategies to contribute to overcome the obstacles that prevent the achievement of target 8, as well as suggestions for revised post-2020 GSPC targets.

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Detailed information on the progress towards target 8 is available in the

9. 70 per cent of the genetic diversity of crops including their wild relatives and other socio-economically valuable plant species conserved, while respecting, preserving and maintaining associated indigenous and local knowledge

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: No percentage available.

Results / activities: Recent data by FAO indicate that Brazil is one of the countries that hold large collections of plants under *ex situ* conservation (192,356 specimens in Brazilian institutions). There is insufficient data to identify the *in situ* conservation status of wild relatives of cultivated plants.

Expectations for 2020: Improve policies and legislation on associated traditional knowledge and identification and improvement of traditional agricultural systems.

Suggestion for 2020 - 2030: Target 9 should be maintained at current levels (70%) and actions to identify wild relatives of cultivated plants should be promoted.

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

Pádua (2018) indicates that Brazil demonstrated significant progress in the conservation and use of plant genetic resources along the past several years. The paper indicates that several institutions in Brazil conserve small collections of plant species that are important for food and agriculture. However, not all collections possess organized and available data. The *in situ* conservation status for this category of plants remains unknown, as there are insufficient data to identify which wild relatives of cultivated plants occur inside protected areas. Pádua (2018) reports that some Brazilian states (Alagoas, Minas Gerais and Paraíba) have approved laws providing a legal framework for community seedbanks. Such laws intend to strengthen seedbanks by promoting: (i) the recovery and conservation of species and varieties cultivated by family rural producers; (ii) the protection of local genetic resources; (iii) the protection of agrobiodiversity, traditional knowledge and associated cultural values; and (iv) the simplification of seedbank management capacity. At the national level, articles of Law 13.123 of 7 November 2015 support the promotion of *in loco* conservation strategies in farms and cultivated areas. Brazilian legislation also possesses mechanisms to regulate access to associated traditional knowledge (ATK). IPHAN has recently recognized the [Traditional Agriculture System of the Negro River](#) as Brazilian cultural heritage, which represents an important governmental policy on the theme. BNDES, in partnership with Embrapa, IPHAN and FAO, has been working on the identification and valuation

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of Traditional Agriculture Systems. The paper indicates that, in the past several years, the Federal Government has invested in the construction of seedbanks for *crioula* seeds, which suggests that the target of conserving 70% of the genetic diversity of cultivated plants and their wild relatives of socio-economic value may be achieved by 2020, if the proposed actions are successfully implemented.

Detailed information on the progress towards target 9 is available in the Pádua (2018) paper.

10. Effective management plans in place to prevent new biological invasions and to manage important areas for plant diversity that are invaded

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: Low achievement.

Results / activities: Brazil does not possess an adequate legal framework on this theme. The national strategy on invasive alien species was partially implemented.

Expectations for 2020: Advance the policy and legislation on invasive alien species. Implement actions to identify, control and manage the plans for invasive alien species. Implement the “[First Detectors](#)” strategy.

Suggestion for 2020 - 2030: Coordinate managers, researchers and interested parties by providing the expertise and means necessary to implement effective management plans to prevent invasions. Define priority areas for preventive actions and management of biological invasions. Expand control actions and the regulatory structures for invasive and pathogenic plants, considering commercial and international agreements. Enhance existing legislation.

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

Invasive alien species usually constitute a major extinction threat to native plants and, therefore, must be excluded from areas that are designated for the conservation of species, particularly where there is a large concentration of endemic and/or threatened species. Dechoum *et al.* (2018) point out that although most of the management plans for federal protected areas report the presence of invasive alien species, a limited number of plans was implemented. CONABIO Resolution nº 05, of 2009, which establishes a national strategy on invasive alien species, has not yet been completely put into practice, indicating a slow pace in the progress of policies and legislation focusing on invasive alien species. The paper suggests some alternatives for the development of effective policies in Brazil, including strategic action by federal agencies responsible for the environment as focal points, and the coordination of actions to identify priority areas for preventive action and the management of biological invasions.

Detailed information on the progress towards target 10 is available in the Dechoum *et al.* (2018) paper.

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11. No species of wild flora endangered by international trade

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: Low achievement.

Results / activities: There are 2,620 species in the CITES list, 2% of which are timber species. The extraction of timber in logs has been declining (44 million m³ in 2015) but is still high.

Expectations for 2020: Advance monitoring, certification and techniques to determine the authenticity of species.

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Increase the replacement of tropical timber consumption with other materials.

Suggestion for 2020 - 2030: Combine regulation and incentive mechanisms to promote sustainability, in addition to combining policies for law implementation with science, technology and certification.

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

Scarano and Silva (2018) have examined Brazilian progress towards the achievement of targets 6 and 11, focusing on three economic sectors (agriculture, livestock and silviculture). The paper reports that Brazil has created innovative policies to promote the sustainability of these sectors. However, several of these policies need to be actually implemented to generate tangible results. To date, the policies' success has been variable. Although a significant reduction has been observed in habitat conversion due to expansion of rural production, and in the volume of illegal timber trade, the absolute number of hectares of native ecosystems converted into agriculture, pasture or silviculture is still high, particularly in the Cerrado and in the Amazon. The paper reports that Brazil presented positive progress towards targets 6 and 11, particularly when considering the regulation of policies that can contribute to mobilize the agriculture, silviculture and livestock economic sectors towards a more sustainable development path. However, the country needs to transform these policies into action and monitor their results to generate tangible results. In addition, Scarano and Silva (2018) note that the number of species threatened by illegal timber extraction remain a cause of concern, particularly in the Amazon (e.g., *Swietenia macrophylla*) and in the Atlantic Forest (e.g., *Dalbergia nigra*, *Paubrasilia echinata*).

Detailed information on the progress towards target 11 is available in the Scarano and Silva (2018) paper.

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12. All wild harvested plant-based products sourced sustainably

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: Low achievement.

Results / activities: The official information on the collection of non-timber forest products is limited and focuses mainly on a small number of products and species of the Amazonas River watershed. Scientific knowledge on the ecological effects of the use of non-timber forest products is still limited.

Expectations for 2020: Strengthen the Brazilian Platform on Biodiversity and Ecosystem Services (BPBES). Restore policies and programs targeting traditional agriculture and peoples, which were cut or extinct since 2016.

Suggestion for 2020 - 2030: Establish coordinated policies and legal norms related to the sustainable and equitable use of plant diversity.

Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

Hanazaki *et al.* (2018) assessed the progress and action needs under targets 12 and 13, focusing on gaps and actions to achieve the objectives of conservation and sustainable use of plants. The paper reveals that scientific knowledge on the ecological effects of the collection of non-timber forest products is still limited and few studies are available to inform the development of legal regulations for the collection and management of these products.

Detailed information on the progress towards targets 12 and 13 is available in the Hanazaki *et al.* (2018) paper.

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13. Indigenous and local knowledge innovations and practices associated with plant resources maintained or increased, as appropriate, to support customary use, sustainable livelihoods, local food security and health care

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: Low achievement.

Results / activities: There are few initiatives, considering that there are over 255 indigenous peoples in Brazil and approximately 3,000 local communities. Changes have occurred in legal frameworks that affect indigenous peoples and local communities, and the regularization processes for lands of traditional communities have been halted, affecting the achievement of this target.

Expectations for 2020: Ratification of the Nagoya Protocol. Establish coordinated policies to document and safeguard traditional knowledge and practices to support the sustainable use of plants associated to indigenous peoples and traditional communities.

Improve the regulation of the 2015 national legislation for ABS. Strengthen the Brazilian Platform on Biodiversity and Ecosystem Services (BPBES). Establish bio-cultural collections. Organize and decentralize national databases involving representative institutions of indigenous peoples and traditional communities, favoring access to all. Create capacity building mechanisms. Formally recognize initiatives by indigenous peoples and traditional peoples and strengthen their customary laws and rules.

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

Hanazaki *et al.* (2018) assessed the progress and action needs under targets 12 and 13, focusing on gaps and actions to achieve the objectives of conservation and sustainable use of plants. Concerning target 13 and its reference to respect for traditional knowledge on the use of plants, the authors conclude that there is still a lack of integrated and effective policies to ensure the means for sustainable livelihoods, local food security and health care. Hanazaki *et al.* (2018) also report that to achieve the objectives under targets 12 and 13, fundamental changes would be necessary in the Brazilian political environment, with increased support to indigenous peoples and local communities and the recognition of the importance of their traditional knowledge to conservation.

Detailed information on the progress towards targets 12 and 13 is available in the Hanazaki *et al.* (2018) paper.

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14. The importance of plant diversity and the need for its conservation incorporated into communication, education and public awareness programmes

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Targets 14 and 15 were jointly assessed.

Achieved in 2018: Low achievement.

Results / activities: These targets are difficult to assess. Recent progress was obtained with the creation of MSc and PhD programs, in addition to an increase in the number of courses on Conservation Biology under post-graduation programs. CNCFlora has developed field guides and a mobile app that allows the user to take and save photographs of threatened plants and send them to CNCFlora.

Expectations for 2020: Environmental education addressing themes and contents that consider the various bio-regional problems and scenarios. Engagement of local communities in information collection (citizen science).

Suggestion for 2020 - 2030: Integration and implementation of the National Environmental Education Policy in the Brazilian school system.

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

GSPC targets 14 and 15 emphasize the importance of engaging, educating and increasing awareness of people on the need to conserve plants. In this context, Cerati (2018) carried out an inventory at the websites of twenty-one Brazilian botanical gardens registered in the National System of Botanical Gardens' Records to identify the main actions developed in connection to the objectives of the two targets. The paper reports that the websites are outdated, often present difficult navigation and lack online public resources, suggesting that the internet tools are little utilized by Brazilian botanical gardens for information dissemination. Target 14 actions reported by most of the botanical gardens are educational visits and environmental interpretation that explore the *in situ* and *ex situ* collections containing representative species of the regional flora. Capacity building initiatives were carried out at all botanical gardens, where some gardens stand out as important research centers and for their post-graduation programs. Cerati (2018) suggests that despite the efforts made, the Brazilian botanical gardens need to improve public communication and create indicators to assess the progress of implementation of actions for GSPC targets 14 and 15.

Additional information on the progress towards targets 14 and 15 is available in the Cerati (2018) paper.

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15. The number of trained people working with appropriate facilities sufficient according to national needs, to achieve the targets of this Strategy

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Progress towards target at national level but at an insufficient rate

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Targets 14 and 15 were jointly assessed.

Achieved in 2018: Low achievement.

Results / activities: These targets are difficult to assess. Recent progress was obtained with the creation of MSc and PhD programs, in addition to an increase in the number of courses on Conservation Biology under post-graduation programs. CNCFlora has developed field guides and a mobile app that allows the user to take and save photographs of threatened plants and send them to CNCFlora.

Expectations for 2020: Environmental education addressing themes and contents that consider the various bio-regional problems and scenarios. Engagement of local communities in information collection (citizen science).

Suggestion for 2020 - 2030: Integration and implementation of the National Environmental Education Policy in the Brazilian school system.

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

GSPC targets 14 and 15 emphasize the importance of engaging, educating and increasing awareness of people on the need to conserve plants. In this context, Cerati (2018) carried out an inventory at the websites of twenty-one Brazilian botanical gardens registered in the National System of Botanical Gardens' Records to identify the main actions developed in connection to the objectives of the two targets. The paper reports that the websites are outdated, often present difficult navigation and lack online public resources, suggesting that the internet tools are little utilized by Brazilian botanical gardens for information dissemination. Target 14 actions reported by most of the botanical gardens are educational visits and environmental interpretation that explore the *in situ* and *ex situ* collections containing representative species of the regional flora. Capacity building initiatives were carried out at all botanical gardens, where some gardens stand out as important research centers and for their post-graduation programs. Cerati (2018) suggests that despite the efforts made, the Brazilian botanical gardens need to improve public communication and create indicators to assess the progress of implementation of actions for GSPC targets 14 and 15.

Additional information on the progress towards targets 14 and 15 is available in the Cerati (2018) paper.

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16. Institutions, networks and partnerships for plant conservation established or strengthened at national, regional and

international levels to achieve the targets of this Strategy

Category of progress towards the target of the Global Strategy for Plant Conservation at the national level

On track to achieve target at national level

Explanation on category of progress towards the target of the Global Strategy for Plant Conservation at the national level

Achieved in 2018: High achievement.

Results / activities: Target 16 shows great progress in the network collaboration with the GSPC, involving 435 different organizations: botanical gardens (44), universities and research institutes (183), NGOs (32) and governmental agencies (67), initiatives (12), herbariums (76), funding agencies (10), private institutions (8), protected areas (2), and UNEP (1); totaling approximately 1,200 collaborating experts.

Expectations for 2020: The national authorities engaged in the implementation of the various targets under the CBD carry out implementation, monitoring and reporting. Difficulties are met in the assessment and monitoring actions due to the engagement of numerous institutions that provide data, technical support and infrastructure to achieve GSPC. Many institutions do not recognize their contributions to GSPC.

Suggestion for 2020-2030: Adoption of the GSPC at the national level and implementation of a specific formal instrument to achieve, integrate and monitor GSPC targets.

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Please describe how and to what extent your country has contributed to the achievement of this GSPC Target and summarize the evidence used to support this description

Dalcin and Jackson (2018) used a network approach to assess relations between the National Biodiversity Strategy and Action Plan (NBSAP) and other key documents to identify and map institutions, roles and actions related to each of the GSPC targets. The paper reports that some targets are supported by an effective network of institutions, while others suffer with the lack of adequate support. For instance, GSPC targets 1, 2 and 3 present a strong set of ongoing initiatives with the contribution of a wide range of sectors, including institutions that provide data, technical support and infrastructure for the initiatives. The paper also reports that there is a lack of documents, reports and academic papers that support the monitoring and evaluation of the progress to achieve the GSPC targets. However, data suggest the existence of a significant and diversified network of agents capable of providing support to most of the proposed actions, if the cooperation and integration of actions for target achievement are improved.

Detailed information on the progress towards target 16 is available in the

Dalcin and Jackson (2018) paper.

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Section VI. Description of the national contribution to the achievement of the targets of indigenous peoples and local communities

The Convention on Biological Diversity - CBD is a treaty resulting from the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992, also known as "Rio-92" or "Eco-92". The CBD is one of the most important international instruments related to the environment, into which Brazil ratified its adherence through Legislative Decree no 2 of 3 February 1994, promulgated through Decree nº 2.519, of 16 March 1998. The CBD has its highest forum in the Conference of the Parties - COP, which is currently held every two years. In 2010, during COP-10 held in Nagoya, Aichi, Japan, the 2011-2020 Strategic Plan for Biodiversity was prepared, containing 20 targets: the "Aichi Targets". In Brazil, the Aichi Targets were captured in the National Biodiversity Targets for 2020, according to the Resolution of the National Biodiversity Commission - CONABIO nº 6, of 3 September 2013, and incorporated into the National Biodiversity Strategy and Action Plan for the 2016-2020 period (NBSAP 2016-2020).

Figure 224

Ethno-map of the Guarani de Bracuí Indigenous Land (RJ)

[figura 224.PNG](#)

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As Party to the CBD, Brazil committed to prepare, every 4 years, a National Report to assess the implementation status of the Convention in our country. As occurred for the previous reports, the Ministry of the Environment coordinates the preparation of the 6th National Report, which will be presented to the CBD Secretariat.

According to the [guidance for the preparation](#) of the National Report decided by the Parties during COP-13, the 6th Report should provide a final review of the implementation progress of the 2011-2020 Strategic Plan for Biodiversity and of the Aichi Biodiversity Targets, including the national targets, based on information on the implementation of the National Biodiversity Strategy and Action Plan – NBSAP and other measures taken to implement the Convention. The Parties must provide an update since the presentation of the last national report, which, for Brazil, was concluded in October 2014. This includes information on new actions or recently concluded actions, as well as update on ongoing actions or efforts, and recent changes in the status and trends of biodiversity and pressures applied on biodiversity.

Under this new Report format presented by the CBD, Section VI is optional and addresses additional information on the contribution of indigenous peoples and traditional communities to the achievement of the Aichi Targets and National Targets for Biological Diversity.

The Aichi Targets address, among several themes, the fundamental role of the indigenous peoples and traditional communities in the conservation of biodiversity, as well as in the recuperation and maintenance of ecosystems and the provision of ecosystem services. In Brazil, these environmental themes are intrinsically related to the well-being of rural populations, and particularly to the indigenous peoples, quilombolas, traditional communities and family rural producers, addressed as a group by many acronyms, such as “PCTAF” (traditional peoples and communities and family rural producers – povos e comunidades tradicionais e agricultores familiares) or “PIQCLT” (indigenous peoples, quilombolas and local traditional communities – povos indígenas, quilombolas e comunidades locais tradicionais). According to Decree nº 6.040, of 7 February 2007, which established the National Policy for the Sustainable Development of Traditional Peoples and Communities – PNPCT, the traditional peoples and communities are “culturally differentiated groups, which recognize themselves as such, which possess their own forms of social organization, which occupy and use territories and natural resources as a condition for their cultural, social, religious, ancestral and economic reproduction, applying knowledge, innovation and practices generated and transmitted through tradition”.

Concerning its biological diversity, Brazil is considered a megadiverse country, and is today the country with the largest network of protected areas in the tropical regions, comprised by protected areas under various categories, including those of sustainable use, and indigenous lands and quilombola territories (TRANCOSO et al., 2009). In total, the protected areas correspond to over 25% of the national territory. In parallel to its environmental and biological heritage, Brazil also counts with an immense social and cultural richness, and the country’s multicultural and multi-ethnic character is recognized by the 1988 Constitution.

It should be noted that the identification of segments of traditional peoples and communities is based on the self-recognition criterion. Although an official list of all groups is still not available, Decree nº 8.750, of 9 May 2016, which establishes the National Traditional Peoples and Communities Council, lists 28 denominations with granted representation in this representative council, among which: quilombolas, faxinalenses, quebradeiras de coco, extractive workers, river-side communities, caçaras, indigenous peoples, gipsy peoples, terreiro peoples and fishermen. See also the publication *Traditional Knowledge and Biodiversity (Saberes Tradicionais e Biodiversidade)*, by Diegues and Arruda (2001).

Given the diversity of situations that characterize the PCTAF group, there is no single source of information on population and distribution in the national territory. In the case of quilombola communities, 2,997 are certified by the Palmares Cultural Foundation and 151 territories are titled by INCRA, and 1,692 land tenure regularization processes are being analyzed by INCRA (MMA, 2018a). Nevertheless, the civil society institution National Coordination of the Black Rural Quilombola Communities – CONAQ estimates that over 6,000 quilombola communities exist in Brazil.

In the case of the country’s indigenous population, the Brazilian Institute of Geography and Statistics – IBGE, official and main provider of geographic and statistics information in Brazil, improved information collection for its 2010 Census, investigated ethnic association and introduced internationally recognized identification criteria, such as language spoken in the household and geographic location. Information was collected both on the population residing in indigenous lands (both declared and undeclared indigenous people) and declared indigenous people living outside indigenous lands. In total, 896,900 indigenous people were recorded, belonging to 305 ethnic groups, speaking 274 languages, of which 36.2% living in urban areas and 63.8% living in rural areas (Tables 1 and 2). This total includes the 817,900 indigenous people declared under the color or race item and also the 78,900 people living inside indigenous lands and self-declared as of a different color or race (mainly mulattos, 67.5%), but who considered themselves “indigenous” according to aspects such as tradition, customs, culture and ancestors (IBGE, 2011).

Table 25

Indigenous Peoples and Ethnic Groups, according to linguistic branch, linguistic family, ethnic group or people

[English final 6o Relatório Nacional CDB Seção VI_TABELA_CD2010_ETNIA_LINGUA_IND - tabelas 1 e 2 da Seção VI.xlsx](#)

Source: IBGE (Censo Demográfico, 2010).

Table 26

Indigenous Languages of 5 years or more, according to linguistic branch, linguistic family, and indigenous language in Indigenous Lands

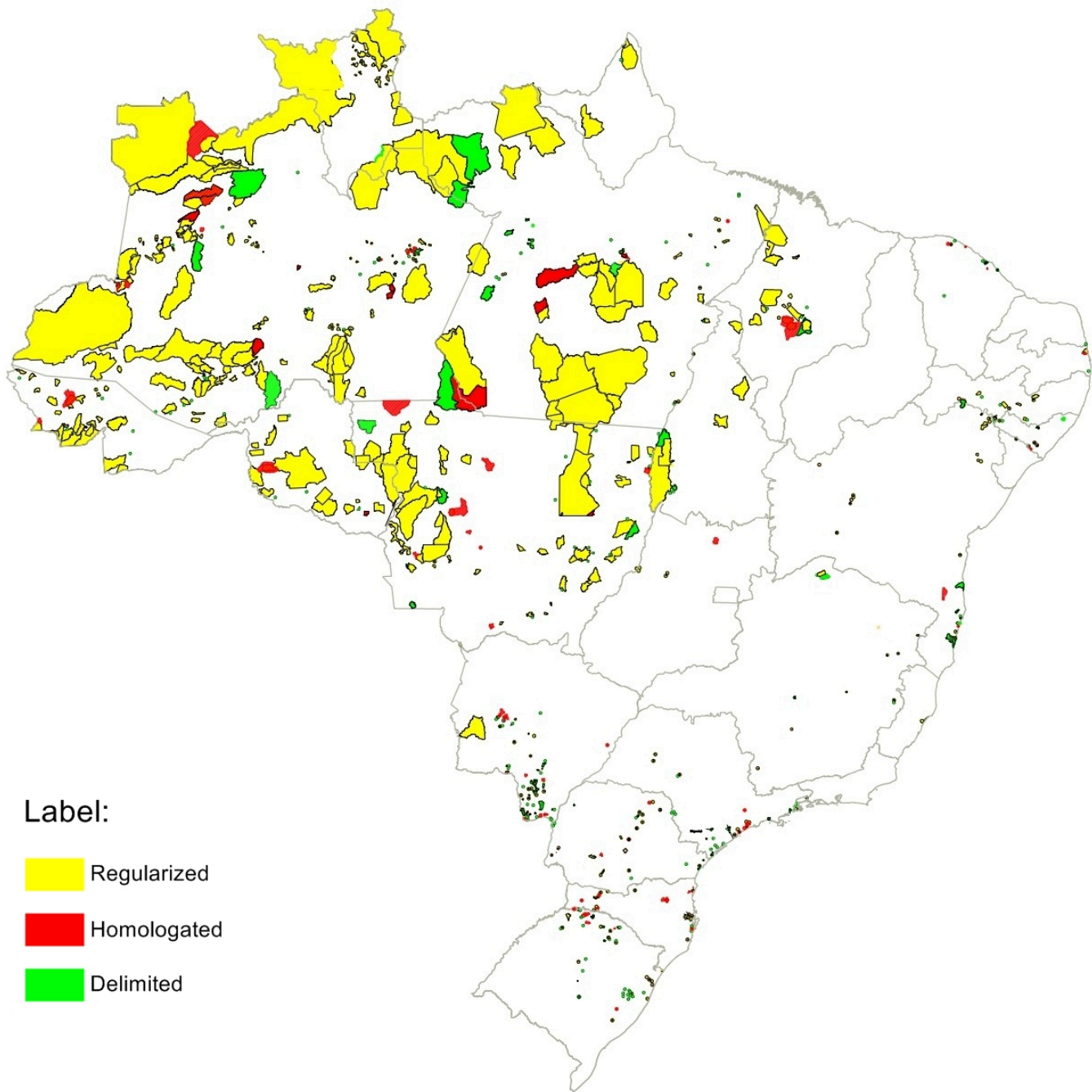
[English final 6o Relatorio Nacional CDB Seção VI_TABELA_CD2010_ETNIA_LINGUA_IND - tabelas 1 e 2 da Seção VI.xlsx](#)

Source: IBGE (Censo Demográfico, 2010).

Even though the most expressive numbers are located in the Amazon, indigenous lands are distributed throughout all Brazilian biomes. These areas protect various types of ecosystems, provide relevant ecosystem services and house important remnants of native vegetation and associated fauna populations. Covering 108 million hectares, the indigenous lands protect 12.6% of Brazil and 21.2% of the Amazon region (Figure 225). In the context of climate change and its effects on ecosystems, indigenous lands located in transition areas between the Cerrado and Amazon biomes represent particularly important habitats for future displacement of vegetation types and species distribution.

Figure 225

Distribution map of Indigenous Lands in Brazil



Source: Funai.

In comparison to the total area covered by indigenous lands, the sustainable use category of protected areas (PAs) designated to harmonize conservation and human occupation and use represent a smaller area. The Extractive Reserves and Sustainable Development Reserves comprise in total approximately 3% of the Brazilian territory, with 57,608 registered families (ICMBIO, 2019). The inventory carried out for the catalogue of biodiversity products indicated that there were 128 associations and cooperatives promoting local income generation and directly involving over 25,000 workers in 66 PAs (ICMBIO, 2018).

Even though the category of family rural producers is much broader and can encompass situations that are different from those described in the PNPCT, it is important to include it in this analysis for various reasons. Law nº 11.326, of 24 July 2006, which establishes the National Policy of Family Agriculture and Family Rural Enterprises, and its respective regulating Decree nº 9.064, of 31 May 2017, establish that family agriculture producers are those practicing activities in rural areas; possess areas of up to four fiscal modules; predominantly - at least half - use labor of their own family; at least 50% of the family income originates from economic activities within their rural establishment or enterprises; and working under strictly family

management. Also under this classification are silviculture producers; aquaculture producers; extractive workers; artisanal, indigenous and quilombola fishermen, according to items under §2 of Article 3 of Law nº 11.326.

The family agriculture reference is, therefore, fundamental to plan the management of natural resources and landscapes that contribute to the connectivity of conserved areas, to the conservation of biodiversity and to the sustainable rural development. According to the latest Agricultural Census, family agriculture is the economic basis of 90% of Brazilian municipalities with up to 20,000 inhabitants and is responsible for the income of 40% of the economically active population of the country, as well as for over 70% of occupied Brazilians in rural areas. The latest family agriculture data demonstrate an annual revenue of US\$ 55.2 billion and, if the country could only count on family production, it would still be among the largest food producers, holding the 8th place in global agribusiness (MDA, 2018a). It is also estimated that 70% of food consumed in Brazil are produced by family agriculture (MDA, 2017). Data from the Brazilian Agriculture and Livestock Atlas reveal that small rural properties of up to 4 fiscal modules (not all eligible as family agriculture producers) occupy approximately 1,140,000 hectares (13% of the Brazilian territory) (IMAFLOA & GEOLAB, 2017).

Within the rural economies and PCTAF scenario, it is important to highlight the role of extractive activities of socio-biodiversity products, which generates a series of benefits, such as food safety, income generation, maintenance of sustainable rural landscapes and the conservation of biodiversity. Data from 2016 demonstrate that extracted non-timber plant products such as assai, mangaba, pequi, babassu, among many others have reached a total production value of R\$ 1.6 billion (ICV, IEB, IPAM, ISPN, ISA, REDE CERRADO, WWF, 2018). In general, these are native products cultivated or collected under small-scale agriculture and agroforestry systems, according to agroecological principles and extracted from the wild for various purposes: food, housing, medicines, production of household utensils, hunting and fishing. Therefore, there is an intrinsic relation between agriculture or extractive systems and local cultures, territory and other aspects of local economy, which comprise a complex web that sustain communities, local economies and the rural landscape.

In the context of a megadiverse country presenting enormous flora use potential for economic purposes, rural communities and their traditional knowledge represent the frontline of the development and enhancement of new technologies for harnessing this rich biodiversity. In comparison with the limited number of researchers and technicians working on the theme, the number of people and collective forums directly involved in extractive activities represents a very large potential and capillarity to plan and support the development of new products and value chain arrangements.

The objective of this document is to assess the Brazilian contribution to the Aichi Targets and to the CBD, particularly regarding the PCTAF, as in the Local Biodiversity Outlooks report, published in 2016 (FPP, 2016). Although the PCTAF are the specific target of Target 18, the concrete situation of the PCTAF present a crosscutting connection to most of the Targets. For this reason, this document will first assess the socioenvironmental status of PCTAF, followed by the analysis of relevant scenarios and actions under each target.

Overall assessment - Progress and Retrogressions

Among the ramifications of the recognition of the rights of indigenous peoples, quilombolas and traditional communities is a series of public policies and governmental actions. Part of these advances is the creation of specific policies such as the National Policy on the Sustainable Development of Traditional Peoples and Communities (Decree nº 6.040, of 7 February 2007) and the National Policy on the Territorial and Environmental Management of Indigenous Lands - PNGATI (Decree nº 7.747, of 5 June 2012). In compliance with the Convention 169 of the International Labor Organization (ILO), which addresses the rights of indigenous and tribal peoples, signed by Brazil in 1989 and promulgated in 2004, the participation of these social actors in the development and governance of public policies is expanding. The PNGATI, for example, resulted from a process of five regional consultations to indigenous peoples, in which approximately 1,200 indigenous representatives participated, as well as Funai technical staff, federal and state environmental agencies and civil society organizations. The PNGATI Management Committee, established on 30 October 2013, has a representative composition, in which a balance is sought between indigenous and governmental representation (Figure 226).

Figure 226

Ordinary meeting of the Management Committee of the National Policy of Territorial and Environmental Management of Indigenous Lands - PNGATI, Brasília, 2014



Photograph: GATI/Funai Project Collection.

The existence of specific policies for PCTAF, in turn, is influencing and coordinating with other public policies and programs developed in the past several years and which are related to the conservation of biodiversity, the recuperation and maintenance of ecosystems and the provision of ecosystem services, which, in turn, are related or involve the specific inclusion of PCTAF in their objectives or governance. The two tables below present a summary of the main policies related to PCTAF and to the environment, where Table 27 displays the policies specifically directed at PCTAF, while Table 28 displays the relevant policies that indirectly relate to them.

Table 27

Main public policies specifically targeting the traditional peoples and communities and family rural producers, and their interface with the environment and biodiversity

POLICY	LEGAL INSTRUMENT	OBJECTIVE	OBSERVATIONS
National Policy of Sustainable Development of Traditional Peoples and Communities - PNPCT	Decree nº 6.040, of 7 February 2007	Promote the sustainable development of traditional peoples and communities, emphasizing the recognition, strengthening and safeguarding of their territorial, social, environmental, economic and cultural rights, respecting and valuing their identity, forms of organization and institutions.	Operates through the National Sustainable Development Council of Traditional Peoples and Communities - CNPCT (Decree nº 8.750, of 9 May 2016, which transformed the previous Commission into Council). After a 2-year interval, the CNPCT reinitiated its meetings in September 2018.
National Plan for the Strengthening of the	Decree nº 9.334, of 5 April 2018	Integrate and adjust public policies targeting life quality	One of the PNPCT instruments; operates

Extractive and River-side Communities - PLANAFE		improvement and the conservation of the environment of extractive and river-side communities.	through the PLANAFE Management Committee.
National Plan for Promoting the Chains of Sociobiodiversity-based Products	MMA, MDA and MDS Inter-ministerial Administrative Ruling n° 239, of 21 July 2009.	Promote the conservation and sustainable use of biodiversity and secure alternative income generation for rural communities through access to credit policies, technical assistance and rural extension, markets and commercialization instruments, and to the minimum price policy.	In 2016, this Plan was incorporated into the National Plan of Agroecology and Organic Production (Planapo), under Pilar 6 - Socio-biodiversity.
Minimum Price Policy for Sociobiodiversity-based Products - PGPM-Bio	Established based on Law n° 11.775, of 17 September 2008. Management Committee established through Inter-ministerial Administrative Ruling n° 311/2010	Secure a minimum price for extractive products, particularly during the harvest period of the products, when prices are usually lower due to the increased availability.	Includes among targeted products: assai, andiroba, babassu, baru, extractive rubber, buriti, extractive cocoa, carnauba, Brazil nut, copaíba, mate, juçara, licuri, macaúba, mangaba, pequi, piassava, pine nut and umbu.
National Policy of Territorial and Environmental Management of Indigenous Lands - PNGATI	Decree n° 7.747, of 5 June 2012	Secure and promote the protection, recuperation, conservation and sustainable use of natural resources in indigenous lands and territories, safeguarding the integrity of the indigenous heritage, the improvement of life quality and the full conditions for the physical and cultural reproduction of the current and future generations of indigenous peoples, respecting their sociocultural autonomy, in compliance with current legislation.	Representative Management Committee of the PNGATI established in October 2012, which holds periodic meetings, and the preparation of the Integrated Plan for PNGATI Implementation, in which the targets of various governmental sectors were enumerated and compared.
Program for the Conservation and Sustainable Use of the Cerrado Biome	Decree n° 5.577, of 8 November 2005	Promote the conservation, restoration, recuperation and sustainable management of ecosystems of the Cerrado biome, as well as the valuation and recognition of its traditional populations.	Operates through the National Commission of the Sustainable Cerrado Program - Conacer

Source: MMA.

Table 28

Main environmental public policies directly affecting traditional peoples and communities and family rural producers

POLICY	LEGAL INSTRUMENT	OBJECTIVE	OBSERVATIONS
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Law on the Protection of Native Vegetation	Law nº 12.651, of 25 May 2012	Protection of native vegetation and requirement of conserving or recuperating native vegetation in permanent preservation areas (APP) and legal reserves (RL)	The approximately 21 million hectares of APP and RL areas requiring recuperation to comply with this Law represent an opportunity for PCTAF to participate in reforestation activities, production of seeds and seedlings and implementation of agroforestry systems.
Convention on Biological Diversity	National Biodiversity Strategy and Action Plan 2016-2020 (EPANB)	Promote the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from the use of genetic resources and associated traditional knowledge. Implement the Global Targets (Aichi Targets) and National Biodiversity Targets.	Main national policy instrument to implement the national commitments under the CBD. Managed by the National Biodiversity Commission (CONABIO). Envisages the protection of traditional knowledge and of traditional uses and practices.
United Nations Framework Convention on Climate Change	Nationally Determined Contribution defined by the Brazilian Government (NDC) (REPÚBLICA FEDERATIVA DO BRASIL, 2015; MMA, 2016)	Reduce greenhouse gas emissions through several means, such as sustainable bioenergy; reducing deforestation and reforesting 12 million hectares of forests; Low-Carbon Agriculture Plan (ABC Plan); clean technologies and energy efficiency in the industrial sector; improvements in transport infrastructure and public transportation in urban areas.	Implementation of the NDC with full respect to human rights, particularly the rights of vulnerable communities, indigenous populations, traditional communities and workers in sectors affected by the corresponding policies and plans, with gender-sensitive measures.
National Plan of Agroecology and Organic Production - PLANAPO	Inter-ministerial Administrative Ruling nº 1, of 3 May 2016	Expand and strengthen production, handling and processing of organic and agroecology-based products, targeting as priority audience the family agricultural producers, settlers of the agrarian reform and traditional peoples and communities.	Main instrument of the National Policy on Agroecology and Organic Production - PNAPO, Decree nº 7.794 of 20 August 2012.
National Plan for the Recuperation of Native Vegetation - PLANAVEG	Inter-ministerial Administrative Ruling nº 230, of 14 November 2017	Addresses the recuperation of the native vegetation cover through the implementation of agroforestry systems, reforestation, natural vegetation regeneration, ecological rehabilitation and ecological restoration. Represents an opportunity for PCTAF to participate in reforestation	Main instrument of the National Policy on the Recuperation of Native Vegetation - Proveg - Decree nº 8.972, of 23 January 2017; the implementation, monitoring and evaluation will be coordinated by the National Commission for the Recuperation of Native

		activities, seeds and seedlings production, and implementation of agroforestry systems.	Vegetation - CONAVEG
National Landscape Connectivity Program - CONECTA	Administrative Ruling nº 75, of 26 March 2018	Operate under the following thematic pillars: <i>I - environmental conservation; II - environmental recuperation; III - territorial management; and IV - sustainable production</i>	Envisions management actions that favor the socioenvironmental development of traditional peoples and communities, and indigenous and quilombola peoples.

Source: MMA.

It is important to note that an underlying aspect of policies targeting PCTAF is the recognition that there are world visions and forms of social organization that are based on territories and resources of communal use, and that the establishment of mechanisms such as the demarcation of indigenous lands and quilombola territories, and the creation of Extractive Reserves - RESEX and Sustainable Development Reserves - RDS are means to enable the continuity of these livelihoods. The PCTAF way of occupying the land and using natural resources can be characterized by collective arrangements for using their territories and managing natural resources, combined with their traditional agricultural systems, which are rich in agrobiodiversity and that supply most of the food consumed in Brazil. The recognition of the singularities of these forms of social organization, environment occupation and management of natural resources is, therefore, an essential portion of a Brazilian strategy supportive of sustainable landscapes and ecological connectivity.

The last few years have presented a positive balance of very significant progress made by the Brazilian government towards recognizing the cultural and territorial rights of indigenous peoples and traditional communities, with the progressive inclusion of the environmental theme as an integral aspect of policies and programs targeting the well-being of these populations. However, these initiatives sometimes conflict with other governmental initiatives that promote ventures such as large infrastructure works with direct impacts on PCTAF territories or through direct or indirect incentives to the expansion of agribusiness, mining, eucalyptus monoculture, among others (ISA, 2018; AMAZON WATCH, 2018).

Some legislative proposals are seen by PCTAF as threats or weakening of their rights, such as the proposal of amendment to the Constitution, which has the objective to remove from the governmental Executive body the prerogative for demarcating indigenous lands, transferring it to the National Congress (Constitutional Amendment Proposal - PEC nº 215 (CD, 2000)). In August 2018, representatives of the Brazilian Confederation of Agriculture and Livestock (CNA) and of the Agriculture and Livestock Parliamentary Front (FPA) requested to the Ministry of Justice to revoke Decree nº 6.040/2007, which established the National Policy on Sustainable Development of the Traditional Peoples and Communities - PNPCT and the suspension of the processes for demarcating indigenous and quilombola lands (IHU UNISINOS, 2018).

In parallel, violence in rural lands has increased. In 2017, the highest number of murders resulting from rural conflicts in the past 14 years was recorded, with 71 homicides, and a 63% increase in murder attempts and 13% increase of death threats (CPT, 2018). Regarding indigenous peoples, a report by the Missionary Indigenous Council - CIMI notes that, among the 110 murders of indigenous people that occurred in 2017 and recorded by the Special Secretariat of Indigenous Health - SESAI, at least part was related to land tenure conflicts (CIMI, 2018).

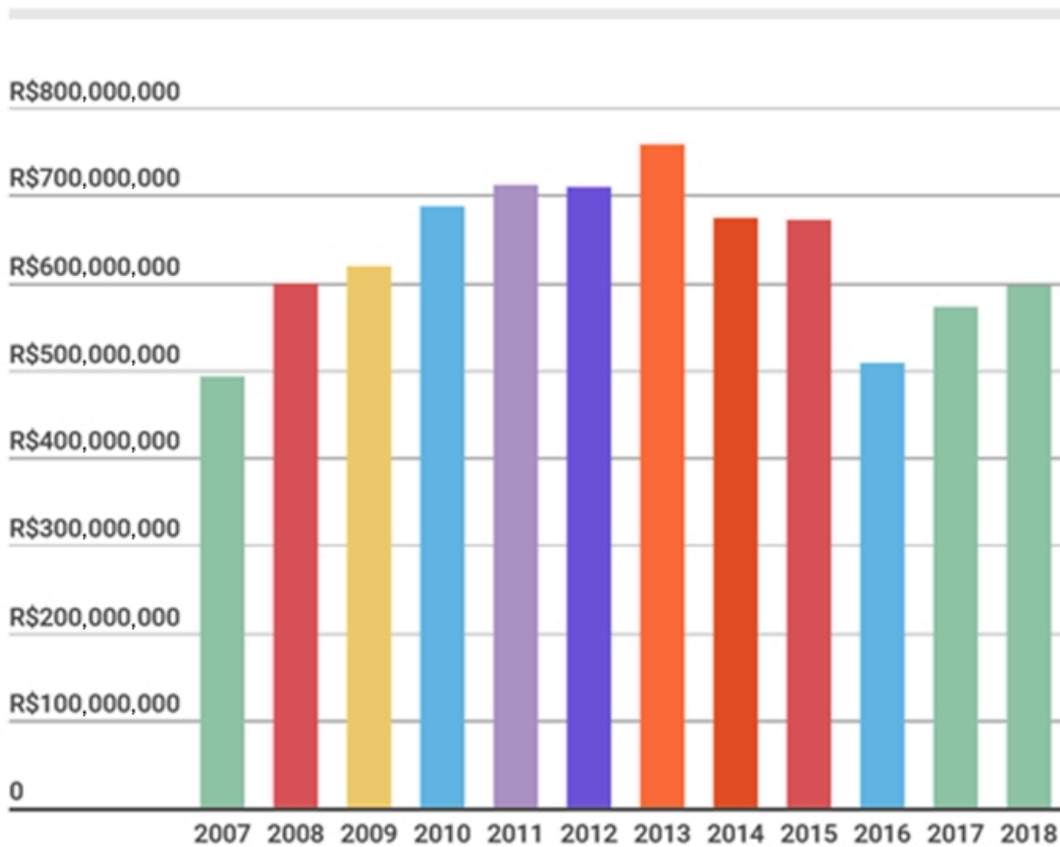
The threats and lack of definition regarding territorial rights of PCTAF is currently one of the largest obstacles to their well-being, which impacts their contribution to more sustainable rural landscapes capable of conserving biodiversity and maintaining ecosystem services through the traditional management of natural resources. The vulnerability of land rights generates uncertainties and conflicts regarding the ownership and access to natural resources and affects both those communities whose economies depend on lands for agricultural production, and those who use natural areas for collecting extractive resources.

The lack of title of PCTAF territories can be seen as a weakness of the policy addressing these peoples, in addition to a factor that facilitates or encourages land grabbing.

Another negative factor is the insufficient structure and budget for institutions that enable PCTAF policies, such as the freezing of budget allocated to Funai, whose authorized budget has diminished in comparison to the 2013 peak (Figure 227).

Figure 227

Funai authorized budget over the last 12 years



Source: Instituto de Estudos Socioeconômicos - INESC, 2018.

The National Targets are analyzed below regarding their interface with PCTAF and with their contribution to the achievement of the targets.

Analysis of the indigenous peoples and local communities contribution to the National Targets

STRATEGIC OBJECTIVE A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity considerations across government and society.

Target 1: *By 2020, at the latest, Brazilian people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.*

For PCTAF and, particularly, to indigenous peoples, the concepts of territory, environment, natural resources and culture are interconnected and inseparable, with specific and peculiar ramifications according to the history and socioenvironmental situation of each group or people, so that there is no single and standard narrative applicable to PCTAF. This richness of visions, however, is not always understood by the surrounding society, which brings up the need to expand the Brazilian society's knowledge and appreciation of the PCTAF cultures and socioenvironmental realities.

An important partnership between Funai and the Ministry of the Environment and Chico Mendes Institute for Biodiversity Conservation - ICMBio resulted in the "Basic Course on the National Policy of Territorial and Environmental Management of Indigenous Lands - PNGATI", which has contributed to reduce this bias. Involving civil society institutions and regional indigenous organizations, this intellectual training was successfully carried out in the past few years, based on the initial proposal of five modules delivered along approximately one year (Figure 228). Reaching much beyond its training aspect

of achieving familiarity with the Policy, the PNGATI courses have led to a significant improvement in the dialogue between indigenous representatives, Funai staff, managers of protected areas and technical staff of state agencies. This dialogue has proven fundamental for the establishment of new partnerships with state governments, PA protection agencies and other potential partners that can support management activities in indigenous lands.

Figure 228

Participants of the Basic Course on the National Policy of Territorial and Environmental Management of Indigenous Lands - PNGATI for the South and Southeast Atlantic Forest region, held at the Brazilian Biodiversity Academy - Acadebio, in 2015



Photograph: GATI/Funai Project Collection.

The incorporation of local communities in the official management of natural areas and in the implementation of environmental policies requires not only management instruments, but also people trained to carry out the interlocution between governmental agencies and communities. Several initiatives have been developed to train and involve PCTAF to perform this function. Under ICMBio, the Monitora Program - National Biodiversity Monitoring Program is being implemented in 17 Protected Areas (PAs) corresponding to almost 12 million hectares, and involves communities inside and around PAs, extractive workers of sustainable use PAs, ICMBio PA managers and local partner institutions.

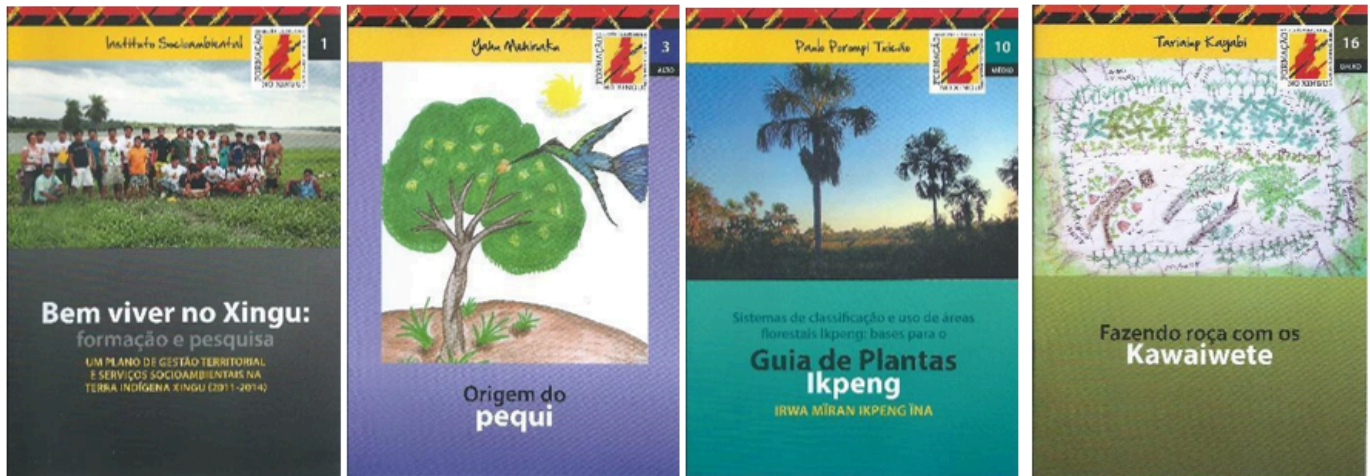
The Monitora Program seeks to strengthen the dialogue on environmental issues based on information sharing and raising issues, involving researchers, PA managers and communities. Since 2013, the project supports the participatory management of biodiversity (PMMP, 2015) and promotes the socioenvironmental engagement to strengthen PA management and the conservation of biodiversity. This process is essential to understand and moderate the variety of changes that can lead to the loss of local biodiversity, inform the adequate management of natural resources and promote the maintenance of the livelihoods of local communities (IPÉ, 2018).

Regarding indigenous peoples, there is no unified proposal for the training of monitors or agents for environmental and territorial management. Several training experiments have already been carried out or are under implementation, from short initiatives to professional technical training at the secondary education level (IEEB, 2016). An example of the latter is the Indigenous Agroforestry Agent Course - AAFI, developed by the Acre Pro-Indigenous Peoples Commission and which is recognized since 2009 by the Acre State Education Council. The training of AAFIs has the objective to value, intensify and expand knowledge and territorial and environmental management practices on indigenous lands, providing tools for the members of the indigenous communities to plan, intervene and provide the possible solutions to the identified socioenvironmental issues. There are currently 179 AAFIs in Acre, from 14 peoples and 30 indigenous lands, which have been assisting the state government in the implementation of the state REDD policies (CPIACRE, [2015 or 2016]).

In the Xingu Indigenous Park, the Socioenvironmental Institute - ISA carried out training for 32 youths on territorial and environmental management through biannual meetings, with face-to-face modules of 15 to 20 days each. In 2018, 22 books or booklets were published, presenting the work carried out by students on various themes related to their circumstances (Figure 229).

Figure 229

Books produced based on the work of students of the territorial and environmental management course in the Xingu Indigenous Park, promoted by the Socioenvironmental Institute - ISA



Source: ISA.

Target 2: *By 2020, at the latest, the biodiversity values, geo-diversity values, and socio-diversity values have been integrated into national and local development and poverty reduction and inequality reduction strategies, and are being incorporated into national accounting, as appropriate, and into planning procedures and reporting systems.*

Under the context of the territorial and environmental management of lands and natural resources of communal use, the progress has been significant regarding the application of instruments and tools such as ethno-mapping and ethno-zoning, and the Territorial and Environmental Management Plans – PGTAs, among others, particularly in the case of indigenous lands. These instruments combine cultural knowledge and practices with cartographic technologies and remote sensing, thus enabling indigenous peoples to materialize proposals for better life quality and the consequent conservation of their lands, based on their own vision of the territory, its natural resources and respective management (Figure 230). In addition to internally organizing issues related to the use and management of natural resources and their sustainability, the PGTAs are instruments that enable a more effective dialogue among indigenous peoples and municipal, state and federal agencies responsible for implementing various public policies. Of the 449 ratified or regularized indigenous lands, 91 count with PGTA (Target 11 Indicator, C11.8), as shown in Figure 231.

Figure 230

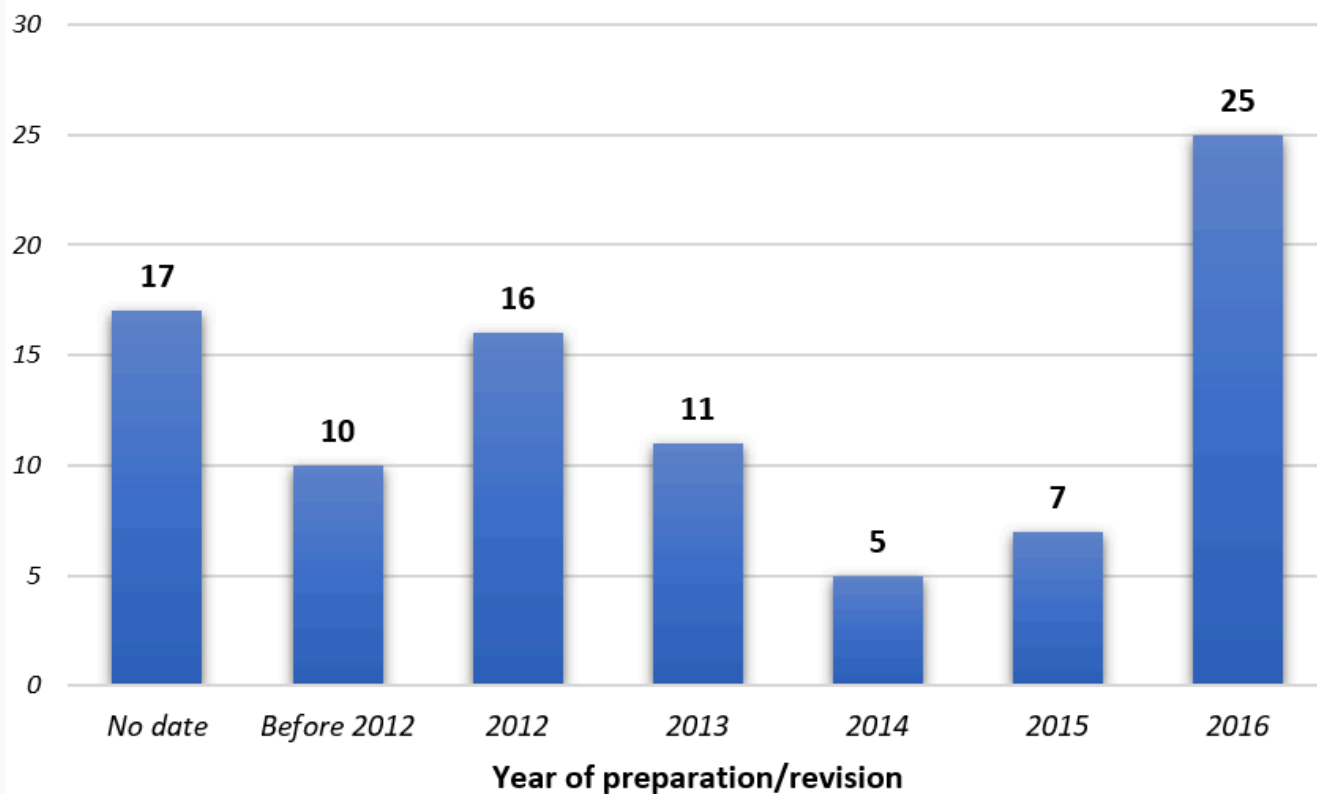
Ethno-mapping exercise using satellite images at the Bracuí Indigenous Land of the Guarani People -RJ



Photograph: GATI/Funai Project Collection.

Figure 231

Inventory of Territorial and Environmental Management Instruments in Indigenous Lands (Indicator C11.8. Number of Territorial and Environmental Management Plans (PGTA) in Indigenous Lands)



Source: FUNAI.

With the creation of the Working Group to prepare a National Plan of Territorial and Environmental Management in Quilombola Territories, the adaptation of PGTA methodology for application to quilombola territories is being discussed among governmental agencies and quilombola representations. According to estimates of the National Coordination of the Black Rural Quilombola Communities - Conaq, Brazil houses between 5,000 and 6,000 quilombola communities. Of these, 2,997 are certified by the Palmares Cultural Foundation and 151 territories have been titled by INCRA, and 1,692 land tenure regularization processes are under analysis by INCRA (MMA, 2018a).

Regarding Extractive Reserves - RESEX, "Management Agreements" have been prepared, which are instruments built through participatory processes and with a function similar to the PGTAs of indigenous lands. According to ICMBio data, by December 2018 twelve RESEX management agreements had been negotiated and signed. The "Management Agreements", however, are not provided by Law nº 9.985, of 18 July 2000, which establishes the National Protected Areas System - SNUC and, therefore, it is necessary to conciliate this instrument with the Management Plans.

Even though problems, conflicts and uncertainties exist in relation to the ownership and management of territories and natural resources, it can be considered that important progress has occurred, through which local communities are being progressively incorporated into the official management of natural areas and in the implementation of environmental policies. In part, this is due to the consolidation of management instruments built through participatory processes, such as the PGTAs of indigenous lands and the RESEX Management Agreements, which formalized internal practices and pacts related to the sustainable use of natural resources.

With the intention of preparing and implementing PGTAs of indigenous lands, the training of a category of "indigenous environmental agents" or like-professionals (as mentioned under Target 1) represents a key strategy to support indigenous peoples in the management of their territories. According to the demand and socioenvironmental circumstance of each region and scenario, these agents can become specialized or focus on various themes, from territorial surveillance and monitoring to good management practices in extractive activities, implementation of agroforestry systems and recuperation of degraded areas, agroecological production, ecotourism and ethno-tourism, and biodiversity monitoring.

At the same time, state forums and initiatives are aligning with national public policies and achieving variable levels of indigenous peoples' participation in their operation and decisions. In Maranhão, for example, the State Commission on Public Policies for Indigenous Peoples - COEPI was established in July 2016. COEPI is in the process of constructing a State Plan of Public Policies for Indigenous Peoples, which will guide the Maranhão government in the policies to promote the basic

rights of indigenous peoples. In Mato Grosso, during the 2nd Assembly of Indigenous Peoples held in 2016, the Federation of Indigenous Peoples and Organizations – FEPOIMT was created to function as the voice and representative channel to guide the indigenous peoples’ policy in the state, in coordination with the Center of Strategic Management for Results, under the Mato Grosso State Secretariat of Justice and Human Rights – Sejurdh. In August 2017, the Governor requested indigenous leaderships to appoint a representative to take over the head of the State Indigenous Peoples Superintendence, connected to the Governor’s Office.

Target 3: *By 2020, at the latest, incentives harmful to biodiversity, including the so-called perverse subsidies, are eliminated, phased out or reformed in order to minimize negative impacts. Positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the CBD, taking into account national and regional socioeconomic conditions.*

The creation of municipal or state bodies to assist indigenous peoples and the PCTAF in general, such as secretariats or other specific agencies, is not new, particularly regarding the education, health and agricultural production themes. Today, however, a stronger presence of subnational governments arises on environmental themes and, with it, a stronger participation of these governments in the PCTAF socioenvironmental scenario.

In this scenario, it is important to note a significant environmental policy which is the Ecological ICMS, which consists of the financial transfer from state governments to municipalities, based on the calculation of environmental conservation indexes at municipalities providing the ecosystem services provided by the indigenous lands and protected areas (IPEA, 2017). According to this calculation, the municipalities receive a percentage of the ICMS – Value-added Tax on Services and Circulation of Goods (TNC, [2011?]). Approximately half of Brazilian states have already regulated and are implementing the Ecological ICMS, while other states have developed the specific legislation but are not yet operating the transfer because the legislation is too recent or is still being regulated.

In various states, the indigenous peoples are coordinating the access to Ecological ICMS resources to support several types of projects in their lands. These resources can be perennial (as long as the environmental quality indicators are maintained) and can represent a considerable amount of support to indigenous lands. Currently, quilombola territories are not eligible to the Ecological ICMS, but there is a bill on this matter in Tocantins (GAZETA DO CERRADO, 2017).

In the specific case of indigenous lands, despite the progress represented by the Ecological ICMS, this mechanism is not available at all states. In addition, even where it does exist, indigenous peoples not always manage to access it, as this depends on close dialogue between indigenous peoples and the municipal government.

In addition to the Ecological ICMS, other support mechanisms are being created for the sustainable use of biodiversity and for PCTAF, which involve the payment for ecosystem services, such as the Green Grant of the Ministry of the Environment and the then Ministry of Social Development, and the Forest Grant of Amazonas state. The Program to Support Environmental Conservation, which is the title of the Green Grant program, was established by [Law nº 12.512](#), of 14 October 2011, and regulated by [Decree nº 7.572](#), of 28 September 2011, and aims at motivating the conservation of ecosystems, promoting citizenship, the improvement of life conditions and the income increase of communities in extreme poverty and who implement natural resource conservation activities, as established under Article 1 of Law nº 12.512/2011. By signing the Term of Adhesion, families renew the commitment to contribute to environmental protection and to comply with the internal code and management agreements of the protected area, in harmony with their traditional livelihoods that promote the conservation and protection of ecosystems. As counterpart, every quarter they receive a R\$ 300 grant each.

Eligible beneficiaries of the Green Grant are families who develop environmental conservation activities in national forests, federal extractive reserves and federal sustainable development reserves; in Forest Settlement projects, Sustainable Development projects or Agro-extractive Settlement projects established by the National Institute of Colonization and Agrarian Reform – Incra; and in other rural areas indicated by the Management Committee of the Green Grant Program and defined by the Ministry of the Environment.

The first phase of the program was implemented at the end of 2011, with the identification of approximately 18,000 families located in 33 protected areas and 16,634 families located in 140 environmentally differentiated settlements of the agrarian reform managed by Incra in the Legal Amazon. In the December 2016 program balance, a total of 47,681 people had been benefitted since the beginning of the program (MMA, 2012). The program is currently suspended, with the last payment having been made in December 2017.

The Family Forest Grant Program is a public policy established by the Amazonas government in partnership with the Bradesco Bank through Law nº 3.135, which established the State Policy on Climate Change, Environmental Conservation and Sustainable Development of Amazonas, and Complementary law nº 53, which established the State Protected Areas System – SEUC, both from 5 June 2007 (FAS, 2018a). The implementation of the Family Forest Grant was initiated by the then Secretariat of Environment and Sustainable Development – SDS in September 2007 and was transferred to the Sustainable Amazonas Foundation – FAS in March 2008. The Program operates through four components: Income, Social, Family and Association. According to the engagement of families inside and around state protected areas, the components secure direct gains, social benefits at the community level, support to the creation of associations, and sustainable production and income generation activities. Until November 2018, 39,242 people of 9,602 families were benefitted, distributed among 580 communities (FAS, 2018b).

The PGPM-Bio (Art. 14 of Administrative Ruling nº 129, of 7 March 2018), is an initiative that subsidizes the commercialization of 17 extractive products (assai, andiroba, babassu, baru, extractive rubber, buriti, extractive cocoa, Brazil nuts, carnauba,

juçara, macaúba, mangaba, murumuru, pequi, piassava, pine nuts and umbu), supporting the development of traditional communities (CONAB, 2017). The policy operates through direct subvention, with the payment of a bonus when extractive workers demonstrate the sale of an extractive product by a price lower than the minimum amount defined by the federal government.

The PGPM-Bio aims at contributing to the conservation of the source-ecosystems of the products and, consequently, to deforestation reduction as a means to minimize climate change effects, secure a minimum income to populations that present their own forms of social organization and production, and promote the maintenance of traditional knowledge (CONAB, 2017). Most beneficiaries use territories and natural resources as condition to their cultural, social, religious, ancestral and economic reproduction and use knowledge, innovations and practices generated and transferred by tradition.

PGPM-Bio completed nine years of operation in 2018, with over R\$ 49 million already transferred to thousands of extractive workers around the country, mainly to those located in the Cerrado and Amazon biomes (CONAB, 2018). The volume of subsidized products and the amount transferred have significantly increased in the past several years.

The Sipaf Seal, created in 2010, identifies the products originating from family agriculture and seeks to strengthen the social identity of family agriculture for consumers (MDA, 2018b). Since 2018, a few sub-identifications have been developed, among which the Socio-biodiversity Sipaf, which identifies the “goods and services (final products, raw materials or benefits) generated from biodiversity resources (...) targeting the structuring of production chains considered of interest to traditional peoples and communities and family rural producers, which promote the maintenance and valuation of their practices and knowledge, and secure the resulting rights, generating income and improving their life quality and the quality of the environment where they live”, according to Article 2, item IX of Administrative Ruling nº 129, of 7 March 2018 (MDA, 2018b)*.

* Products eligible to receive the Socio-biodiversity Sipaf are the same as those under PGPM-Bio, listed under the previous item, and are listed in the [Inter-ministerial Administrative Ruling nº 163, of 11 May 2016](#).

In general, even with the existence of specific policies related to the use and management of natural resources by traditional peoples and communities, this does not necessarily translate into the provision of financial resources specifically allocated to the support of community organizations in the management of their rural and natural landscapes. For example, even though the PGTA instrument has already been prepared for many indigenous lands, specific resources are still lacking for their implementation and to promote management in general, which may include a set of activities, among which the sustainable use of biodiversity and other production activities. To support the management of their territories, it is therefore necessary to open new financing lines and instruments for PCTAF that are capable of responding to a variety of situations and demands.

Target 4: *By 2020, at the latest, governments, private sector and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption to mitigate or prevent negative impacts from the use of natural resources.*

According to ICMBio’s evaluation, several challenges exist related to the social and productive inclusion of traditional peoples and communities and to the valuation of their traditional knowledge associated to the conservation of biodiversity, biomes and their ecosystems. These challenges encompass a range from the internal social relationships of communities and lack of organizational structure, to the inequality of relations that rule the commercialization phase of production and access to markets. Community associations generally present a character more closely related to political representativeness, and few play a significant role in the negotiation and commercialization of production (ICMBIO, 2018).

Despite this aspect, the approximation of the socio-biodiversity and agroecology and organic production agendas is being strategically coordinated among social movements and governmental agencies to promote a sustainable model for rural development. According to ICMBio, capacity building actions and technical support are key to achieve this objective, without which the communities will continue to depend on conventional processes to distribute extractive production and which contribute to keep them more isolated, segregated and left aside of the market.

Of no less importance is the recognition, by society, of the relevance of the production originated from extractive activities and its benefits and value-added, ranging from food safety and income generation for traditional communities to the maintenance of ecosystem services and strengthening of the territorial connection and cultural valuation of traditional knowledge. To this end, ICMBio launched in December 2018 the “Catalogue of Products from Brazilian Socio-biodiversity”, which presents 15 products originating from traditional populations in 66 protected areas: assai, handcrafts, babassu, rubber, cocoa, nuts, manioc flour, fruits and pulps, jaborandi, alligator, timber from community forest management, plant oils, fisheries resources, pirarucu and community-based tourism (Figure 232) (ICMBIO, 2018).

Figure 232

Map of Products from Brazilian Socio-biodiversity

Map of Products from Brazilian Socio-biodiversity



Source: ICMBio, 2018. Catálogo de Produtos da Sociobiodiversidade do Brasil.

Concerning indigenous lands, depending on the local context and vocation, one of the income generation possibilities through the use of landscapes and sustainable natural resources is the ecotourism and ethno-tourism. Such initiatives are currently regulated by Funai through Normative Instruction nº 3, of 11 June 2015. Until the end of 2018, Funai was monitoring 26 such initiatives, at different phases of analysis and approval of their respective Visitation Plan.

Another relevant initiative is the Program of Small Eco-Social Projects - PPP-ECOS, created by the Global Environment Facility - GEF to support projects by non-governmental and community-based organizations developing actions that generate global positive impacts combined with the sustainable use of biodiversity. Under the technical-administrative coordination of the Society, Population and Nature Institute - ISPN, the PPP-ECOS is one of the few programs in Brazil that have targeted their support exclusively to the Cerrado biome from 1995 to 2013. Since 2013, the PPP-ECOS began to also support projects in the Amazon, at the deforestation frontier region in the states of Maranhão, Mato Grosso and Tocantins (portfolio of the Amazon Fund/BNDES) and in the Caatinga biome (GEF portfolio). Other project portfolios were recently developed, such as the indigenous projects PPP/GATI, the indigenous projects of the Climate Fund, the Satoyama projects and the projects under the PBA VALE/Quebradeiras agreement.

The PPP-ECOS was implemented in over 100 municipalities of 17 Brazilian states with 16,000 beneficiary families; 10,500 people participated in capacity building activities; 950,000 hectares placed under sustainable management in the Cerrado and in the Caatinga; 4,730 hectares are being restored; 1,600 hectares placed under agroecological practices; 6,100

hectares placed under soil and water conservation practices; 15,521,269 tCO₂eq avoided emissions; 72,000 tCO₂e sequestered from the atmosphere through restoration or agroecological practices; over 20 contributions to influence public policies; information dissemination on Cerrado and Caatinga products through support to the Central do Cerrado, Cerratinga website and various knowledge generation products. These data refer to 101 projects supported between 2013 and 2018 in the Cerrado and Caatinga, updated in July 2017 (ISPN, 2018).

The PPP-ECOS projects implemented with resources from the Amazon Fund received direct investments amounting to R\$ 12 million applied in 88 projects in 72 municipalities of three states (Maranhão, Mato Grosso and Tocantins), benefitting 3,400 families of traditional communities, small agriculture producers and Incra settlers (MMA, 2017).

STRATEGIC OBJECTIVE B: Reduce the direct pressures on biodiversity and promote sustainable use

Target 5. *By 2020, the rate of loss of native habitats is reduced by at least 50% (in comparison with the 2009 rate) and, as much as possible, brought close to zero, and degradation and fragmentation is significantly reduced in all biomes.*

The construction of infrastructure such as roads, dams, ports and others, affecting or near PCTAF territories, have brought environmental and social impacts of various kinds. In turn, the large-scale agribusiness brings other impacts, such as deforestation and impacts on river headwaters, as well as competition for water resources due to the increasing water demand for irrigation. However, there are also impacts caused by deforestation on regional climate and hydrological cycles that are more subtle and hard to measure. Many traditional territories find themselves today surrounded by landscapes dominated by monocultures, exposing them to regional climatic impacts. In the case of the Xingu Indigenous Park in the state of Mato Grosso, a sequence of years with forest fires has been attributed to the alterations in the regional hydrological cycle resulting from the evolution of deforestation around the Park, which amplified the effects of the 5-6 months drought (Figure 233). The dryer conditions resulted in fire spreading out of the savanna areas and penetrating in forests, affecting important resources for indigenous peoples, such as materials used for building their houses. This phenomenon peaked in 2010 with almost 500,000 hectares burnt, and smaller reoccurrences in 2014 and 2015, with almost 50,000 hectares burnt.

Figure 233

Comparison of deforestation (red) in the Xingu river watershed and area surrounding the Xingu Indigenous Park, from 1992 to 2014

[Figura 233 \(1\)_Inglês.jpg](#)[Figura 233 \(2\)_Inglês.jpg](#)

Source: Instituto Socioambiental – ISA.

The actions of local fire brigades have been key to prevent fire occurrences and forest fires. According to 2016 data, the Federal Fire Brigades Program under Ibama directly protects approximately 15 million hectares of indigenous lands, 7.5 million hectares of settlement projects and 265,000 hectares of quilombola territories. It also assists in the protection of approximately 12 million hectares of federal, state, municipal and private PAs (IBAMA, 2016). As a result of the Technical Cooperation Agreement between Funai and Prev-Fogo/Ibama, there are currently 40 indigenous fire brigades acting in 39 indigenous lands, with a total of 726 fire brigade members (Figure 234).

Figure 234

Fire brigade members at the Xakriabá Indigenous Land (MG)



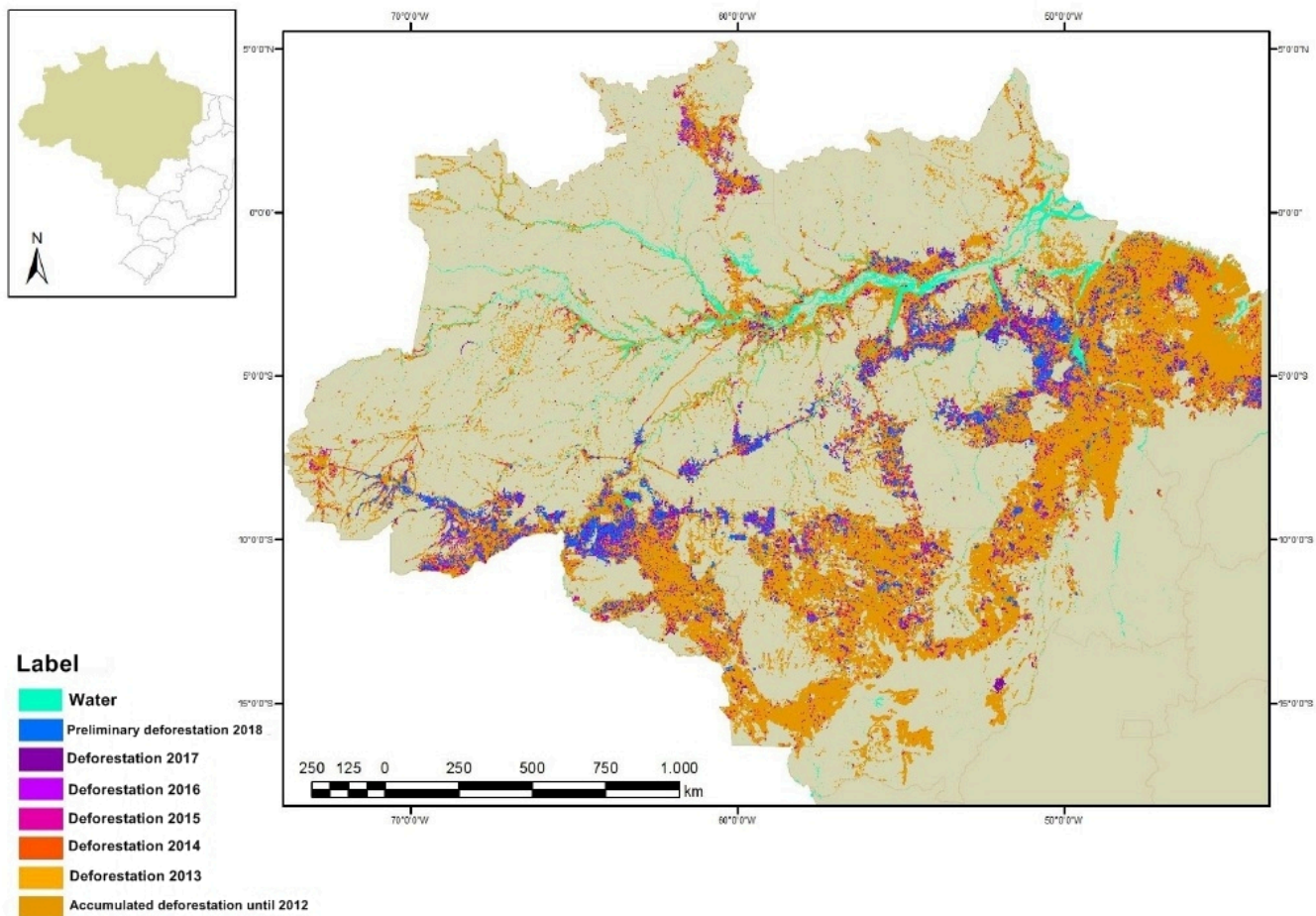
Photograph: GATI/Funai Project Collection.

ICMBio also seasonally hires Brigades for Forest Fire Prevention and Combat at federal PAs, distributed among all biomes. Most of the fire brigade members are local residents, living near or inside these PAs (including Full Protection Protected Areas that are not 100% regularized regarding land tenure and, therefore, have resident people). In addition to providing a highly relevant service, also connected to income generation, by actively participating in the protection of these areas the fire brigade members contribute to the management and sustainable use of natural resources, many of which they and their communities use for economic purposes. In 2018, 1,188 fire brigade members were hired in 89 PAs. To enable the hiring of this contingent, at least 3,000 people were trained, as the training is part of the selective process for hiring.

In the Amazon, particularly in the region known as the “Deforestation Arch”, where the advance of agricultural frontiers and the construction of roads, hydroelectric powerplants and other infrastructure works bring serious threats and impacts to biodiversity and ecosystem services, the indigenous lands and protected areas have been considered as barriers or breaks to deforestation (NEPSTAD et al., 2006; CARRANZA et al., 2014; NOLTE et al., 2013; NUNES, 2010; IPAM, 2015). According to the 2018 Implementation Balance of the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon – PPCDAm and Action Plan for the Prevention and Control of Deforestation and Fire in the Cerrado – PPCerrado 2016-2020 (referring to information collected until 4 December 2018), only 4% of the recorded deforestation occurred in Indigenous Lands, according to preliminary 2018 data. This percentage is very small compared to the size of this land tenure category, which corresponds to approximately 25% of the Legal Amazon area. It is, however, relevant to note that deforestation in this land category is very concentrated, where the 10 most deforested indigenous lands total 83% of the deforestation in indigenous lands (MMA, 2018b). In comparison to indigenous lands, deforestation recorded in protected areas, including Environmental Protection Areas – APAs, corresponds to 11% according to preliminary 2018 data, where protected areas correspond to approximately 23% of the Legal Amazon area. These data demonstrate that, despite the legal status of protected areas, both the protected areas and the indigenous lands are under constant pressure from loggers, charcoal makers, farmers and agribusiness, as well as from the construction and presence of infrastructure which, in addition to direct impacts, increase the inflow of people and the occurrence of environmental offenses (LINS RIBEIRO, 2014).

In terms of specific initiatives to support the community monitoring of natural ecosystems, various tools have been created in the past several years. The Remote Monitoring Center – CMR operated by Funai’s General Coordination of Territorial Monitoring – CGMT makes an [interactive map publicly available](#), which allows the overlap of cartographic information layers such as indigenous lands, PAs, quilombola lands and other data from the National Institute of Space Research – INPE on deforestation and fire occurrences. Internally, the platform can be used by Funai staff to record specific georeferenced information on indigenous lands, such as the occurrence of illegal activities.

Figure 235
Accumulated deforestation in the Legal Amazon until 2018



Source: INPE, PRODES 2018, preliminary data.

In the “Deforestation Arch” (southern border of the biome) the large intact areas or those showing little deforestation correspond to indigenous lands and protected areas. Source: MMA, 2018b.

Target 6. By 2020, all stocks of any aquatic organism are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overharvesting is avoided, recovery plans and measures are in place for depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems, and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, when scientifically established.

Some PCTAF are highly dependent on fisheries resources, both for subsistence consumption and for income generation, making the conservation of fisheries stocks key for the social and economic stability of these communities. However, in most cases the fisheries stocks represent collective and shared resources (common-pool resources), susceptible to exploitation if there are no rules or agreement on their management. Therefore, there is high potential for conflicts among users, particularly between artisanal and commercial fishermen. In the Amazon, the “fisheries agreements” have a history of some decades, motivated by the pressure of the large-scale commercial fisheries, which have been arriving in the region since the 1960’s and whose effects were felt more strongly since the 1990’s, with the decrease in quantity and quality of capture of the most traditional species, such as pirarucu (*Arapaima gigas*), tambaqui (*Colossoma macropomum*), and piramutaba (*Brachyplatystoma vaillantii*). In response to this pressure on stocks, community initiatives arose to close lakes and restrict the entrance of fishing boats, which became essential strategies to prevent the over-exploitation of important species (OVIEDO et al., 2015; MCGRATH, 2000). In 1997, IBAMA - at the time the agency responsible for fisheries management in Brazil - prepared a document considering the fisheries agreements eligible to become legal documents and, in 2002, published Normative Instruction nº 29, of 31 December 2002, in which it recognized fisheries agreements as an instrument for fisheries ordering and regularization, and established criteria for their regulation (D’ALMEIDA, 2006).

However, many challenges remain related to the operation of fisheries agreements in the Amazon. Among these: their weak organizational basis, the absence of a mechanism to ensure the representation of all actors and users, and the lack of a clear organizational structure for monitoring and enforcement. A related problem resides in the difficulty to achieve

representativeness in the process of defining and approving agreements, as even if a document that is mutually acceptable by members of the communities is produced, actors with other interests and non-participants tend not to recognize the agreement (OVIEDO et al., 2015).

Unfolding from fisheries stocks management initiatives, in the past few years a growing number of community-based participatory management initiatives has been observed focusing on pirarucu, which is a species at the top level of the aquatic food chain and of great economic importance in the region. Based on the traditional practice carried out by regional fishermen of the Middle Solimões region and systematized by technical staff of the Mamirauá Sustainable Development Reserve, it was possible to develop a community management system of pirarucu, which involves the annual counting of animals in the lake. With the increase in the number of fishes obtained through the protection of lakes, it was possible to allow the fishing of this species in the managed areas, normally with a limit defined at 30% of the stock.

The management of pirarucu is currently being carried out with IBAMA authorization in 23 protected areas in the state of Amazonas, of which 7 indigenous lands, 6 Amazonas state protected areas and 7 federal protected areas, totaling almost 15 million hectares of forests (ICMBIO, 2018). Some mobilization exists among river-side communities adjacent to these protected areas to also carry out pirarucu management. These initiatives are generating extremely positive effects not only in the recuperation of pirarucu stocks and income generation for Amazonian traditional peoples, but also in the context of ecosystem conservation, with multiple species being protected, and in the maintenance of the traditional livelihoods of local communities, as well as their empowerment (CAMPOS-SILVA, 2016; CASTELLO et al., 2009).

Target 7. *By 2020, the incorporation of sustainable management practices is disseminated and promoted in agriculture, livestock production, aquaculture, silviculture, extractive activities, and forest and fauna management, ensuring conservation of biodiversity.*

The creation of opportunities for income generation is a key factor for the well-being of PCTAF and, consequently, to sustainable rural landscapes that contribute to the conservation of biodiversity and maintenance of ecosystem services. Without opportunities for income generation, a growing exodus occurs of indigenous peoples, extractive workers and rural populations in general who move to the cities, leaving their lands even more vulnerable to external threats and pressures. One of the strategies to develop economic alternatives consists of supporting the production chain of the “socio-biodiversity products”, which is also a key strategy to ensure the sustainability of conservation targets and actions. While extractive activities value natural landscapes and their resources, they also represent an alternative economic use of the land, contrasting with the expansion of monocultures and pastures in new agricultural frontiers. Income generating activities connected to agro-extractive activities also present greater harmony with the forms in which family rural producers allocate their time and work and participate in social networks. From the national society’s point of view, the support to the value chains of socio-biodiversity products contributes to create greater awareness of consumers regarding the importance of maintaining standing forests and supporting sustainable rural landscapes.

One of the main policies to support PCTAF traditional practices of sustainable management in agriculture, livestock, aquaculture, silviculture, extractive activities, forest and fauna management is the National Plan for Strengthening the Extractive and River-side Communities – PLANAFE, which operates through four pillars: social inclusion, promotion of sustainable production, infrastructure (mainly energy and water) and environmental and territorial management. The support to production activities is being provided through various mechanisms, such as institutional acquisitions and subventions. Institutional acquisitions are made through PNAE – National School Nutrition Program, which supports the acquisition of products from family agriculture for school meals. In 2017, R\$ 1.24 billion were paid to family rural producers through the acquisition of foodstuffs for school meals and the PAA – Food Acquisition Program of the National Supply Company – Conab, under the Ministry of Agriculture, Livestock and Supply, with the acquisition of local products for donation to organizations promoting social actions.

Regarding extractive production, the Minimum Price Policy for Sociobiodiversity-based Products – PGPM-Bio represents a subvention that can be accessed by extractive workers either individually or through associations, to avoid PCTAF products to be sold at a price below their production cost. According to Inter-ministerial Administrative Ruling nº 521, of 22 May 2018, R\$ 12 million were made available in subventions to workers extracting assai, babassu, natural rubber, cocoa, Brazil nut, mangaba, andiroba, baru, carnauba, juçara, macaúba and pequi, and additional R\$ 16 million are planned for 2019. Through this policy, the extractive worker receives a bonus after demonstrating the sale of his/her product for a price below the minimum defined by the federal government. However, there are bureaucratic bottlenecks in the implementation of the policy, as the producer must hold a DAP – Declaration of Eligibility to the National program for Strengthening Family Agriculture – Pronaf, as well as the bill of sale issued by the local city hall. Another barrier is the limited awareness of the program by local technical staff of the National Supply Company – Conab.

For indigenous peoples, an interesting initiative is the “Brazilian Indigenous Seal”, launched in December 2015 by the Ministry of Agrarian Development – MDA (current Special Secretariat of Family Agriculture and Agrarian Development – SEAD) in partnership with the Ministry of Justice and Funai (Figure 236). This is an origin identification seal which indicates that the product was cultivated or collected at an indigenous land by an indigenous person participating in Pronaf, and is valid for 5 years (MDA, 2015a). The Seal promotes the ethnic and territorial identification of indigenous products which, in addition

to valuing indigenous production, emphasizes the importance of collective organization, as it requires the minutes of the concurrence of the proposing community. Until the end of 2018, 31 seals were issued, both for handcrafts and for agricultural production.

Figure 236

The Brazilian Indigenous Seal promotes the ethnic and territorial identification of indigenous products



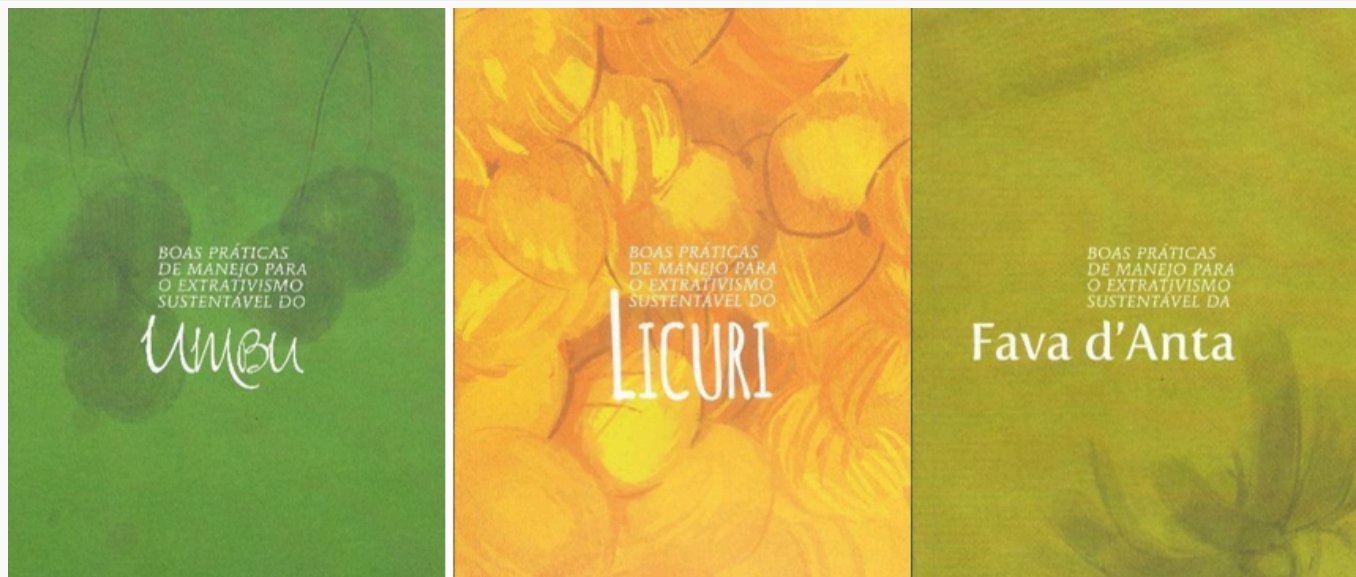
Source: MDA.

Regarding the promotion of good practices in extractive activities, [technical directives](#) were developed and published for various socio-biodiversity products by the Ministry of Agriculture, Livestock and Supply – MAPA in partnership with the Ministry of the Environment – MMA and the Brazilian Forest Service – SFB, through the National Project of Integrated Public-Private Actions for Biodiversity – PROBIO II, implemented with GEF resources. These directives guide producers in the sustainable and organic management for the production of pequi, licuri, Brazil nut, caroá, buriti, carnauba, assai, andiroba and rubber. [Online self-paced courses](#) are made available by SFB to build capacity in the management of some products and in the management of community ventures.

The Embrapa Genetic Resources and Biotechnology, in partnership with the Society, Population and Nature Institute – ISPN, initiated in 2011 the publication of a collection of booklets on good practices for processing native fruits of the Cerrado and Caatinga. This collection now counts with 12 booklets, addressing buriti, jatobá, umbu, fava d’anta, mangaba, golden grass, coquinho azedo, gueroba, licuri, tree barks, cagaita and pequi (Figure 237).

Figure 237

Some of the booklets on good practices in extractive activities produced by Embrapa Genetic Resources and Biotechnology, in partnership with the Society, Population and Nature Institute – ISPN



Source: Embrapa.

Complementing the support provided by governmental programs to extractive activities, a diversity of actions is being developed by civil society organizations, generally in partnership with local associations and cooperatives. Regarding the Brazil nut (*Bertholletia excelsa*), which is a symbol-tree of the Amazon and protected by law, the efforts of a group of governmental and non-governmental actors is achieving significant progress towards the consolidation of value chains for the Brazil nut. The Sentinels of the Forest project alone, located in the northeastern Mato Grosso, supports the collection of approximately 1,100 tons of Brazil nut per year. Encompassing eight municipalities, the project involves three indigenous lands and one Inca settlement of agrarian reform, and the nuts are processed by the Cooperative of Agricultural Producers of Vale do Amanhecer - Coopavam. In 2018, the diversity of partners was broadened, and 22 tons of Brazil nuts produced by the Protected Forest Association - AFP of Tucumã-PA were processed, which represents 22 communities and approximately 3,000 indigenous people of the Mëbêngôkre/Kayapó People (POÇO DE CARBONO JURUENA, 2018).

Regarding the PCTAF agricultural production, the 2012 National Policy of Agroecology and Organic Production - PNAPO, implemented through the National Plan for Agroecology and Organic Production - PLANAPO, represents an important progress to encourage agents involved with organic production and biodiversity protection. In October 2018, PNAPO received a prize as one of the best policies in the world to support the expansion of agroecological approaches. This prize is a recognition of the PNAPO's success, constructed based on the open dialogue between civil society and government, in response to the intense work carried out by civil society to strengthen agroecology and organic production in the country. The prize was granted by the World Future Council - WFC in partnership with FAO and the International Federation of the Organic Agriculture Movements - IFOAM (also known as Organics International).

Even though the participation of indigenous peoples and quilombolas in the agroecological movement is still incipient, these peoples are seeing agroecology as a reference to the ancestral agricultural practices, while it also represents a means to better care for soil and human health with diversified foods free from agricultural chemicals, in complete harmony with land rights (MILLER et al., 2016).

PLANAPO implementation is receiving support from the Banco do Brazil Foundation, together with other partners, who signed in October 2013 the Technical Cooperation Agreement that established the Ecoforte Program. This program seeks the strengthening and expansion of socio-productive and economic networks, cooperatives and organizations of agroecology, extractive activities and organic production, as well as the dialogue with other public policies (ANA, 2018). By strengthening the territorial agroecology networks, it seeks to reinforce that networks generate more synergy than isolated actions. Currently, 25 territorial agroecology networks are supported by the Ecoforte Program.

Target 8: *By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.*

Various impacts caused by pollution have been occurring in PCTAF territories, with greater severity in regions where the expansion of agriculture frontiers connected to export agribusiness are present, and in landscapes where the aerial pulverization of agricultural chemicals is practiced. IBAMA data for 2017 indicate that the total sales of active ingredients of agricultural chemicals in Brazil corresponded to 539,944.95 tons (IBAMA, 2019) which, according to the July 2018 report

of the Human Rights Watch organization places the country as one of the largest consumers of agricultural chemicals in the world, with annual sales around US\$ 10 billion (HRW, 2018). The same report identified at least 73 people affected by the drift of agricultural chemicals in seven locations at rural areas in Brazil, including rural communities, indigenous communities, quilombola communities and rural schools located in the five geographical regions of Brazil. It considers that the monitoring system is insufficient, and the actual extension of the problem of intoxication by agricultural chemicals in Brazil is not measured. Still, in 2017 the Ministry of Health recorded 4,003 cases of intoxication by agricultural chemicals in Brazil and 148 deaths.

Despite these circumstances, there is a recent bill presented in 2002 and approved by a Special Commission of the Chamber of Deputies in June 2018, which would substantially reduce the role of the Brazilian Health Regulatory Agency - Anvisa and Ibama in the process of evaluating and issuing authorization for the commercialization of new agricultural chemicals, also limiting the involvement of specialized agencies in the assessment of the impacts of these products on human health and the environment.

Regarding the pollution of water resources, the deforestation and degradation of Permanent Preservation Areas (APPs) along water courses is one of the main causes of reduced water quality in rural areas, as it enables the superficial runoff of rains, carrying sediments, dissolved nutrients and residues of agricultural chemicals. Watershed- and micro-watershed-level efforts are necessary to improve this situation.

It is important to note that the largest environmental disaster in Brazil occurred on 5 November 2015, with the breach of iron tailing dams in Mariana, Minas Gerais state, taking the lives of 19 people and impacting the entire course of the Doce River up to its estuary in the Atlantic, on the coast of Espírito Santo state (Figure 238). In addition to affecting artisanal fishermen along the Doce River, it also impacted the Krenak people of Minas Gerais, whose land borders this river, as well as the Tupiniquim and Guarani peoples of the coast of Espírito Santo, affected by the reduced tourism activities.

Figure 238

Picture of the pollution plume in the Doce River, at its estuary in the Atlantic Ocean after the breach of the mine tailings dam disaster in Mariana-MG in November 2015



Source: [NASA, 2015](#).

Target 9. *By 2020, the National Strategy on Invasive Alien Species is fully implemented, with the participation and commitment of states and the elaboration of a National Policy, ensuring the continuous and updated diagnosis of species and the effectiveness of Action Plans for Prevention, Contention and Control.*

The invasive alien species theme is relevant for the territorial management of PCTAF and is present as a problem under various circumstances. This is the case of alien grasses introduced as pasture, which are a problem particularly in non-Amazon biomes such as Atlantic Forest and Cerrado, where a greater number of degraded areas are located. At the indigenous lands of the Kaiowá-Guarani people in Mato Grosso do Sul, for example, alien grasses such as the Guinea grass (*Megathyrsus maximus*, sin. *Panicum maximum*) have established along the borders of Inland Atlantic Forest fragments and accumulate a lot of inflammable biomass during the dry period (Figure 239). When this grass catches fire, trees along the fragment border are killed, leading to increased light penetration in the forest. This leads to the advance of the grass towards the interior of the forest, creating a cycle of progressive degradation of the remaining forest areas, which affects forest resources used by the indigenous communities.

Figure 239

Invasion of a forest fragment by Guinea grass (*Megathyrus maximus*) in the Pirakuá Indigenous Land, in Mato Grosso do Sul



Photograph: Robert Miller. During the dry season, fires along the forest fragment borders cause the progressive mortality of trees, allowing the grass to spread further into the forest and affect the forest resources used by indigenous communities.

The problem of fire on Guinea grass, of African origin, is also observed in the Maxakali Indigenous Land, located in the transition area between the seasonal semideciduous forest and the broadleaf evergreen forest of the northeast of Minas Gerais state. Introduced in the area during the first half of the 20th century, today this grass dominates most of the territory due to the alterations it brought to the local fire regime, which prevents the return of the forest physiognomy (FERREIRA e MAIA-BARBOSA, 2013). In general, the presence of fast-growing alien grasses and the associated risk of fire represents a serious obstacle to forest restoration initiatives that propose to protect water resources or provide timber sources and other products for the communities.

Regarding alien animals, one of the most serious problems observed involves the Asian buffalo, for example, in the Cajarí RESEX (AP), where the buffalo population has grown unchecked, causing internal conflicts. Similar problems with the buffalo are observed in the Piratuba REBIO, also in Amapá.

Despite the relevance of the invasive alien species theme for PCTAF, there is a lack of knowledge by these peoples and communities regarding the existence of a National Database on Invasive Alien Species and public policies related to the matter. It is, therefore, necessary to create specific bodies of governmental or private support, or under other sectors that are relevant to promote dialogue, collaborative assessments and joint actions together with PCTAF authorities and traditional organizations to identify and monitor invasive alien species that affect their lands and territories, and to understand the ecological and socioeconomic impact context.

Target 10. By 2015, the multiple anthropogenic pressures on coral reefs, and other marine and coastal ecosystems

impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

Various traditional populations and communities use marine aquatic resources, from artisanal fishermen to collectors of crabs and mollusks, which explore both the open seas and ecosystems such as estuaries and mangroves. Under these circumstances, the use of the resources contributes both to feeding families and to generate income.

Even though the extractive fisheries activities represent a relatively small portion of the Brazilian GNP, this sector counts with a human and social capital of high value, and many communities still maintain traditional values and cultures in their livelihoods and work methods. They also represent work relationships based on the family unit or on the neighboring group and is based on the fact that the fishermen, or some of them, own their production means. It is important to note that, above all, the artisanal fisheries carried out by PCTAF represent a mode of relationship with nature, guided by traditions and ecological knowledge (Figure 240).

Figure 240

Artisanal fishermen in the Potiguara Indigenous Land, on the coast of Paraíba, where fisheries are an important component of food safety and income generation



Source: GATI/Funai Project Collection.

Data from the General Registry of Fisheries Activities of the Ministry of Fisheries and Aquaculture - MPA (extinct in 2015) estimated that Brazil had almost one million artisanal fishermen and that approximately 45% of the annual fisheries production consumed by Brazilians originate from artisanal fisheries.

Governmental responsibility for supervising the fisheries sector has gone through multiple changes, with the transformation in 2009 of the Special Secretariat of Aquaculture and Fisheries - SEAP into Ministry, with the duty of advising the President of Brazil in the development of policies and directives for the development and promotion of fisheries and aquaculture production. Within this role, the MPA focused on production aspects such as the financing of equipment (boats, nets, fuel, refrigerated trucks, etc.) and the implementation of a network of structures for the production, reception, storage, processing and commercialization of fisheries catch, such as the public fisheries warehouses - TPP, the integrated centers of artisanal fisheries - CIPAR, the ice factories and fish processing units, among others (CGU, 2010).

According to Law nº 11.958, of 26 June 2009, which created the MPA, the management of fisheries stocks would be jointly carried out with MMA, under MPA coordination. However, with the demobilization of the National System of Fisheries Statistical Data Collection in 2008, the collection of scientific data to inform the planning and regularization of the sustainable use of fisheries resources was impaired, which complicates the efficient management of resources.

The data on individual boats, state data, self-monitoring data and the production records registered by the fishermen themselves are relevant for the fisheries management and qualify the interlocution of fishermen at the management bodies

responsible for developing public policies for fisheries (CPP, [2015?]).

Regarding the mangrove ecosystem, the Project for the Effective Conservation and Sustainable Use of Mangrove Ecosystems in Brazil - GEF Mangrove (for additional results of the GEF Mangrove, see Section III, Target 10), coordinated by the National Center of Research and Conservation of Socio-biodiversity Associated to Traditional Peoples and Communities - CNPT/ICMBio, created an institutional forum with governmental and society representativeness, the Technical Commission on Mangroves - CT Mangroves, under the National Wetlands Committee.

In the Salgado Paraense territory, ICMBio sought to strengthen the community through the Capacity Building Program for Young Protagonists, which has the objective of promoting community organization and social participation in the public management of biodiversity, particularly at the mangrove ecosystem, through the capacity building of extractive youth to contribute to the conservation of biodiversity, citizenship and the improvement of the life quality of the involved populations.

The region of the Amazonas River estuary and the mangroves of the north of Brazil, which encompass 4 wetlands of international importance recognized as Ramsar Sites ("Estuary of the Amazonas and its Mangroves", "Cabo Orange", "Reentrâncias Maranhenses" and "Baixada Maranhense"), presents numerous alluvial islands and other wetlands closely connected to hydrodynamic and deposition processes influenced by the Amazon dispersion system and by macro-tide currents regime. The area stands out for housing the largest continuous stretch of protected mangroves in the world and for the high aquatic and terrestrial biodiversity. In addition, the region presents a unique socioenvironmental context, in which the inhabitants of the northern coastline comprise groups of traditional peoples, such as the river-side caboclos, extractive workers, quilombolas and indigenous peoples.

STRATEGIC OBJECTIVE C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.

Target 11: *By 2020, at least 30% of the Amazon, 17% of each of the other terrestrial biomes, and 10% of the marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation, ensuring and respecting the demarcation, regularization, and effective and equitable management, so as to ensure ecological interconnection, integration and representation in broader landscapes and seascapes.*

The importance of PCTAF for the conservation of Brazilian biological diversity is being officially recognized in various manners, the most relevant of which may be the creation of sustainable use protected areas specifically for PCTAF, such as Extractive Reserves - RESEX, Sustainable Development Reserves - RDS and National Forests - FLONAS at the federal level, and their equivalent at the state level. According to ICMBio data, around 61,000 families live in 77 sustainable use PAs, corresponding to 57,608 families registered in the Information System on Families in Federal Protected Areas - SISFAMÍLIAS (ICMBIO, 2019). For more information, [click here](#).

Table 29

Number and area of RESEX, RDS and FLONA at the three governmental levels (Federal, State and Municipal)

	Federal		State		Municipal		Total	
	N°	Area (Km ²)	N°	Area (Km ²)	N°	Area (Km ²)	N°	Area (Km ²)
Flona	67	178,159	41	135,856	0	0	108	314,015
Resex	66	135,087	29	19,880	0	0	95	154,967
RDS	2	1,026	32	111,250	5	171	39	12,447

Data updated on 28 January 2019. Source: CNUC (MMA, 2019). Additional information [here](#).

Under the ICMBio structure, the National Center for Research and Conservation of Socio-biodiversity Associated to Traditional Peoples and Communities - CNPT is one the 11 national research and conservation centers and has the directive of enabling and encouraging the effective participation of traditional peoples and communities in all phases of the development and dissemination of research. CNPT works with the above-mentioned PAs as the territorial spaces where traditional peoples retain a considerable portion of knowledge on biological diversity recognized by the Convention on Biological Diversity - CBD

(ICMBIO, 2009). This work is permeated by the consideration that it is not possible to discuss nature conservation without taking into account the relationship between traditional peoples and communities and nature, to the extent that these established social relationships influence decision making and the use and management of these resources in sustainable use and full protection protected territories.

The overlaps between PCTAF territories and full protection PAs remain, however, a conflict point, particularly when different interpretations exist regarding the level and type of use of natural resources. Under ICMBio, the creation of the Directorate of Socioenvironmental Actions and Territorial Consolidation - DISAT represents the consolidation of a specific sector to act in the management of territorial conflicts, particularly regarding the interface situations in protected areas where peoples and communities are present (indigenous peoples, quilombolas, traditional populations, settlers of the agrarian reform) and which previously resided or used the PA natural resources before its creation, if the community presence is in disagreement with the category or management instruments of the PA.

Among the DISAT attributions are the preparation of a Diagnostic of the Federal Protected Areas Overlapping with Indigenous Lands, through which the overlap areas will be identified, as well as the involved populations and ways to manage the conflict at each PA; support the preparation and provide technical guidance for the construction of environmental Terms of Commitment with traditional populations affected by Full Protection PAs; and interinstitutional coordination to minimize and resolve territorial conflicts in PAs, seeking to balance the rights of local populations and the conservation of biodiversity.

Through the Joint Administrative Ruling nº 1, of 29 May 2013, the Ministry of the Environment and Funai created the Interinstitutional Working Group - GTI with the objective of identifying and analyzing interface occurrences between Indigenous Lands and Protected Areas, including RESEX, characterizing the conflict circumstances and the non-conflict situations. According to the Final Report by GTI presented in 2018, 70 cases of territorial overlap were recorded, which involve 59 indigenous lands and 46 protected areas, and total approximately 7.5 million hectares.

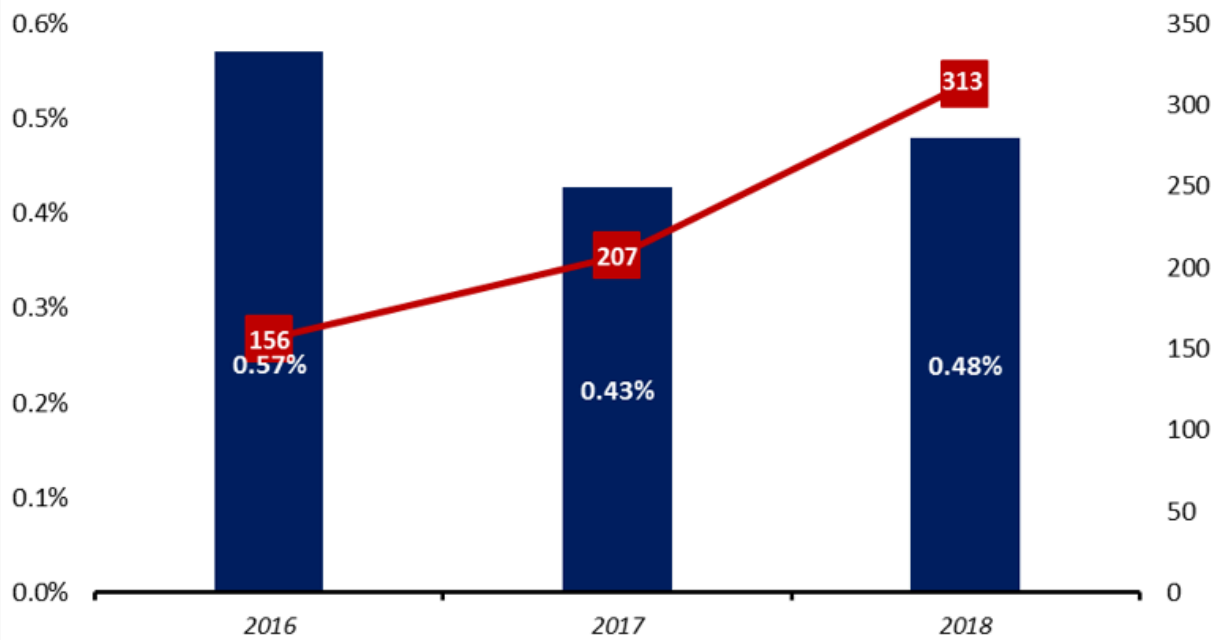
Public managers and civil society discussed in a workshop held in August 2018 the draft project for the creation of the Digital Platform of Traditional Territories, proposed by the Federal Public Attorney's Office with support from the Ministry of the Environment. This platform will combine systematized information on indigenous and quilombola territories identified by Funai and Incra; sustainable use protected areas, i.e. ICMBio extractive reserves and sustainable development reserves; and documents on the terms of authorization of the sustainable use issued by the Federal Property Secretariat - SPU.

In addition, Decree nº 5.758, of 13 April 2006 established the National Strategic Plan of Protected Areas - PNAP, its principles, directives, objectives and strategies, and recognized the relevance of Indigenous Lands and Quilombola Territories for the conservation of biodiversity and for SNUC effectiveness, which makes these lands recognized in Brazil, *lato sensu*, as protected areas. PNAP also encompasses the indigenous lands and quilombo lands, in addition to protected areas. The incorporation of these territories into PNAP translates the recognition that, in addition to being important for the lives of indigenous and quilombola communities, they play a key role in the conservation of biodiversity and, consequently, in national development (MMA, 2006).

The effectiveness indicators of the assessment systems "Rapid Assessment and Prioritization of Protected Area Management - RAPPAM" and the "Management Analysis and Monitoring System - SAMGe" indicate that the Sustainable Use Protected Areas present average effectiveness indexes higher than those for Full Protection PAs. For more information on the indicators, see Section III - Target 11.

Figure 241

Management effectiveness index of the federal protected areas according to SAMGe



Source: ICMBio/ SAMGe.

The graph above presents the effectiveness results for federal protected areas in general, i.e., includes the PAs in the full protection (PI) and sustainable use (US) groups. In contrast, the table below considers only federal sustainable use PAs. According to the averages obtained for the latter, according to SAMGe the average effectiveness index for the sustainable use group is at least equivalent to the average for the full protection and sustainable use PAs for the same period (2018).

Table 30

Average effectiveness of federal protected areas in the sustainable use group, according to the SAMGe tool for 2018

Category	Number of PAs	Average Effectiveness (%) (2018)
APA	35	47
ARIE	8	51.42
Flona	62	48.32
RESEX	61	51.93
RDS	1	54.28

Note: numbers do not consider RPPN and Wildlife Reserves. Source: ICMBio/SAMGe, 2018.

Despite the importance of PCTAF territories for the conservation of biodiversity and maintenance of ecosystem services, the concept of landscapes and ecosystems connectivity, although empirically understood by PCTAF, is still little considered in the discussion of the management of their territories and the relationship with neighboring protected areas as part of larger-scale landscape protection and conservation initiatives. Therefore, it is necessary to further detail this theme to improve the effectiveness of biodiversity conservation initiatives, both in the PCTAF territories and in PAs.

A very positive example of this is the recognition in 2013, by the Ministry of the Environment, of the West of Amapá and North of Pará Mosaic, also known as Eastern Amazon Mosaic. This Mosaic encompasses 12.4 million hectares and is comprised by three indigenous lands - TIs (TI Wajãpi, TI Parque do Tumucumaque and TI Rio Paru D'Este) and six protected areas (Montanhas do Tumucumaque National Park, Amapá National Forest, Rio Iratapuru Sustainable Development Reserve, Amapá State Forest, Cancão Municipal Natural Park, Beija-Flor Brilho de Fogo Extractive Reserve) (Figure 242).

In Minas Gerais, even though the TI Xakriabá (partially overlapping the Cavernas do Peruaçu National Park) does not formally

integrate the Sertão Veredas Peruaçu-MG/BA Mosaic, recognized in 2009, there is active participation of the Xakriabá people in the Mosaic Council. Regarding other large-scale landscape management examples, a new management plan, defined by the ICMBio Administrative Ruling nº 533 of 24 May 2018, was participatorily constructed for the Cairuçu APA (RJ) with the participation of the resident communities of caiçaras, quilombolas, indigenous peoples and rural producers.

Figure 242

Landscape at the Parque do Tumucumaque Indigenous Land, which integrates the West of Amapá and North of Pará Mosaic, first mosaic to include indigenous lands



Photograph: Mário Vilela/Funai.

Brazil has 27 Ramsar Sites internationally recognized for the importance of their wetlands. In 2018, three regional sites were recognized, of which two focus on the recognition and promotion of the existing dialogue between managers and inhabitants of Indigenous Lands and Protected Areas. The Rio Negro Ramsar Site is comprised by 8 Indigenous Lands and 17 Protected Areas and is considered the largest in the world, with approximately 12 million hectares. In turn, the Rio Juruá Ramsar Site comprises 4 protected areas, one of which is the Deni Indigenous Land. At both sites, most of the protected areas were created in response to demands presented by PCT, who participate in the management of these areas.

Target 12. *By 2020, the risk of extinction of threatened species has been significantly reduced, tending to zero, and their conservation status, particularly of those most in decline, has been improved.*

Particularly in the Amazon and the Cerrado, the indigenous and quilombola lands, and the RESEX and RDS represent areas in which the territorial size enables, in many cases, the coexistence between the sustainable use of natural resources and the conservation of flora and fauna.

In addition to the conservation of biodiversity through the protection of habitats, various PCTAF are developing initiatives focusing on the conservation of threatened species. Quilombola communities located in overlap areas with the Rio Trombetas Biological Reserve (Rebio) and the Saracá-Taquera National Forest (Flona) in Pará, for example, are participating in the protection of several Chelonia species, through a partnership between residents and enforcement agents.

Since 2003, through the project on the Participatory Management of the Reproduction of Chelonia of the Amazon, the Biological Reserve has been obtaining expressive results in the protection of Amazon chelonia, in particular the tracajá (*Podocnemis unifilis*) and the pitiú (*Podocnemis sextuberculata*), precisely because of the involvement and commitment of the quilombola communities to ensure the reproduction of these turtles. The release of young turtles has become a highlight event in the region, very much looked forward to by the population (ICMBio, 2014).

A quantitative result of the partnership among communities, ICMBio and Ecological Research Institute – IPÊ is the significant increase of the number of tracajá and pitiú hatchlings born by year at the monitoring unit: from 900 in 2005, to 17,730 in 2013. The participation of families in the project has also increased. From five families in 2003, today there are 27 families working with the preservation of these species. The number of monitored beaches has also increased. Data demonstrate that the community engagement in biodiversity protection brought important results. In addition to tracajá and pitiú, 27,862 South American river turtles (*Podocnemis expansa*), which are critically endangered, were released in the river due to the efforts invested by these 27 resident families who act as biodiversity monitors (IPÊ, 2019).

At the Araguaia river, the Karajá people of the Xambioá Indigenous Land has achieved significant results related to the protection and raising of hatchlings of the South American river turtle (*Podocnemis expansa*). In 2013, approximately 9,000 hatchlings have been released in the Araguaia; 6,000 hatchlings in 2014; and 5,400 in 2015. In parallel, various environmental education activities focusing on turtle conservation have been carried out in indigenous schools and surrounding communities.

At various indigenous lands of the Southeastern coast, there are replanting initiatives of the juçara palm (*Euterpe edulis*), the populations of which have been decimated by heart of palm exploitation. At the Bracuí Indigenous Land (RJ) alone, over 3,000 seedlings of juçara were planted in old garden plots and old occupations, contributing to the restoration of approximately 50 hectares (Figure 243).

Figure 243

Planting of the juçara palm (*Euterpe edulis*), a threatened species, in the Bracuí Guarani Indigenous land (RJ)



Photograph: GATI/Funai Project Collection.

In the Andirá-Marau Indigenous Land (AM and PA), the Saterê-Mawé people has historically participated in the predatory exploitation of the Brazilian rosewood (*Aniba rosaedora*), delivering logs to middle-men who take the product to distillation factories in Maués to extract the essential oil containing linalool, which is used in perfumery. The large number of trees logged since the beginning of the exploitation of the rosewood in the 1930's led Ibama to include it in the list of endangered species in April 1992. In response to this, for the last 20 years the Saterê-Mawé have taken the initiative to experiment with rosewood plantations, on their own and with the support of some projects. According to an inventory carried out in 2015

by the Native Seeds Center of the University of Amazonas in collaboration with the Saterê-Mawé Producers Consortium and the Amazon Sustainable Development and Conservation Institute - IDESAM, during that period over 2,000 seedlings were planted, and 85 source trees were recorded for seed collection for future planting.

Today, a new possibility arises for rosewood, as recent research has shown that the essential oil can be extracted from leaves and limbs of trees cultivated in a plantation, with oil production based on periodic trimming (Figure 244). Thus, together with the cultivation of guarana, which is the traditional product of the Saterê-Mawé, the rosewood can potentially become of great relevance, particularly considering the current concern about achieving better management of the Indigenous Land, which includes the harmonization between income generation and the sustainable use of land and natural resources.

Figure 244

Cultivated rosewood (*Aniba rosaedora*), a threatened species, in the Andirá-Marau Indigenous Land (AM and PA)



502 x 502

Photograph: GATI/Funai Project Collection.

Even though important initiatives exist for the conservation and management of threatened species in PCTAF territories, integration and cooperation between government and conservation organizations and the holders of traditional knowledge is still incipient. This integration and cooperation may increase the effectiveness of conservation actions and fill the knowledge gaps on threatened species, as well as address human-nature conflicts under the broader vision of territorial management.

Target 13. *By 2020, the genetic diversity of microorganisms, cultivated plants, farmed and domesticated animals and of wild relatives, including socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing the loss of genetic diversity.*

The ancestors of the current Brazilian indigenous peoples have domesticated many plants of high economic importance, such as cassava, peanuts and pineapple, among others, and have adapted to local conditions the plants brought from other regions of the Americas, such as corn, beans and pumpkin – recent research registered 148 plant species that were domesticated to various degrees by indigenous peoples of the Amazon Region (CLEMENT, 1999a; 199b; CLEMENT et al., 2010). Today, PCTAF are key in the maintenance of a richness of “crioula” varieties of these plants and of other plants originally from Europe, Africa and Asia, and adapted to local climate and soil conditions, which comprise genetic and cultural heritage (MDA, 2015b). Among certain crops such as cassava, family rural producers play a key role in the development and maintenance of new varieties that arise from crossed pollination among existing varieties. According to Embrapa (EMBRAPA, 2006), the existence of most varieties of cassava is a result of the selection and conservation work carried out by agriculture producers in their crops, for many consecutive years.

The preservation of this agrobiodiversity is a key strategy to secure the food safety of rural populations and many initiatives support the creation of community seed banks, exchange networks and other community systems. One of such mechanisms that is gaining relevance is the convening of seed fairs, events held with the objective of recuperating and reevaluating seeds and products of the family agriculture production through the exchange of crioula and traditional seeds, encouraging the active conservation practices of varieties (Figure 245). Initiatives supporting seed banks are also important, as they secure the stocks of crioula varieties for the communities that cultivate them (Figure 246).

Figure 245

Seed exchange fair during the 10th Brazilian Congress of Agroecology held in Brasília, September 2017



Photograph: Robert Miller.

In this context, an interesting example is the recognition of the “Keepers of Crioula Seeds”, a concept that was strengthened by the Crioula Seeds Project of the Embrapa Temperate Climate in collaboration with Emater/RS and the Federal University of Pelotas. Since 2010, the project mapped 12 centers of seed keepers in various regions of Rio Grande do Sul and identified approximately 200 keepers of crioula seeds. Through mutual participation of keepers from various regions in the seed exchange fairs, their approximation was promoted, together with the process of constructing the identity of the seed keeper. In addition to maintaining a larger genetic diversity of crops resulting from the seed exchange, which leads to higher food safety and increase in family income, it was observed that the most relevant aspect is the self-awareness of the importance of the role performed by the seed keeper. This aspect has profound implications on the continuity of the processes to conserve crioula seeds, to the extent that it directly influences the children of the agricultural producers, providing them with the awareness of the possibility of making a living in the same environment as their parents based on the cultivation of the same seeds, obtaining income from them. Today, keepers are witnessing their seeds being valued by society, which materially leads to the maintenance and even expansion of agrobiodiversity and cultural heritage (FAO, [between 2015 and 2018]).

Figure 246
Crioula seed bank at the Xakriabá Indigenous Land (MG)



Photograph: GATI/Funai Project Collection.

Regarding the recognition of the role of PCTAF in agriculture and in the conservation of biodiversity, of relevant notice is the BNDES Prize on Good Practices in the Safeguarding and Dynamic Conservation of Traditional Agriculture Systems, delivered in May 2018. Through this prize, the National Economic and Social Development Bank - BNDES, in partnership with the Brazilian Agricultural Research Corporation - Embrapa, Institute of the National Historical and Artistic Heritage - Iphan and Food and Agriculture Organization of the United Nations - FAO/UN recognized 15 initiatives of good practices in the safeguarding and dynamic conservation of cultural and immaterial heritage associated to agrobiodiversity and socio-biodiversity. Among those awarded the prize are associations of indigenous communities, quilombolas, traditional communities, family rural producers and women groups from various regions of the country (Figure 247).

Figure 247

Picture of the *Iery Behe* - Collective orchard of the Waimiri Atoari indigenous people, one of the actions awarded by the IPHAN-BNDES Call for proposals of Good Practices on the Safeguarding and Dynamic Conservation of Traditional Agricultural Systems



PHOTOGRAPH: ROBERT MILLER.

THE AWARDING OF PRIZES AND RECOGNITION OF THESE SYSTEMS IS AN IMPORTANT STEP DUE TO ITS INTRINSIC CONNECTION TO THE CULTURE AND RIGHTS OF TRADITIONAL PEOPLES AND COMMUNITIES, AS WELL AS ITS IMPORTANCE TO THE SUBSISTENCE AND INCOME GENERATION OF THESE COMMUNITIES. IT IS ALSO NOTED THAT THESE ARE DYNAMIC SYSTEMS, OPEN TO THE INCORPORATION OF NEW PRACTICES. THEREFORE, IN ADDITION TO REPRESENTING ADAPTATIONS THAT WERE ALREADY TESTED TO THE LOCAL CONDITIONS, WITH LITTLE INVESTMENT THEY CAN PRESENT SIGNIFICANT PRODUCTION GAINS.

STRATEGIC OBJECTIVE D: Enhance the benefits to all from biodiversity and ecosystem services.

Target 14: *By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, traditional peoples and communities, indigenous peoples and local communities, and the poor and vulnerable.*

The ecological functions of ecosystems and the provision of ecosystem services are based on the connection among biodiversity, carbon and water. These natural processes, in turn, intertwine with social, economic and cultural functions to compose landscapes. Sustainable rural landscapes, therefore, in addition to contributing to biodiversity conservation are also key to the maintenance of regional and global climate and of ecosystem processes and functions necessary to human life, such as the provision of clean water, pollinator habitat and climate regulation, among others.

Regarding water resources, the indigenous lands, quilombola lands, RESEX, RDS and other sustainable use PAs represent territories of collective use, with a perspective of broader spatial management that includes watersheds. In many cases, this understanding of community and common use and management of a larger territory brings greater concern regarding the conservation of permanent preservation areas that protect water bodies and springs. Even though PCTAF participate in watershed committees, with particular notice to the São Francisco River, their participation is still incipient in programs that involve the payment for ecosystem services as a means to improve watershed conservation, such as the Water Producers

Program of the National Water Agency – ANA.

To mitigate the impact from intensive agriculture in the Xingu river watershed, the Socioenvironmental Institute – ISA is implementing the Y'ikatu Xingu Campaign in the area surrounding the Xingu Indigenous Park. This initiative began in 2004, with the coordination among various social sectors to protect the water of the Xingu river watershed, where one of the priority issues defined by the initiative was the reforestation of riparian forests and Permanent Preservation Areas that had been deforested in rural properties. Due to the vastness of the areas to be restored, a planting methodology named “mechanized muvuca” was developed, employing equipment already owned by agricultural producers to plant a combination of seeds involving up to 80 different species from different successional stages. In addition to native trees, this combination includes fast-growing herbaceous and shrub legumes, which provide the initial shade and soil cover, enabling the establishment and survival of forest species (Figure 248). The success of the initiative was mostly due to the existence of a parallel project, the Xingu Seeds Network, an initiative created in 2007 that was capable to provide seeds in the quantity and variety necessary for the restoration works.

Along its history, the Network has built groups of seed collectors among indigenous peoples, urban residents and family rural producers, generating approximately 25 tons/year of seeds from 250 native species of the Cerrado and Amazon. Most of these seeds are used by the mechanized muvuca. Until 2018, approximately 3,800 hectares had been planted around the Xingu Indigenous Park using this methodology.

Figure 248

Restoration of Permanent Preservation Areas deforested in the Xingu river watershed (MT) with “mechanized muvuca”: (left) preparation of the equipment to spread the combination of native trees and legumes; (right) Restored area, 8 years after seeding



Photographs: Robert Miller.

ISA’s experience is unique both due to the time and variety of actors that were necessary to its success. The initiative was developed and enhanced along more than 10 years with the investment of various donors, dedicated technical teams and permanent local partners, from seed collectors to the farmers that applied their resources such as machinery and staff. The initiative provides a way to make restoration a virtuous cycle of environmental improvement, strengthening of local economies and dialogue among different actors and economic sectors.

The Xingu Seeds Network enabled the recuperation of over 5,000 hectares of degraded areas in the region of the Xingu and Araguaia rivers watersheds and in other Cerrado and Amazon areas, generating an income of R\$ 2.5 million for communities in its first 10 years of existence (2007-2017) (VALOR ECONÔMICO, 2017).

PCTAF implement various initiatives of their own for the restoration of ecosystems as part of the broader management of their territories. In the case of indigenous lands outside of the Amazon region, there are several examples where the recognition of indigenous rights resulted in the repossession of traditional territories, often by then comprised of areas under advanced deforestation and environmental degradation stages as a result of the conversion of forests into monocultures and pasture. In consequence, these areas lost many forest resources important for indigenous subsistence and culture, as well as the associated ecosystem functions.

Various indigenous peoples, therefore, are seeing forest restoration as a strategic action for community well-being under a holistic view of the environment and of the use of its resources for various purposes, mediated by cultural tradition and social relationships. Their initiatives tend to focus on the restoration of water springs and riparian forests, pragmatically directing restoration efforts to areas that are important for the protection and maintenance of water sources. Thus, regarding the achievement of the target incorporated in PLANAVEG by the Brazilian government for the restoration of 12 million hectares of degraded areas, the Brazilian indigenous lands represent a significant opportunity by presenting demands for environmental recuperation as well as by demonstrating a series of successful experiences on this theme.

Among the ongoing initiatives to finance restoration that can provide lessons are various state programs. Even though indigenous peoples are not the focus of state restoration programs, there are various cases where they have accessed resources from these sources. In the state of São Paulo, for example, the State Water Resources Fund - FEHIDRO of the Secretariat of Sanitation and Water Resources has financed initiatives for the restoration of riparian forests in the Araribá Indigenous Land through the establishment of agroforestry systems (Figure 249).

Figure 249

Restoration of Permanent Preservation Area with agroforestry system at the Araribá Indigenous Land (SP), through a project of the State Water Resources Fund - FEHIDRO/SP



Photographs: GATI/Funai Project Collection.

Target 15. *By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions, including restoration of at least 15% of degraded ecosystems, prioritizing the most degraded biomes, hydrographic regions and ecoregions, thereby contributing to climate change mitigation and adaptation and to combatting desertification.*

The creation of municipal or state bodies to assist PCTAF in general, such as secretariats and other specific agencies is not new, particularly concerning the education, health and agricultural production themes. Today, however, there is stronger presence of subnational governments in environmental themes, and with it, increased participation of these actors in the PCTAF socioenvironmental scenario. Eight Brazilian Amazonian states, for example, participate in the Governors' Task Force for Climate and Forest - GCF, an international body that seeks synergy of actions for reducing emissions of greenhouse gases from deforestation and forest degradation. At the September 2018 meeting in San Francisco, California, the GCF adopted Guiding Partnership Principles among subnational governments, indigenous peoples and local communities. These Principles establish the recognition and respect to the rights of indigenous peoples and local communities regarding their lands, territories, culture, self-determination and governance, as well as the promotion of measures to safeguard the protection of forests by indigenous peoples and local communities (GCF, [between 2015 and 2018]).

In Espírito Santo, through the GATI Project and Funai, a coordination was established with the Reflorestar Program to carry out actions in the Caieiras Velhas II Indigenous Lands. Initiated in 2012, the Reflorestar Project is an initiative of the state government through the State Secretariat of Environment and Water Resources - SEAMA and provides various supplies such

as tools, fences, seedlings, among others, for the implementation of agroforestry systems and restoration initiatives.

The National Policy for the Recuperation of Native Vegetation – Proveg (Decree nº 8.972, of 23 January 2017), to be implemented through the National Plan for the Recuperation of Native Vegetation – PLANAVEG (inter-ministerial Administrative Ruling nº 230, of 14 November 2017) includes indigenous peoples and traditional communities as participants and considers agroforestry systems that combine food production with forest restoration among the possible methodologies to be employed. The PLANAVEG implementation mechanisms and how these methodologies will work in practice should be defined in 2019.

In the Amazon, in addition to safeguarding biodiversity, indigenous lands represent an immense carbon sink, playing a relevant role in climate balance and in the achievement of the targets under the National Climate Change Policy (IPAM, 2015).

Although the market for carbon projects opens new ways to support conservation in indigenous lands, it also brings the possibility of conflicts between carbon sequestration strategies and community access to essential resources and sustainable use of biodiversity, in the case of agreements that envisage the interdiction of areas for maintaining forest cover during the contractual period. In 2011, the prospect of potential conflicts led Funai and the Federal General Attorney's Office – AGU to evaluate carbon contracts that were signed or under negotiation. These agreements were considered illegal and with no legal basis, as they were not regulated by Brazilian legislation.

Still, it is still possible to pay for actions already carried out for the conservation of carbon stocks, as is the case of the partnership established between Natura, a corporation manufacturing hygiene and beauty products, and the Paiter Suruí people of Rondônia. The Suruí Forest Carbon Project is the first Reduced Emissions from Deforestation and Degradation – REDD+ project inside an indigenous land to sell carbon credits with the international certifications Verified Carbon Standard – VCS and Climate, Community and Biodiversity Standard – CCB. Resources obtained through the compensation of 120,000 tons of carbon, R\$ 1.2 million, will be applied in the implementation of the 50-year Management Plan of the Paiter Suruí people and invested in the improvement of life quality, and protection and management of their forests.

However, even this type of negotiation can bring internal impacts or conflicts related to the effective sharing of resources received among indigenous associations. The Suruí case indicates that various issues remain to be resolved related to the administration of resources originating from carbon credits in indigenous lands, one of which being the application of rigorous accounting rules to what essentially comprises payment for provided ecosystem services, rather than a donation or loan.

At the national level, the Amazon Fund/BNDES was created with the objective of raising donations to invest in deforestation prevention, monitoring and combat, representing a compensation mechanism for carbon storage in the Amazon forest. Between 2009 and 2016, Norway invested over 1.1 billion dollars in the Amazon Fund and these resources were disbursed mainly through calls for proposal of projects. For PCTAF and their organizations in the Amazon, however, the Fund represents a difficult to access funding source. Only medium and large civil society organizations manage to access the Fund resources, as they count with technical teams available to prepare projects and monitor the entire qualification process analyzed by the BNDES legal and financial teams, a process that may last from one to two years after the initial approval of the project.

For PCTAF, therefore, it is necessary to create a range of mechanisms enabling the support to initiatives at various scales, and that can support multiple dimensions of the conservation of their territories and improvement of their well-being, i.e., territorial protection and surveillance, value chains of agro-extractive products and forest restoration, among other themes.

Additional information on ecological restoration is presented under Targets 4, 12, 13 and 14.

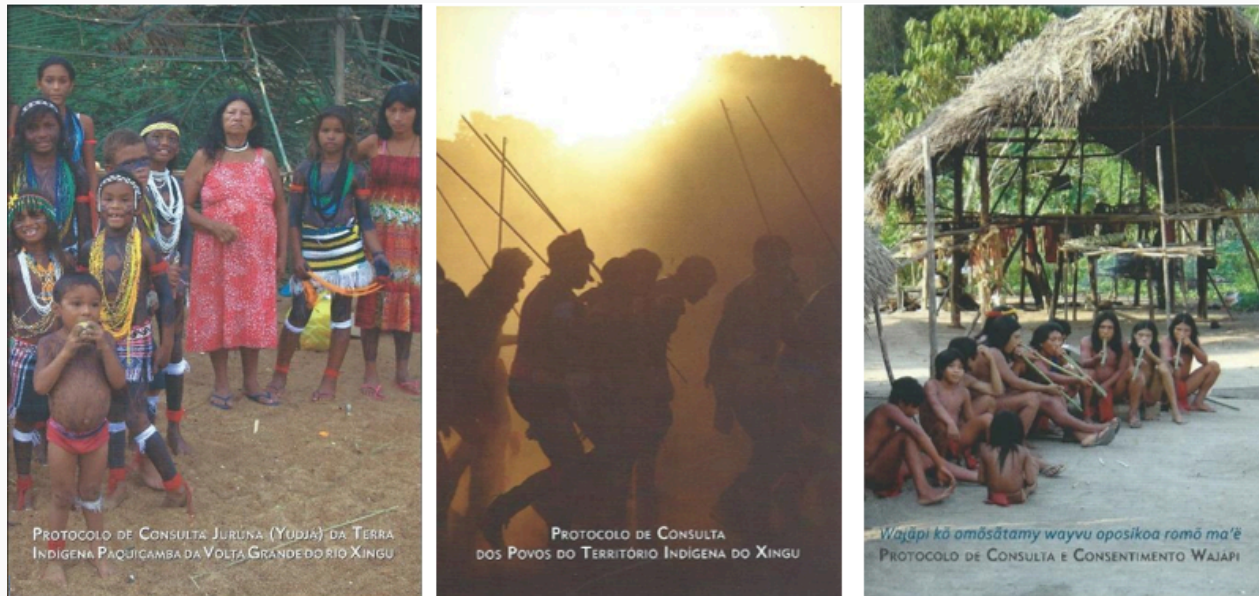
Target 16. *By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.*

The contents of the Nagoya Protocol are being incorporated into various public policies, even though the Protocol has not yet been formally ratified by the Brazilian government. The Law on Biodiversity, Law nº 13.123 of 20 May 2015, which revoked the Provisional Measure nº 2.186-16/2001, establishes new rules for accessing genetic heritage and the associated traditional knowledge, and the sharing of benefits. Its main component is the recording of access activities in an electronic registry named National Genetic Heritage Management System – SisGen. In parallel, the National Fund for Benefit Sharing – FNRB was created through Law nº 13.123 of 20 May 2015 and regulated by Decree nº 8.772 of 11 May 2016, with the objective of implementing the sharing of benefits from manufactured products and processes derived from research and development originating from genetic resources. The amount to be shared for the use of genetic resources corresponds to 1% of the annual net revenue obtained from the economic use of the finished product. These resources can be shared through monetary instruments, or directly through biodiversity conservation actions. Representatives of indigenous peoples, traditional communities and family rural producers participate in the management of FNRB resources through their seats at the Management Committee. Several workshops were carried out to familiarize this audience with SisGen and enable them to better manage the system.

In addition to these initiatives, MMA is implementing the project “Capacity Building and Institutional Strengthening on the National Framework for Access and Benefit Sharing under the Nagoya Protocol” – GEF-ABS Project. The Technical Coordination Unit of the Project was established in March 2018. Another relevant aspect is that the regulations related to the prior and informed consent – PIC, which has a broader application than just the access to genetic resources, are being discussed with the PCTAF, resulting in the preparation of various consultation protocols with their full participation (Figure 250).

Figure 250

Consultation protocols prepared with the Juruna people (PA), with the peoples of the Xingu Indigenous Territory (MT) and Wajãpi people (AP)



Source: ISA.

STRATEGIC OBJECTIVE E: Enhance the implementation through participatory planning, knowledge management and capacity building.

Target 17: *By 2014, the national biodiversity strategy is updated and adopted as policy instrument, with effective, participatory and updated action plans, which foresee periodic monitoring and evaluation.*

In compliance with the national commitments under the Convention on Biological Diversity - CBD, Brazil defined the National Biodiversity Targets, currently at their second cycle. During the first cycle of the Targets with the 2010 deadline, the process was coordinated by the National Biodiversity Commission - CONABIO, which is the deliberative and consulting multi-sectoral body that coordinates the implementation of the national commitments under the CBD.

During the first cycle, a set of 51 National Targets was defined, resulting from a workshop organized by CONABIO. In addition to the 20 members of the Commission, the event (Workshop for the Definition of the 2010 National Biodiversity Targets) counted with the participation of 30 speakers and other experts from academia and civil society, in addition to representatives from the various Secretariats of the Ministry of the Environment - MMA and agencies under MMA. The 51 targets were approved by CONABIO Resolution nº 3, of 21 December 2006 (LEMOS, 2011).

However, as informed through the 4th National Report to the CBD, although important progress has been obtained until 2010 for some of those targets, significant challenges remained in relation to most of the 51 targets. Among those challenges, it was identified that the revision of the national biodiversity targets, as well as the revision and updating of the National Biodiversity Strategy and Action Plan - NBSAP should involve a larger number of actors and stakeholders. And, that the NBSAP should be established through a strong legal instrument, such as a law or decree, and that it should include mechanisms for monitoring and achieving the targets.

In response to these recommendations, in 2011 the MMA initiated, in partnership with the International Union for the Conservation of Nature - IUCN, the Ecological Research Institute - IPÊ and the World Wide Fund for Nature - WWF-Brazil, a process known as "Dialogues on Biodiversity: building the Brazilian strategy for 2020". This process sought to increase the participation of all sectors (academia, industry, governments, non-governmental organizations, local communities and indigenous peoples) in the construction of the new national biodiversity targets for the 2011-2020 cycle.

During this broad process of discussions and consultations seeking a consensus for the definition of the 2011-2020 National Biodiversity Targets, five large consultation meetings were carried out in 2011 with different sectors of society, including indigenous peoples and traditional communities. Information collected during these meetings supported the preparation of the "Base document for public consultation", which in turn informed CONABIO in the development of the National Biodiversity Targets for 2020.

To deal with the complexity of the process due to the variety of sectors and large number of participants, the organizing institutions (MMA, IUCN, IPÊ, WWF-Brazil) chose to create an encompassing governance structure involving representatives

of all engaged sectors, which were organized in two levels (MACHADO et al., 2012). An operational level was organized into five sectoral committees responsible for actively supporting the organization of the Dialogues among their respective peers. These sectoral committees assisted in the definition of the list of invitations for the events and the list of speakers, as well as in the discussions for the definition of the methodology and dynamics of the meetings and the products to be generated. The second and more managerial level was comprised by an expanded committee, with a smaller group of representatives from each sector and organizing institutions. The expanded committee was responsible for the strategic definitions of the process of the Dialogues.

In addition to the four organizing institutions, other 19 institutions comprised the expanded committee:

- (i) academia: Brazilian Society for the Progress of Science – SBPC; Brazilian Association of Sciences – ABC;
- (ii) private sector: Brazilian Corporate Council for Sustainable Development – CEBDS; National Confederation of Industries – CNI; Corporate Movement for Biodiversity – MEB;
- (iii) governments: Brazilian Association of State Environmental Agencies – ABEMA; Ministry of Planning – MP;
- (iv) NGOs: Conservation International – CI; Law Institute for a Green Planet – IDPV; Socio-environmental Institute – ISA; Boticário Group Foundation for Nature Protection – FBPN; NGOs Network of the Atlantic Forest; Association for the Preservation of the Environment and Life – APREMAVI; Forest Dialogues; Vitória Amazônica Foundation – FVA;
- (v) Indigenous peoples and local communities: Intertribal Committee; Indigenous Institute for Intellectual Property – INBRAPI; Amazonian Working Group – GTA; Via Campesina; Pacari Coordination.

Financial support to the implementation of the Dialogues was provided by MMA, the Ministry of Food and Rural Matters of the United Kingdom – DEFRA and by the National Project on Integrated Public-Private Actions for Biodiversity – Probio II.

Among the 12 national events held from April 2011 to May 2012, four preparatory events included: (i) indigenous peoples; (ii) *raizeiros* and *raizeiras* of the Cerrado; (iii) local communities from the Amazon; and (iv) representatives of state governments of all biomes. Five sectoral dialogues were also held to discuss and obtain suggestions for the national biodiversity targets with: (i) corporate sector; (ii) academia and research centers; (iii) civil society organizations; (iv) various ministries and state governments; and (v) traditional communities and indigenous peoples.

During the sectoral dialogues, suggestions presented by the Brazilian society were collected on the central elements to be included in a future legal instrument to nationally translate the global biodiversity targets for 2020. Each of the 5 sectoral dialogues generated 5 documents containing national biodiversity targets and sub-targets for 2020, as well as intermediary sub-targets to be achieved by 2013 and 2017. These 25 documents containing the contributions of the sectoral dialogues were systematized into a matrix of national targets and sub-targets. This document was named “Base document of the public consultation” and its consolidation was tailored to maintain targets such as they have been proposed by sectors, making adjustments when necessary to group very similar targets. Another exercise carried out at that time was to evaluate if each proposed target was indeed a target or an action or activity, seeking to focus on the conclusive targets and planning to incorporate the other proposed strategic actions, conditions, partners and indicators in the Action Plan.

The next step was the launching of an online public consultation process (from 19 December 2011 to 31 January 2012) on the complete results of the five dialogue events consolidated into the Base Document of the Public Consultation, followed by the monitoring and final compilation of the received contributions. After the closing of the public consultation, an event was held with the expanded committee comprised by organizations from all sectors, to assess the consultation results and integrate them into the Base Document of the Public Consultation, resulting on the preparation of a draft final document.

This draft was discussed at a final event with the participation of all sectors engaged in the Dialogues process. This event produced a final document with the proposal of 20 Brazilian biodiversity targets for 2020.

The proposed 20 targets resulting from the Dialogues on Biodiversity were presented at the Rio+20 Conference, when the creation of a Brazilian Panel on Biodiversity – PainelBio was proposed as the next step, to be comprised by representatives from all sectors and to function as one of the instruments to monitor target implementation, generate knowledge and develop capacities for the achievement of the Brazilian biodiversity targets. The PainelBio was effectively created in 2014.

The proposed 20 Brazilian biodiversity targets for 2020 resulting from the sectoral Dialogues were later presented for discussion at the National Biodiversity Commission – CONABIO, which carried out some adjustments before publishing the National Biodiversity Targets for 2020 in the CONABIO Resolution nº 6, of 3 September 2013.

Although PCTAF representatives were present during the NBSAP preparation process, it is important to note that a greater integration of PCTAF in the process of mobilization and implementation of NBSAP actions is needed. This integration must consider capacity building actions and access to information, not only to facilitate the participation of these representatives, but also to ensure that this representativeness results in concrete actions. The approach usually adopted by government also needs to be improved to secure greater engagement and participation of these populations. To that end, it is recommended to strengthen dialogues with public policies governance bodies that involve PCTAF and that have been created in the meantime, such as the Council of the National Policy for the Sustainable Development of Traditional Peoples and Communities – PNPCT, which resumed its activities in September 2018 with the transformation of the PNPCT Commission into Council. Another important body is the Management Council of the National Policy on the Territorial and Environmental Management of Indigenous Lands – PNGATI, which has been carrying out regular meetings since its establishment in 2012 and represents the main forum for information exchange among the various sectors engaged in policies and programs targeting indigenous peoples.

Target 18. *By 2020, the traditional knowledge, innovations and practices of indigenous peoples, family rural producers*

and traditional communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, in accordance with their uses, customs and traditions, national legislation and relevant international commitments, and fully integrated in the implementation of the CBD, with the full and effective participation of indigenous peoples, family rural producers and traditional communities, at all levels.

The creation of the National Policy for the Sustainable Development of Traditional Peoples and Communities - PNPCT in 2007, and of the National Policy on the Territorial and Environmental Management of Indigenous Lands - PNGATI in 2010, represent important progress achieved by the Brazilian government regarding the recognition, respect and integration of PCTAF traditional knowledge and practices and their contribution to sustainable landscapes. The public policies targeting PCTAF can be considered indicators of a paradigm change regarding biodiversity conservation, with the replacement of the vision that conservation is made with the exclusion of human beings with a broader vision where PCTAF livelihoods are seen as contributions to the maintenance of sustainable landscapes.

Various actions carried out by ICMBio provide practical examples of the incorporation of communities in the management of protected areas, such as the National Biodiversity Monitoring Program - Monitora Program (additional details provided under Target 1, Section III), which promotes the socioenvironmental engagement to strengthen PA management and the conservation of biodiversity, and the creation of instruments such as the Management Agreements (additional details provided under Target 2, Section III) to resolve human population issues and territory overlaps through dialogue.

Regarding indigenous peoples, the Indigenous Environmental and Territorial Management Project - GATI implemented by Funai and UNDP with resources from the Global Environment Facility - GEF and with the participation of MMA, combined with the implementation of PNGATI, brought these agencies closer together. Under the context of overlaps with PAs, there is a possibility of achieving an understanding with ICMBio to consider indigenous peoples as partners in protection. In parallel, a growing participation of indigenous peoples is observed in international events such as the COPs of the CBD and of the United Nations Framework Convention on Climate Change - UNFCCC and the Climate Summit. The creation of an Indigenous Commission on Climate Change - CIMC, now incorporated as a PNGATI technical commission, is also an important step.

However, the potential to more broadly incorporate the PCTAF traditional ecological knowledge in the restoration of habitats and in the monitoring of natural resources and threatened species is still little explored in relation to the practical implementation of biodiversity conservation policies and programs and related initiatives. Some initiatives to this end, however, are generating good results and demonstrate the importance of this potential. The successful examples of pirarucu management, for example, are entirely dependent on the training of community members as "counters", to carry out the census of how many individual pirarucu are present in each lake, thus defining the number of pirarucus that can be fished.

Another example of the importance of recognizing the contribution of PCTAF traditional knowledge and practices for the conservation of biodiversity occurs in the Cerrado biome, where the traditional knowledge on fire management is being gradually incorporated in the operation of fire brigades. The Law on the Protection of Native Vegetation approved in 2012 eliminated the "zero fire" policy in ecosystems where fire is a natural ecological factor and allows integrated fire management with the preventive burning of open areas in the beginning of the dry season to prevent more severe fires from penetrating in gallery forests and other forest types. Part of this change is the consideration of traditional practices used by communities that have been coexisting with fire for centuries or millennia. The work carried out by the indigenous fire brigade at the Xerente Indigenous Land (TO), in addition to the prevention aspect, is allowing to observe that burning at the right time has a positive effect in the production of Cerrado fruits. The integrated fire management (IFM) in the Cerrado biome has been promoted by Ibama and ICMBio since 2013 and, in addition to protecting biodiversity, can also bring a reduction in the emission of greenhouse gases, to the extent that this practice prevents the occurrence of large-scale fires and of fire in the vegetation formations containing higher biomass such as riparian forests and dry forests.

For many years, fire has been a polemic and contentious theme among the managers of the Serra Geral do Tocantins Ecological Station - EESGT/ICMBio and Jalapão communities. PA management focused on the fire suppression model. Attrition between managers and local residents was common. The adoption of IFM in the PA since 2014 allowed a new perception regarding the use of fire and the recovery of traditional practices. It was observed that the fire management actions resulted in a reduction of fire scale and a reduction of field time for the fire brigade in each combat action, which also means a cost reduction (BARRADAS *et. al.*, 2015). One of the IFM strategies adopted for the EESGT and surrounding region was the integration with local communities. The Term of Commitment - TC with the Quilombolas Association was revised to safeguard traditional practices. The TC provides for restrictions and authorizations, with emphasis on the fire use issue, in which are highlighted those foreseeing the controlled burning related to cattle raising and collection of golden grass, used in the production of handcrafts of high economic value (BARRADAS *et. al.*, 2015).

The Golden Grass handling techniques in Jalapão have been learned in the beginning of the 1930's, as an inheritance of the quilombola communities living in the area (INDICAÇÃO GEOGRÁFICA, 2015). As with various other species of the Cerrado, the golden grass plants are resistant to fire. Observations by traditional communities and studies show that the occurrence of fire significantly increases the blooming of golden-grass a year after fire has occurred. A study also observed that the production of golden grass stems drastically reduces in areas that have not been burned for over a year (SCHMIDT *et al.*, 2011). Thus, the adoption of IFM in the EESGT and surrounding region proved to be an efficient tool both for conservation and for the sustainable use of biodiversity by traditional communities.

Bringing more information and clarifications on socio-biodiversity products to Brazilian Society also represents a means to value PCTAF, not only regarding income generation, but also in relation to the importance of their traditional knowledge for the use and conservation of biodiversity. In this regard, the *Catalogue of Products from Brazilian Socio-biodiversity*, published by ICMBio at the end of 2018, represents a statement and reinforcement of respect to PCTAF (Figure 251).

Figure 251

Catalogue of Products from Brazilian Socio-biodiversity



Source: ICMBio, 2018.

Target 19. *By 2020, the science base and technologies necessary for enhancing knowledge on biodiversity, its values, functioning and trends, and the consequences of its loss, are improved and shared, and the sustainable use of biodiversity, as well as the generation of biodiversity-based technology and innovation are supported, duly transferred and applied. By 2017, the complete compilation of existing records on aquatic and terrestrial fauna, flora and microbiota is finalized and made available through permanent and open access databases, with specificities safeguarded, with a view to identify knowledge gaps related to biomes and taxonomic groups.*

Bringing the diversity of knowledge systems and knowledge richness of PCTAF into public policies and initiatives related to the conservation of biodiversity is a key strategy for the achievement of the Aichi Targets. Some actions to this end are being carried out by communities, such as the training of youth in the recording of biological and environmental data in digital platforms and the training courses on handling GPS equipment and interpretation of maps and satellite images, which can be key tools for PCTAF environmental and territorial management. With the several initiatives to train environmental agents and similar functions among PCTAF, the dependence from external technical agents is slowly reducing to carry out the analysis of collected data and to use geographical information systems - GIS. The Remote Sensing Laboratory of the Roraima Indigenous Council - CIR, for example, is operated by indigenous technical staff, who assist communities in the production of maps.

Under a broader, biome-scale vision, the non-governmental organization Amazon Research Institute - IPAM created the Observation and Monitoring System of the Indigenous Amazon - [SOMAI](#), with the objective of providing information to support territorial and environmental management in indigenous lands of the Brazilian Amazon and climate change adaptation actions. Using open software, the platform contains scientific data both on climatic changes that have already

occurred and possible future scenarios. The accumulated data provide information on: deforestation, land use, vegetation, hydrography, infrastructure, carbon stock, in addition to future forecasts on temperature, rain and biodiversity variation, and has been accessed by indigenous representatives in several workshops.

The National Forest Inventory - IFN, carried out by the Brazilian Forest Service - SFB, represents a governmental initiative of great potential interface with indigenous lands, as despite having national scope, there is a gap in the IFN related to indigenous lands. Nevertheless, through a collaboration between SFB and Funai, both implementing projects funded by the Global Environment Facility - GEF in 2015, it was possible to apply the standard IFN methodology in the Mangueirinha Indigenous Land, in Paraná (Figure 252). The demand for mapping and quantifying forest species of the Mangueirinha Indigenous Land was initially presented by its Kaingang and Guarani inhabitants, expressing their wish to better understand the potential of what is now one of the few significant araucaria pine forest remnants in the southern region of the country, where they extract mate, pine nuts and pine knots, among other products. This demand, together with the SFB interest in collaborating with Funai through the Indigenous Environmental and Territorial Management Project - GATI**, enabled the IFN implementation in this Indigenous Land. Thus, in addition to raise awareness on the important conservation work carried out by indigenous peoples, information was also consolidated on the timber and non-timber forest products they use.

** The Indigenous Environmental and Territorial Management Project - GATI, funded with resources from the Global Environment Facility (GEF), was implemented between 2010 and 2016 by Funai, with support from the United Nations Development Program - UNDP, in 32 indigenous lands in the 5 Brazilian forest biomes.

Figure 252

Conserved broadleaf evergreen forest with Araucaria pines in the Mangueirinha Indigenous Land, in Paraná



Photograph: Robert Miller.

The expansion of the IFN to other indigenous lands can be considered a strategic initiative, particularly in the case of those that are in process of preparing Management Plans - PGTA's and other management instruments for which vegetation information is key. Nevertheless, it is important to note that for this to occur, it is necessary to carry out an explanatory and consultative process on IFN implementation, following the example of the procedures applied by Funai and SFB in the

Mangueirinha Indigenous Land, both for obtaining consent and for ensuring the success of the inventory and good use of its results.

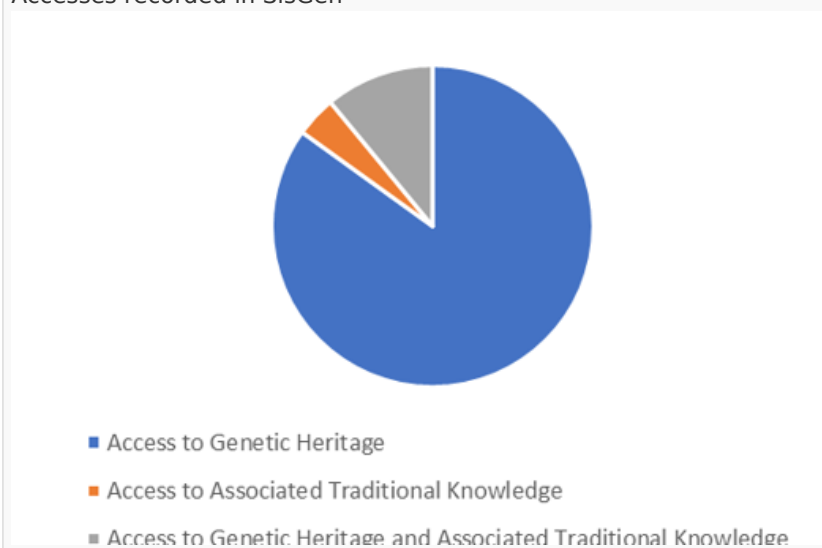
Despite the existence of several biodiversity databases, their use by PCTAF is still very incipient. Among the strategies for a stronger coordination with academia is the incentive of training a larger number of PCTAF in college-level courses on biological sciences and related themes. INEP data from the 2016 Census on Indigenous Graduate Education indicate that 22,030 indigenous students were attending public and private college education in Brazil, on various subjects. However, an inventory carried out by the Ministry of Science, Technology, Innovation and Communication - MCTIC (Inventory carried out by Vincenzo Lauriola, of the General Coordination of Biomes - CGBI, Secretariat of Policies and Programs on Research and Development - SEPED of the then MCTI and presented at the ordinary meeting of the PNGATI Management Committee, on 05 December 2018) could only identify approximately 408 indigenous students registered in biological sciences or related subject courses, representing 1.8% of the total. These data reveal the opportunity to urgently encourage, through adequate instruments, the training of indigenous biologists and biodiversity researchers.

The National System for Managing Genetic Heritage and the Associated Traditional Knowledge - **SISGEN** is an electronic system maintained and operated by the Executive Secretariat of the Brazilian Genetic Heritage Management Council - CGen. This system records: 1) access activities, i.e., research and technological development carried out on genetic heritage and/or associated traditional knowledge of Brazilian indigenous peoples, traditional peoples and communities and family rural producers; 2) overseas shipping of genetic heritage samples; and 3) the notification of products or reproduction materials originating from genetic heritage and/or associated traditional knowledge.

Currently (as of 19 July 2019), 48,184 access activities are recorded in SisGen. Of these, 15% (7,260 access activities) correspond to activities accessing associated traditional knowledge, of which 1,970 refer to activities accessing associated traditional knowledge only and 5,290 activities accessing both genetic heritage and associated traditional knowledge.

Figure 253

Accesses recorded in SisGen



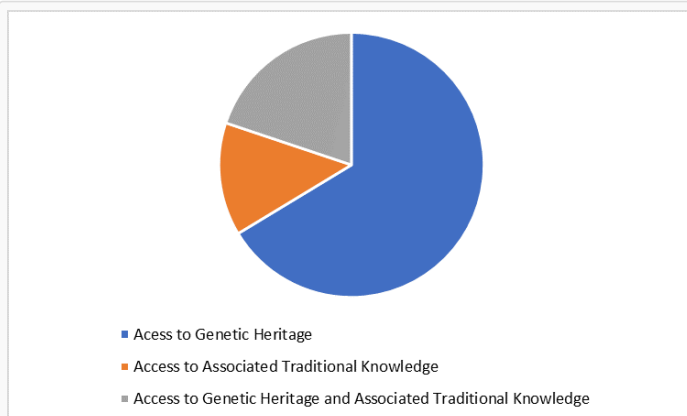
Source: SISGEN.

When research and technological development activities result in a product (non-agriculture chain) or a reproductive material (agriculture chain), it is necessary to register a notification in SisGen in order to economically use it (commercialize).

Currently (as of 19 July 2019), there are 1,797 notifications registered in SisGen. Of these, 33% (605 notifications) result from associated traditional knowledge, of which 248 notifications of products or reproductive materials obtained from access to associated traditional knowledge only and 357 notifications of products or reproductive materials obtained from access to both genetic heritage and associated traditional knowledge.

Figure 254

Notifications recorded in SisGen



Source: SISGEN.

Target 20. *Immediately following the approval of the Brazilian targets, resources needs assessments are carried out for the implementation of national targets, followed by the mobilization and allocation of financial resources to enable, from 2015 on, the implementation and monitoring of the Strategic Plan for Biodiversity 2011-2020, as well as the achievement of its targets.*

The Brazilian government has mobilized budgetary resources for various actions related to the interface between PCTAF and the implementation of the Strategic Plan for Biodiversity 2011-2020. In addition to the budget allocated to agencies directly working with PCTAF, such as Funai, Palmares Foundation, Special Secretariat of Family Agriculture and Agrarian Development and ICMBio, there are also specific programs such as the Minimum Price Policy for Sociobiodiversity-based Products – PGPM-Bio and the institutional acquisition of food produced by family agriculture.

It is also important to note the national counterpart contribution to cooperation projects with international agencies such as the United Nations Development Program – UNDP and Food and Agriculture Organization of the United Nations – FAO, including those funded by the Global Environment Facility – GEF. Examples are the Indigenous Environmental and Territorial Management Project – GATI implemented by Funai; the Diverse-Good Project implemented by Embrapa and focusing on agro-extractive activities; The Brazilian Mangroves Project – GEF Mangrove implemented by ICMBio; and the Program of Small Eco-social Projects – PPP-ECOS, funded by the Small Grants Program of the GEF and implemented by the Society, Population and Nature Institute – ISPN.

Other funding sources connected to the government are the Climate Fund/MMA and the Amazon Fund/BNDES. Nevertheless, regarding the availability of resources to promote initiatives carried out by PCTAF and their organizations, it cannot be considered that there is a unified source that PCTAF can easily and directly access. For the most part, funding for territorial management is dispersed among various calls for proposals, accessible exclusively through the presentation of a project by a legal entity capable of carrying out the accounting procedures and other administration aspects of a project. This is not always compatible with the sociocultural circumstances of PCTAF communities and their form of organization, often leading to frustration and difficulty in the implementation of initiatives.

CONCLUSION

Brazil is home to a variety of indigenous peoples and traditional communities, whose livelihoods and ways of managing their territories and natural resources represent a key contribution to the achievement of the National and Aichi Biodiversity Targets. This management, based on collective knowledge that is often centennial or even millennial, ruled by traditional and diffuse institutions interconnected to their social, cultural, political and economic dimensions, brings in its essence the conservation of biodiversity, maintenance of ecosystem services and the sustainable use of natural resources, among other benefits.

These PCTAF territorial management systems have legal basis and are supported by specific policies that have obtained important progress and results on various fronts. However, there are also difficulties and conflicts, such as those related to the ownership of land and natural resources such as timber, minerals and water resources, among others, with repercussions in the form of political disputes. Securing rights to land and natural resources is, therefore, strongly connected to PCTAF capacity to conserve biodiversity and maintain the provision of ecosystem services in their lands.

In a continental-scale country such as Brazil, with a wide variety of PCTAF, each presenting socioenvironmental specificities, several strategies for their strengthening are necessary to enable them to continue to play their key role in the maintenance of sustainable rural landscapes. It is also necessary to consider new demands that are presented to PCTAF regarding the management of their territories, such as ecosystem restoration and the integration with initiatives seeking ecological connectivity at the landscape scale. As presented in this Report, a variety of actions are being carried out that reinforce the management of PCTAF territories and their role in biodiversity conservation, but these actions need stronger support to be consolidated and to have their scope increased. For that to happen, some main lines or strategies to strengthen PCTAF contribution to the conservation of biodiversity and sustainable landscapes can be listed:

- capacity building of youth to implement public policies related to the conservation of biodiversity and the management and monitoring of their territories, also aiming at strengthening their governance at the local level;
- strengthening of consortia and other coordination initiatives for the protection of territories and their contribution to sustainable rural landscapes;
- incentives to the creation of mosaics, corridors and similar instruments, under a broader perspective of supporting territorial management and the conservation of biodiversity;
- promotion of agroecological and agroforestry production, together with local acquisition mechanisms, to strengthen both food safety and income generation;
- capacity building of the community organizational bodies, such as associations and cooperatives, among others, enabling them to access these funding sources for production activities and the sustainable use of biodiversity;
- incentives and support to environmental restoration through production systems such as agroforestry, which provide food and other materials for community use such as fibers, firewood, medicine and raw materials for handcrafts and construction, among others.

Additionally, it is strategic to promote horizontal capacity building, with the exchange of information and experiences among the various ongoing initiatives, to expand the dissemination of methodologies, practices and action mechanisms.

References

- AMAZON WATCH. **Complicity in destruction: how northern consumers and financiers sustain the assault on the Brazilian Amazon and its peoples**. Amazon Watch, 2018. Available at: <https://amazonwatch.org/assets/files/2018-complicity-in-destruction.pdf>. Accessed on: 18 November 2018.
- ARTICULAÇÃO NACIONAL DE AGROECOLOGIA. **Ecoforte, uma política pública para as redes territoriais de agroecologia** [Ecoforte, a public policy for the territorial networks of agroecology]. ANA, 2018. Available at: <http://www.agroecologia.org.br/2018/06/03/ecoforte-uma-politica-publica-para-as-redes-territoriais-de-agroecologia/>. Accessed on: 18 November 2018.
- BARRADAS, A. C. S.; BORGES, M. A. **O manejo do fogo na Estação Ecológica da Serra Geral do Tocantins (EESGT)** [Fire management at the Serra Geral do Tocantins Ecological Station] - 2015. Relatório de gestão. Available at: <https://d1ij67glom3ric.cloudfront.net/attachments/8f713f7ccee7b6981b088fbeece7532063b948d/store/9161eb5ba307860b833062c3abfd72e321d1d505a3916ed8b194e2ca0994/Relat%25C3%25B3rio%2Bde%2Bgest%25C3%25A3o%2Bdo%2BMIF%2Bna%2BEESGT--%2BProjeto%2BCerrado-Jalap%25C3%25A2o%2B2015.pdf> Accessed on: 19 July 2019
- CÂMARA DOS DEPUTADOS. PEC 215/2000. Brasília: CD, 2000. Available at: <https://www.camara.leg.br/proposicoesWeb/fichadetramitacao?idProposicao=14562>. Accessed on: 18 May 2019.
- CAMPOS-SILVA, J.V. & C. A. PERES. Community-based management induces rapid recovery of a high value tropical freshwater fishery. **Nature Scientific Reports**. 2016/10/12/online. Available at: <https://www.nature.com/articles/srep34745>. Accessed on: 18 November 2018.
- CARRANZA, T., A. BALMFORD, V. KAPOs & A. MANICA. Protected Area Effectiveness in Reducing Conversion in a Rapidly Vanishing Ecosystem: The Brazilian Cerrado. **Conservation Letters** **7(3)**: 216–223. 2014.
- CASTELLO, L., VIANA, J. P., WATKINS, G., PINEDO-VASQUEZ, M. & LUZADIS, V. A. Lessons from integrating fishers of arapaima in smallscale fisheries management at the Mamirauá Reserve, Amazon. **Environmental management** **43**, 197–209, 2009.
- CLEMENT, C. R. 1492 and the loss of Amazonian crop genetic resources. I. The relation between domestication and human population decline. **Econ. Bot.** **53**: 188-202, 1999a.
- CLEMENT, C. R. 1492 and the Loss of Amazonian Crop Genetic Resources. II. Crop Biogeography at Contact. **Economic Botany** **53(2)**: 203-216, 1999b.
- CLEMENT, C. R., Cristo-Araújo, M; D'ECKENBRUGGE, G. C.; PEREIRA, A. A.; & PICANÇO-RODRIGUES, D. **Origin and Domestication of Native Amazonian Crops**. *Diversity* **2**: 72-106, 2010, doi:10.3390/d2010072
- COMISSÃO PASTORAL DA TERRA. **Lançamento do relatório anual da CPT destaca o aumento da violência no campo e dos conflitos pela água** [Launch of the annual CPT report highlights rural violence and water conflicts]. CPT, 2018. Available at: <https://www.cptnacional.org.br/multimedia/12-noticias/conflitos/4380-lancamento-do-relatorio-anual-da-cpt-destaca-o-aumento-da-violencia-no-campo-e-dos-conflitos-pela-agua>. Accessed on: 19 November 2018.
- COMISSÃO PRÓ-ÍNDIO DO ACRE. **Gestão Territorial e Ambiental** [Territorial and Environmental Management]. CPIACRE, [2015 or 2016]. Available at: <http://cpiacre.org.br/conteudo/programas/gestao-territorial-e-ambiental/>. Accessed on: 18 November 2018.
- COMPANHIA NACIONAL DE ABASTECIMENTO. **Boletim da Sociobiodiversidade. Volume 2 - 2º trimestre de 2018** [Socio-biodiversity Bulletin. Volume 2 - 2nd quarter of 2018]. Brasília: CONAB, 2018. Available at: <https://www.conab.gov.br/info-agro/analises-do-mercado-agropecuário-e-extrativista/boletim-da-sociobiodiversidade>. Accessed on: 15 February 2019.
- COMPANHIA NACIONAL DE ABASTECIMENTO. **Política de garantia de preços mínimos para os produtos da sociobiodiversidade** [Minimum price policy for sociobiodiversity-based products]. Brasília: CONAB, 2017. Available at: <https://www.conab.gov.br/precos-minimos/pgpm-bio>. Accessed on: 15 February 2018.
- CONSELHO INDIGENISTA MISSIONÁRIO. **Relatório: Violência contra os povos indígenas no Brasil** (Dados de 2017)

[Report: Violence against indigenous peoples in Brazil (2017 data)]. CIMI, 2018. Available at: https://cimi.org.br/wp-content/uploads/2018/09/Relatorio-violencia-contra-povos-indigenas_2017-Cimi.pdf. Accessed on: 18 November 2018.

CONSELHO PASTORAL DOS PESCADORES. **Automonitoramento da produção de pescado - A experiência dos pescadores de Petrolândia** [Self-monitoring of fisheries production - The experience of Petrolândia fishermen]. CPP, [2015?]. Available at: <http://www.cppnacional.org.br/publicacao/automonitoramento-da-producao-de-pescado-experiencia-dos-pescadores-de-petrolandia>. Accessed on: 21 November 2018.

CONTROLADORIA GERAL DA UNIÃO. **Prestação de Contas do Presidente da República/2009 Parte V - Atuação do setor governamental** [Accountability Report of the President of the Republic/2009 Part V - Governmental sector actions]. CGU, 2010. Available at: <http://www.cgu.gov.br/assuntos/auditoria-e-fiscalizacao/avaliacao-da-gestao-dos-administradores/prestacao-de-contas-do-presidente-da-republica/arquivos/2009/5126.pdf>. Accessed on: 19 November 2018.

D'ALMEIDA, B. G. **Os acordos de pesca na Amazônia: uma perspectiva diferenciada de gestão das águas** [Fisheries agreements in the Amazon: a differentiated view of water management]. 2006. Available at: http://www.publicadireito.com.br/conpedi/manaus/arquivos/anais/recife/direito_ambiental_bruna_almeida.pdf. Accessed on: 20 November 2018.

DIEGUES, A.C. & R.S.V. ARRUDA. **Saberes Tradicionais e Biodiversidade** [Traditional Knowledge and Biodiversity]. Brasília: MMA (série Biodiversidade, 4), 176p., 2001.

EMPRESA BRASILEIRA DE PESQUISA AGROPECUÁRIA. Mandioca: o produtor pergunta, a Embrapa responde [Cassava: the producer asks, Embrapa answers]. Editores técnicos: Pedro Luiz Pires de Mattos, Alba Rejane Nunes Farias, José Raimundo Ferreira Filho. - Brasília, DF: Embrapa Informação Tecnológica, 2006. 176 p.

FERREIRA, M.T.S. e MAIA-BARBOSA, P.M. **O fogo como facilitador da invasão biológica por *Megathyrus maximus* (Poaceae: Panicoideae) na Terra Indígena Maxakali (MG): propostas para um manejo agroecológico integrado e adaptativo** [Fire as a facilitator for biological invasion by *Megathyrus maximus* (Poaceae: Panicoideae) at the Maxakali Indigenous Land (MG)]. *Biodiversidade Brasileira*, 3(2): 159-174, 2013.

FOREST PEOPLES PROGRAMME, the International Indigenous Forum on Biodiversity and the Secretariat of the Convention on Biological Diversity. **Local Biodiversity Outlooks: Indigenous Peoples' and Local Communities' Contributions to the Implementation of the Strategic Plan for Biodiversity 2011-2020**. FPP, 2016. A complement to the fourth edition of the Global Biodiversity Outlook. Moreton-in-Marsh, England. Available at: <https://www.cbd.int/gbo/gbo4/publication/lbo-en.pdf>. Accessed on: 18 November 2018.

FUNDAÇÃO AMAZONAS SUSTENTÁVEL. **Programa Bolsa Floresta** [Forest Grant Program]. FAS, 2018a. Available at: <http://fas-amazonas.org/programa-bolsa-floresta/>. Accessed on: 15 July 2019.

FUNDAÇÃO AMAZONAS SUSTENTÁVEL. Programa Bolsa Floresta - Número de beneficiados 11/2018 [Forest Grant Program - Number of beneficiaries 11/2018]. FAS, 2018b. Available at: <http://fas-amazonas.org/versao/2012/wordpress/wp-content/uploads/2018/11/Balanco-PBFF-NOV-2018.pdf>. Accessed on: 15 July 2019.

GAZETA DO CERRADO. **ICMS Ecológico deve beneficiar terras quilombolas** [Ecological ICMS may benefit quilombola lands]. Gazeta do Cerrado, 18/05/2017. Available at: <https://gazetadocerrado.com.br/icms-ecologico-deve-beneficiar-terras-quilombolas/>. Accessed on: 15 June 2019.

GOVERNORS' CLIMATE AND FORESTS TASK FORCE. **Guiding Principles for Collaboration and Partnership between Subnational Governments, Indigenous Peoples and Local Communities**. GCF, [entre 2015 e 2018] Available at: <https://www.gcftf.org/fullscreen-page/comp-jw19lcc0/b69a5511-af8d-40db-8577-fd662eefbc3c/25%3F%3D25%26p%3Dsz81x%26s%3Dstyle-jw19lcfj>. Accessed on: 21 November 2018.

HUMAN RIGHTS WATCH. **Você não quer mais respirar veneno: as falhas do Brasil na proteção de comunidades rurais expostas à dispersão de agrotóxicos** [You no longer want to breath poison: Brazil's faults in the protection of rural communities exposed to the dispersion of agricultural chemicals]. HRW, 2018. Available at: <https://www.hrw.org/pt/report/2018/07/20/320417>. Accessed on: 21 November 2018.

IMAFLORA & GEOLAB. **Atlas da Agropecuária Brasileira** [Atlas of the Brazilian Agriculture and Livestock Production]. Piracicaba: Instituto de Manejo e Certificação Florestal e Agrícola - Imaflora & GeoLab/ESALQ/USP, 2017 (online). Available at: <http://www.imaflora.org/atlasagropecuario/>. Accessed on: 18 November 2018.

INDICAÇÃO GEOGRÁFICA. **Região do Jalapão do Estado do Tocantins/O ouro do Jalapão** [The Jalapão Region of the State of Tocantins/Jalapão's gold]. 18/05/2015. Available at: <http://indicacaogeografica.com.br/regiao-do-jalapao-do-estado-do-tocantins/> (18/05/2015). Accessed on: 16 July 2019.

INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA. **O Brasil Indígena** [Indigenous Brazil]. Rio de Janeiro: IBGE, 2011. Available at: https://indigenas.ibge.gov.br/images/pdf/indigenas_folder_indigenas_web.pdf. Accessed on: 18 June 2019.

INSTITUTO BRASILEIRO DO MEIO AMBIENTE E DOS RECURSOS NATURAIS RENOVÁVEIS. **Brigadas de incêndios federais** [Federal fire brigades]. Brasília: Ibama, 2016. Available at: <https://www.ibama.gov.br/component/tags/tag/brigadas-de-incendio-federais>. Accessed on: 18 June 2019.

INSTITUTO BRASILEIRO DO MEIO AMBIENTE E DOS RECURSOS NATURAIS RENOVÁVEIS. **Relatórios de comercialização de agrotóxicos** [Reports on the commercialization of agricultural chemicals]. Ibama, 2019. Available at: <http://www.ibama.gov.br/agrotoxicos/relatorios-de-comercializacao-de-agrotoxicos#boletinsanuais>. Accessed on: 14 June 2019.

INSTITUTO CENTRO DE VIDA, INSTITUTO INTERNACIONAL DE EDUCAÇÃO DO BRASIL, INSTITUTO DE PESQUISA AMBIENTAL DA AMAZÔNIA, INSTITUTO SOCIEDADE, POPULAÇÃO E NATUREZA, INSTITUTO SOCIOAMBIENTAL, REDE CERRADO E WWF-

BRASIL. **Estratégias políticas para o Cerrado: Desenvolvimento Socioeconômico Responsável, Conservação e Uso Sustentável da Biodiversidade, Redução do Desmatamento e Restauração da Vegetação Nativa** [Political strategies for the Cerrado: Responsible Socioeconomic Development, Conservation and Sustainable Use of Biodiversity, Deforestation Reduction and Restoration of Native Vegetation]. ICV, IEB, IPAM, ISPN, ISA, REDE CERRADO, WWF, 2018. Available at: http://redecerrado.org.br/wp-content/uploads/2018/09/Estrategias-Políticas-para-o-Cerrado_web.pdf. Accessed on: 18 November 2018.

INSTITUTO CHICO MENDES DE CONSERVAÇÃO DA BIODIVERSIDADE. **Povos e Comunidades Tradicionais** [Traditional Peoples and Communities]. Brasília: ICMBio, 2009. Available at: <http://www.icmbio.gov.br/portal/centrosdepesquisa/povos-e-comunidades-tradicionais>. Accessed on: 18 June 2018.

INSTITUTO CHICO MENDES DE CONSERVAÇÃO DA BIODIVERSIDADE. **Práticas Inovadoras na Gestão de Áreas Protegidas** Gestores empreendedores: Inovação na Gestão de Áreas Protegidas no Brasil [Innovative Practices in the Management of Protected Areas and Entrepreneurial Managers: Innovation in the Management of Protected Areas in Brazil]. Brasília: ICMBio, 2014. Available at: http://ava.icmbio.gov.br/pluginfile.php/70/mod_page/content/66/Revista%20Praticas%20Inovadoras%202014.pdf. Accessed on: 18 July 2018.

INSTITUTO CHICO MENDES DE CONSERVAÇÃO DA BIODIVERSIDADE. **Painel dinâmico de informações** [Dynamic information panel]. Brasília: ICMBio, 2019. Available at: http://qv.icmbio.gov.br/QvAJAXZfc/pendoc2.htm?document=painel_corporativo_6476.qvw&host=Local&anonymous=true. Accessed on: 18 June 2019.

INSTITUTO CHICO MENDES DE CONSERVAÇÃO DA BIODIVERSIDADE. **Catálogo de produtos da sociobiodiversidade** [Catalogue of products from socio-biodiversity]. Brasília: ICMBio, 2018. Available at: http://www.icmbio.gov.br/portal/images/stories/comunicacao/publicacoes/publicacoes-diversas/catalogo_de_produtos_da_sociobiodiversidade_do_brasil.pdf. Accessed on: 18 de June 2019.

INSTITUTO DE ESTUDOS SOCIOECONÔMICOS. **Orçamento 2018: Funai respira, mas não se recupera** [2018 Budget: Funai breathes, but does not recover]. Brasília: INESC, 2018. Available at: <https://www.inesc.org.br/orcamento-2018-funai-respira-mas-nao-se-recupera/>. Accessed on: 19 November 2018.

INSTITUTO DE PESQUISA AMBIENTAL DA AMAZÔNIA. **Terras Indígenas na Amazônia Brasileira: reservas de carbono e barreiras ao desmatamento** [Indigenous Lands of the Brazilian Amazon: carbon reserves and deforestation barriers]. IPAM, 2015. Available at: http://ipam.org.br/wp-content/uploads/2015/12/terras_indigenas_na_amazonia_brasileira_.pdf. Accessed on: 18 November 2018.

INSTITUTO DE PESQUISAS ECOLÓGICAS. **Monitoramento Participativo da Biodiversidade** [Participatory Monitoring of Biodiversity]. São Paulo: IPÊ, 2018. 1ª ed. Available at: <http://www.ipe.org.br/projetos-tematicos/areas-protegidas/monitoramento-participativo-da-biodiversidade>. Accessed on: 18 November 2018.

INSTITUTO DE PESQUISAS ECOLÓGICAS. **Tartarugas da Amazônia ganham mais uma chance de sobrevivência na REBIO do rio Trombetas** [Amazon river turtles get one more chance of survival at the Rio Trombetas REBIO]. São Paulo: IPÊ, 2019. Notícias: 23/01/2019. Available at: <https://www.ipe.org.br/ultimas-noticias/1613-tartarugas-da-amazonia-ganham-mais-uma-chance-de-sobrevivencia-na-rebio-do-rio-trombetas>. Accessed on 19 July 2019.

INSTITUTO DE PESQUISAS ECONÔMICAS APLICADAS. **Pagamento por serviços ambientais: uma análise do ICMS Ecológico nos Estados Brasileiros** [Payment for ecosystem services: an analysis of the Ecological ICMS at Brazilian states]. Brasília: IPEA, 2017. Available at: <http://www.ipea.gov.br/ppp/index.php/PPP/article/viewFile/727/455>. Accessed on: 17 November 2018.

INSTITUTO HUMANITAS UNISINOS. **Ruralistas pedem suspensão dos processos de demarcação de terras indígenas** [Rural side of the Parliament requests suspension of the processes to demarcate indigenous lands]. São Leopoldo: IHU UNISINOS, 2018. Available at: <http://www.ihu.unisinos.br/78-noticias/581965-ruralistas-pedem-suspensao-dos-processos-de-demarcacao-de-terras-indigenas-e-quilombolas>. Accessed on: 18 November 2018.

INSTITUTO INTERNACIONAL DE EDUCAÇÃO DO BRASIL. **Seminário discute iniciativas de formação indígena em gestão territorial e ambiental** [Workshop discusses initiatives for building capacity of indigenous peoples for territorial and environmental management]. IEEB, 2016. Available at: <http://www.arquivo.ieeb.org.br/index.php/noticias/seminario-apresenta-iniciativas-de-formacao-indigena-em-gestao-territorial-e-ambiental/>. Accessed on: 18 November 2018.

INSTITUTO SOCIEDADE, POPULAÇÃO E NATUREZA. **PPP-ECOS**. ISPN, 2018. Available at: <http://www.ispn.org.br/projetos/ppp-ecos-programa-pequenos-projetos-ecossociais/>. Accessed on: 15 July 2018.

INSTITUTO SOCIOAMBIENTAL. **Os povos indígenas isolados e as obras de infraestrutura que ameaçam seus territórios** [Isolated indigenous peoples and infrastructure works that threaten their territories]. Brasília: ISA, 2018. Available at: https://www.socioambiental.org/sites/blog.socioambiental.org/files/nsa/arquivos/isolados_infraestrutura_nota_tecnica_1.pdf. Accessed on: 18 November 2018.

LEMONS, Carla Michely Yamaguti. Dialogue on biodiversity: Building the Brazilian Strategy for 2020. **Aichi Targets Newsletter 2011**, Volume 1, Issue 2, page 5. Available at: <https://www.cbd.int/doc/newsletters/news-jbf-2011-11-en.pdf>. Accessed on: 18 October 2018.

LINS RIBEIRO, Gustavo. Quanto maior melhor? Projetos de grande escala: uma forma de produção vinculada à expansão de sistemas econômicos [The bigger the better? Large-scale projects: a form of production connected to the expansion of economic systems]. In: OLIVEIRA, João Pacheco de & COHN, Clarice (Orgs). **Belo Monte e a questão indígena**. Brasília - DF: ABA, 2014. pág. 50-70.

MACHADO, F. S. et al. **Metas Brasileiras de Biodiversidade para 2020: exemplo de construção participativa no marco da Convenção de Diversidade Biológica - CDB/ONU** [Brazilian Biodiversity Targets for 2020: example of participatory construction under the Convention on Biological Diversity - CBD/UN]. Brasília: UICN, WWF-Brasil e IPÊ, 24p. 2012.

MCGRATH, D. G. **Avoiding a tragedy of the commons: recent developments in the management of Amazonian fisheries**. Amazonia at the Crossroads. Institute of Latin American Studies: London 171-197, 2000.

MILLER, R.P.; MACÁRIO, D.; WEBER, I.; MODERCIN, I.; ANTONIO, L. **Agroecologia, agroflorestas e restauração ambiental** [Agroecology, agroforestry and environmental restoration]. Coleção "A experiência do Projeto GATI em Terras Indígenas"; Brasília-DF: IEB e Funai. 57 p. 2016. Available at: <http://www.funai.gov.br/arquivos/conteudo/cggam/pdf/2017/tematico-ingles/20161116%20GATI%20TT%20Agrofloresta%20v2aCAPA%20RED+.pdf>. Accessed on: 19 November 2018.

MINISTÉRIO DO DESENVOLVIMENTO AGRÁRIO. **Comunidades recebem primeiros selos Indígenas do Brasil** [Communities receive the first Indigenous Peoples of Brazil seals]. Brasília: MDA, 2015a. Available at: <http://www.mda.gov.br/sitemda/noticias/comunidades-recebem-primeiros-selos-ind%C3%ADgenas-do-brasil>. Accessed on: 18 November 2018.

MINISTÉRIO DO DESENVOLVIMENTO AGRÁRIO. **Patrimônio Genético e Cultural** [Genetic and Cultural Heritage]. Brasília: MDA, 2015b. Available at: [http://www.mda.gov.br/sitemda/noticias/patrimônio-genético-e-cultural](http://www.mda.gov.br/sitemda/noticias/patrim%C3%ADnio-gen%C3%A9tico-e-cultural). Accessed on: 21 November 2018.

MINISTÉRIO DO DESENVOLVIMENTO AGRÁRIO. **Brasil: 70% dos alimentos que vão à mesa dos brasileiros são da agricultura familiar** [Brazil: 70% of food at Brazilians' table come from family agriculture]. Brasília: MDA, 2017. Available at: [http://www.mda.gov.br/sitemda/noticias/brasil-70-dos-alimentos-que-vão-à-mesa-dos-brasileiros-são-da-agricultura-familiar](http://www.mda.gov.br/sitemda/noticias/brasil-70-dos-alimentos-que-v%C3%A3o-%C3%A0-mesa-dos-brasileiros-s%C3%A3o-da-agricultura-familiar). Accessed on: 18 November 2018.

MINISTÉRIO DO DESENVOLVIMENTO AGRÁRIO. **Agricultura familiar é 8ª maior produtora de alimentos do mundo** [Family agriculture is the 8th larger food producer in the world]. Brasília: MDA, 2018a. Available at: [http://www.mda.gov.br/sitemda/noticias/agricultura-familiar-do-brasil-é-8ª-maior-produtora-de-alimentos-do-mundo](http://www.mda.gov.br/sitemda/noticias/agricultura-familiar-do-brasil-%C3%A9-8%C3%A1-maior-produtora-de-alimentos-do-mundo). Accessed on: 18 November 2018.

MINISTÉRIO DO DESENVOLVIMENTO AGRÁRIO. **Nova portaria do Selo de Identificação da Participação da Agricultura Familiar (Sipaf) é publicada** [New administrative ruling on the Family Agriculture Identification Seal (Sipaf) is published]. Brasília: MDA, 2018b. Available at: [http://www.mda.gov.br/sitemda/noticias/nova-portaria-do-selo-de-identificação-da-participação-da-agricultura-familiar-sipaf-é](http://www.mda.gov.br/sitemda/noticias/nova-portaria-do-selo-de-identificacao-da-participacao-da-agricultura-familiar-sipaf-%C3%A9). Accessed on: 18 November 2018.

MINISTÉRIO DO MEIO AMBIENTE. **Plano Estratégico Nacional de Áreas Protegidas - PNAP** [National Strategic Plan of Protected Areas - PNAP]. Brasília: MMA, 2006. Available at: http://www.mma.gov.br/estruturas/205/_arquivos/planonacionaareasprotegidas_205.pdf. Accessed on: 16 July 2019.

MINISTÉRIO DO MEIO AMBIENTE. **Desenvolvimento Rural - Bolsa Verde** [Rural Development - Green Grant]. Brasília: MMA, 2012. <https://mma.gov.br/perguntasfrequentescatid=15>. Accessed on: 18 November 2018.

MINISTÉRIO DO MEIO AMBIENTE. **Discussões para implementação da NDC do Brasil** [Discussions for the implementation of the Brazilian NDC]. Brasília: MMA, 2016. Available at: <https://www.mma.gov.br/clima/ndc-do-brasil.html>. Accessed on: 19 July 2019.

MINISTÉRIO DO MEIO AMBIENTE. **Encontro avalia projetos socioambientais** [Meeting evaluates socioenvironmental projects]. Brasília: MMA, 2017. Available at: <http://mma.gov.br/informma/item/14029-noticia-acom-2017-03-2243.html>. Accessed on: 18 November 2018.

MINISTÉRIO DO MEIO AMBIENTE. **Oficina debate gestão territorial quilombola** [Workshop debates quilombola territorial management]. Brasília: MMA, 2018a. <http://www.mma.gov.br/informma/item/14868-noticia-acom-2018-07-3099.html>. Accessed on: 18 November 2018.

MINISTÉRIO DO MEIO AMBIENTE. **Balanco de execução 2018. PPCDAm e PPCerrado 2016-2020** [2018 Implementation balance. PPCDAm and PPCerrado 2016-2020]. Brasília: MMA, 2018b. Available at: http://combateaoedesmatamento.mma.gov.br/images/Doc_ComissaoExecutiva/Balano-PPCDAm-e-PPCerrado_2018_f.pdf. Accessed on: 18 November 2018.

MINISTÉRIO DO MEIO AMBIENTE. **Cadastro Nacional de Unidades de Conservação** [National Protected Areas Registry]. Brasília: MMA, 2019. Available at: www.mma.gov.br/cadastro_uc. Accessed on: 14 June 2019.

NASA/Earth Observatory. **Contaminated Rio Doce Water Flows into the Atlantic**. NASA, 2015. Available at: <https://earthobservatory.nasa.gov/images/87083/contaminated-rio-doce-water-flows-into-the-atlantic>. Accessed on: 19 November 2018.

NEPSTAD, D., SCHWARTZMAN, S., BAMBERGER, B., SANTILLI, M., RAY, D., SCHLESINGER, P., LEFEBVRE, P., ALENCAR, A., PRINZ, E., FISKE, G. AND ROLLA, A. Inhibition of Amazon Deforestation and Fire by Parks and Indigenous Lands. **Conservation Biology**, 20: 65–73. 2006.

NOLTE, C., A. AGRAWALA, K. M. SILVIUS & B. S. SOARES-FILHO. **Governance regime and location influence avoided deforestation success of protected areas in the Brazilian Amazon**. PNAS 110(13): 4956–4961. 2013.

NUNES, T.S.S. **A Efetividade das Unidades de Conservação e das Terras Indígenas na contenção do Desflorestamento na Amazônia Legal** [The effectiveness of Protected Areas and Indigenous Lands in detaining deforestation in the Legal Amazon]. Belém, Museu Paraense Emílio Goeldi, Universidade Federal do Pará & Embrapa Amazônia Oriental, Dissertação de Mestrado, 78p. 2010.

ORGANIZAÇÃO DAS NAÇÕES UNIDAS PARA ALIMENTAÇÃO E AGRICULTURA/Plataforma de Boas Práticas para o Desenvolvimento Sustentável. **Caracterização e identificação de “Guardiões de Sementes Crioulas” na Perspectiva de Ampliação da Segurança Alimentar (10E)** [Characterization and identification of “Keepers of Crioula Seeds” with the expectation of increasing food safety]. FAO, [between 2015 and 2018]. Available at: <http://www.boaspraticas.org.br/index.php/pt/areas-tematicas/alimentacao/620-guardioes1>. Accessed on: 21 November 2018.

OVIDO, A.F.P., BURSZTYN, M.I. E DRUMMOND, J.A. Agora sob nova administração: acordos de pesca nas várzeas da Amazônia brasileira [Now under new administration: fisheries agreements in the floodplains of the Brazilian Amazon]. **Ambiente & Sociedade** v. XVIII, n. 4 n p. 119-138. Out-Dez. 2015. Available at: <http://www.scielo.br/pdf/asoc/v18n4/1809-4422-asoc-18-04-00119.pdf>.

PARCERIA PARTICIPATIVA DE MONITORAMENTO E GERENCIAMENTO. **Carta de Manaus: recomendações para o monitoramento participativo da biodiversidade** [Letter of Manaus: recommendations for the participatory management of biodiversity]. PMMP, 2015. Available at: www.pmpmpartnership.com. Accessed on: 19 November 2018.

POÇO DE CARBONO JURUENA. Em parceria inédita, cooperativa de agricultores irá beneficiar castanha-do-Brasil de associação indígena na Amazônia [In unprecedented partnership, cooperative of agriculture producers will process Brazil nuts collected by indigenous association in the Amazon]. 2018. Available at: <http://www.carbonojuruena.org.br/2018/11/19/parceira-cooperativa-associacao/> Accessed on: 21 November 2018.

REPÚBLICA FEDERATIVA DO BRASIL. Pretendida Contribuição Nacionalmente Determinada para Consecução do Objetivo da Convenção-Quadro das Nações Unidas sobre Mudança do Clima [Intended Nationally Determined Contribution for

the Achievement of the Objective of the United Nations Climate Change Convention]. 2015. Available at: http://www.itamaraty.gov.br/images/ed_desenvsust/BRASIL-iNDC-portugues.pdf . Accessed on 16 October 2018.

THE NATURE CONSERVATION. **ICMS Ecológico** [Ecological ICMS]. TNC, [2011?]. Available at: <http://www.icmsecologico.org.br/site/> Accessed on: 19 November 2018.

SCHMIDT, Isabel Belloni; SAMPAIO, Maurício Bonesso; FIGUEIREDO, Isabel Benedetti & TICKTIN, Tamara. **Fogo e Artesanato de Capim-dourado no Jalapão - Usos Tradicionais e Consequências Ecológicas** [Fire and golden-grass handicrafts in Jalapão - Traditional uses and ecological consequences]. 2011. Available at: <http://www.icmbio.gov.br/revistaelectronica/index.php/BioBR/article/download/116/99>. Accessed on: 16 July 2019.

TRANCOSO, R.; CARNEIRO FILHO, A.; TOMASELLA, J.; SCHIETTI, J.; FORSBERG, B.R.; MILLER, R.P. **Deforestation and conservation in major watersheds of the Brazilian Amazon. Environmental Conservation**. United Kingdom, v. 36, n. 4, p. 277-288, 2009. <http://dx.doi.org/10.1017/S0376892909990373>.

VALOR ECONÔMICO. **Da floresta à semente, da semente à floresta** [From forest to seed, from seed to forest] (25/09/2017). Available at: <https://www.valor.com.br/especial/xingu>. Accessed on: 15 June 2019.

Section VII. Updated biodiversity country profile

Biodiversity facts : Status and trends of biodiversity, including benefits from biodiversity and ecosystem services and functions:

Brazil is a continental-size country hosting one of the largest diversities of flora and fauna in the world, therefore classified among the megadiverse countries. The country houses six terrestrial biomes - Amazon, Caatinga, Cerrado, Atlantic Forest, Pampas and Pantanal and their ecosystems, among which the Atlantic Forest and the Cerrado are biodiversity hotspots. The country also has three large marine ecosystems, the largest continuous stretch of mangroves in the world - 1.3 million hectares, and the largest reef habitats in the Western South Atlantic, distributed along 3,000 km on the northeastern coast.

Estimates indicate approximately 1.8 million species, of which science has described approximately 200,000 or 11%. It is estimated that Brazil houses approximately 10% to 15% of the known species of global biodiversity. It is one of the countries with the highest number of plant and fungi species (46,737), amphibians (1,024) and mammals (720) in the world. Brazil houses the largest number of plant species in the world, of which over 40% are endemic, and the angiosperms group has the highest percentage of endemism, with 56%.

In 2016, Brazil launched the Flora of Brazil 2020 project with the objective of achieving Target 1 of the Global Strategy for Plant Conservation - GSPC. This online platform publishes information on descriptions, identification keys and illustrations for all plant species described for the country. The Flora of Brazil 2020 project is part of the Re flora Program and has been implemented with support from the Information System on Brazilian Biodiversity - SiBBR, under coordination of the Ministry of Science, Technology, Innovation and Communications - MCTIC and counted with the contribution of 770 botanic taxonomists. Still in 2016, Brazil launched the Taxonomic Catalogue of Brazilian Fauna - CFTB, also with support from SiBBR and the participation of over 500 zoology researchers, in which 118,744 taxonomically valid species were identified. Most of these species are arthropods, approximately 85%, corresponding to almost 94,000 species. The fauna catalogue still lacks complementary information on endemism and other aspects. Some groups of microorganisms still lack a consolidated and updated catalogue of species with attested record of occurrence in Brazil, particularly for protozoans and bacteria.

In addition to the large biological diversity, Brazil is home to large sociocultural diversity, expressed in diverse indigenous ethnic groups and tribes, quilombola communities, and traditional fishermen and agriculture producers. According to the "Brazilian Diagnostic and Summary for Decision Makers - Biodiversity and Ecosystem Services" of the Brazilian Platform of Biodiversity and Ecosystem Services - BPBES (2018), traditional communities correspond to approximately 5 million Brazilians and occupy ¼ of the national territory, with 305 indigenous ethnic groups and 274 languages.

EN

Main pressures on and drivers of change to biodiversity (direct and indirect)

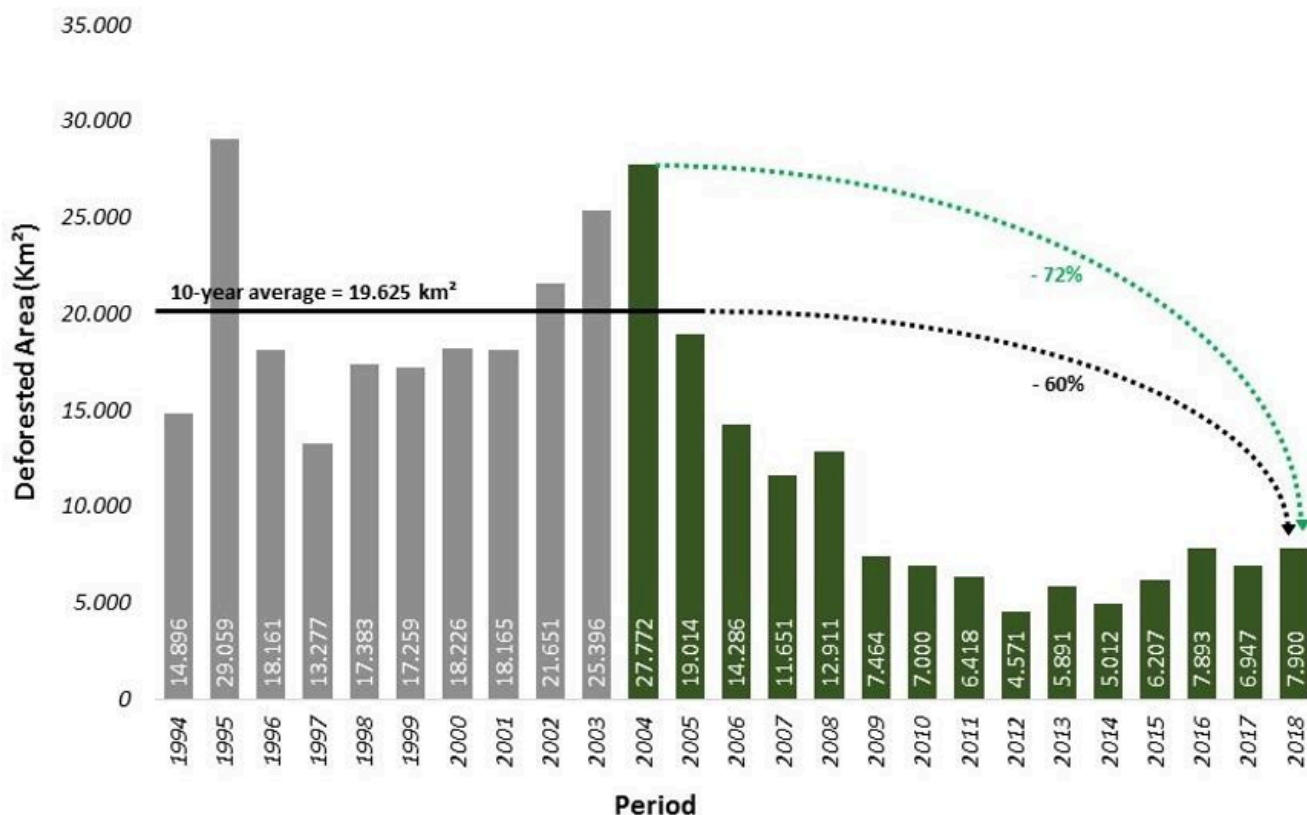
Habitat loss and deforestation

The loss of habitat is the main driver of threat to biodiversity in Brazil. It results from the conversion and fragmentation of natural habitats for the introduction of new landscapes (mainly agriculture and urban areas). The monitoring of ecosystems is an important tool for the development, implementation and revision of environmental public policies. The federal government has been monitoring forest cover in the Brazilian Amazon since 1988. The Project on the Satellite Monitoring of the Brazilian Amazon Forest - PRODES of the National Space Research Institute - INPE, under the Ministry of Science, Technology, Innovation and Communication - MCTIC, was the first monitoring system to be implemented and was responsible for producing the first deforestation time series for the Legal Amazon.

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In the Amazon, it can be noted that since the beginning of the Action Plan for Deforestation Prevention and Control in the Legal Amazon – PPCDAm in 2004 until 2018, the annual deforestation rate in the Amazon was steeply reduced, approaching the reduction target established by the National Climate Change Policy – PNMC (Law nº 12.187/2009). The Law defines the target of 3,925 km²/year by 2020, which corresponds to an 80% reduction in comparison to the average annual deforestation rate recorded for the 1996-2005 period of 19,625 km²/year. The deforestation rate measured by PRODES for the Legal Amazon between August 2017 and July 2018 indicated a total deforestation of 7,900 km², which is 13.7% higher than the number recorded for the previous period. The highest deforestation rates were recorded in the states of Pará, Mato Grosso, Rondônia and Amazonas.

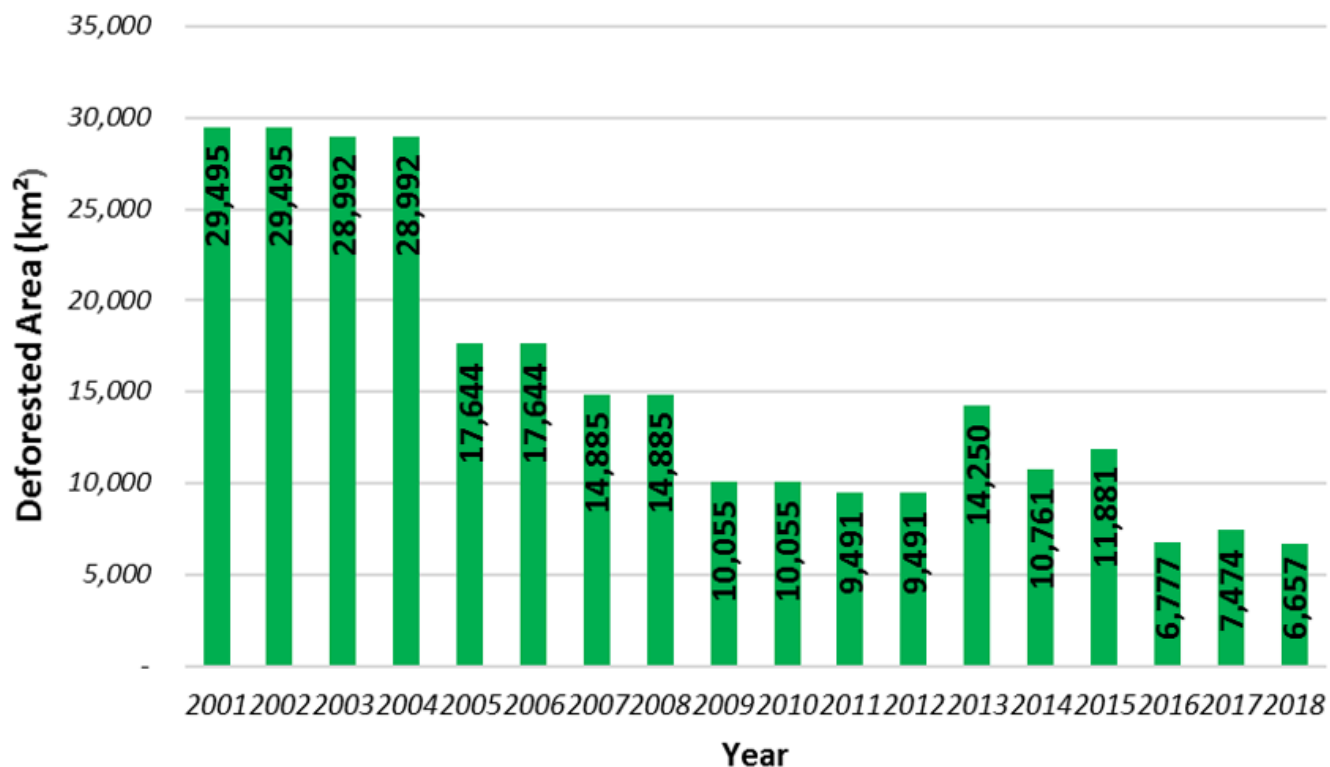
Figure 255
Deforestation Rate in the Legal Amazon



Source: INPE/MMA.

The deforestation monitoring system for the Cerrado – PRODES Cerrado is developed by INPE and MCTIC under the FIP Cerrado Monitoring Project, with resources from the Forest Investment Program – FIP of the Strategic Climate Fund – SCF. PRODES Cerrado initiated the systematic monitoring of this biome in 2015 and built a biennial deforestation series for the 2000-2012 period and annual for 2013 and 2018. Data for the 2013-2015 biennium present a high deforestation rate of approximately 11,900 km². On the following years, a significant deforestation reduction occurred and PRODES Cerrado recorded a loss of native area of approximately 6,800 km² for 2016, 7,300 km² for 2017 and 6,600 km² for 2018, representing a 43% and 38% reduction in comparison to the 2013-2015 average. The deforestation rate recorded for 2016 and 2018 is below the 40% reduction target in comparison to the average deforestation rate recorded between 1999 and 2008 established by the National Climate Change Policy.

Figure 256
Deforestation rate in the Cerrado



Source: INPE/MMA.

The environmental monitoring of the other biomes began in 2002 with the inventory of vegetation cover and land use in the biomes by the Project on the Conservation and Sustainable Use of the Brazilian Biological Diversity - PROBIO I, with the objective to systematically monitor vegetation cover in the Cerrado, Caatinga, Atlantic Forest, Pampas and Pantanal biomes. The project used as reference the Vegetation Cover Maps of the Brazilian Biomes produced by PROBIO I and resulted in the updating of deforestation data for the 2002-2008 and 2008-2009 periods. For the Cerrado, Caatinga, Pampas and Pantanal biomes, deforestation data were also produced for 2009-2010 and 2010-2011. For the Atlantic Forest, data were produced until 2010.

The historical data series of the Project on the Satellite Monitoring of Deforestation in Brazilian Biomes - PMDBBS on the variation of the deforested area for the non-Amazon biomes (except for the Cerrado, which counts with a historical data series provided by PRODES Cerrado) indicates a sharp reduction trend for deforestation in the Caatinga (30%), Atlantic Forest (46%), Pampas (10%) and Pantanal (74%) in the 2008-2009 period in comparison with the previous period of 2002-2008. The following assessment period of 2009-2010 shows an increase for the Pampas (25%), Pantanal (47%) and Atlantic Forest (56%); the Caatinga deforestation rate continued to reduce (41%) in the same period. The deforestation rate decreased again in the following series of 2010-2011 for the Caatinga (56%), Pampas (20%) and Pantanal (22%). During this last period, no data were recorded for the Atlantic Forest.

Fire

The regular satellite detection of fire occurrences allows the analysis of space and time trends of fire occurrences across the Brazilian territory. Although the annual average of 182,000 fire occurrences was recorded along the 1999-2013 period, yearly data presents great variation (between 100,000 and 250,000 occurrences/year) and a reducing trend for some periods, such as for 2006-2013, with an average of 156,000 occurrences. During the recent past, the two worst years were 2004 and 2010, with 270,000 and 250,000 occurrences, respectively; on the other hand, 2013 presented 115,000 occurrences (Indicator B5.1). These variations are related to climatic factors - mainly rainfall - economic factors and the accumulation of fuel (vegetation available to be consumed by fire), among others. The "MATOPIBA", a border region among the states of Maranhão (MA), Tocantins (TO), Piauí (PI) and Bahia (BA), is an area with particularly high incidence of fire occurrences due to the expansion of the agricultural and livestock frontier in the region, particularly for soy production. Considering total occurrences, the following were the five top states in 2016: MT (29,600 occurrences/year; 15.7%), PA (29,300 occurrences/year; 15.6%), MA (21,800 occurrences/year; 11.6%); TO (14,900 occurrences/year; 7.9%), and AM (12,000 occurrences/year; 6.4%).

Threats to aquatic and coastal habitats

The 2014 National List of Threatened Brazilian Fauna Species indicates that 9% of the fish and aquatic invertebrate species are threatened with extinction and that fisheries activities are the main cause of threat. Unfortunately, consistent statistical data on fisheries for the entire national territory are lacking for the last decade, preventing more decisive analyses on the sustainability of fisheries exploitation.

Activities causing environmental degradation were identified as the second most relevant threat, particularly water pollution. Transport infrastructure (ports and maritime traffic, and collisions with vessels), unchecked tourism, coastal urban development and mining have also been identified among the main threats to marine species. In addition to these, the aquaculture activities, invasive alien species and the destruction of coral reefs, estuaries and mangroves are important threats to marine species.

Pollution

Domestic and industrial sewage, together with the runoff of agricultural chemicals and fertilizers, are the main contributors to the pollution of Brazilian water bodies. Even though no significant change occurred in Brazilian aquatic ecosystems from 2010 to 2015, the Water Quality Index rated “marginal” or “poor” for waters inside or close to large urban centers, according to the report “2017 Outlook of water resources in Brazil”, of the National Water Agency – ANA.

Brazil has made progress with the publication of the National Solid Waste Policy; signing of reverse logistics agreements for packaging in general, with the inclusion of waste pickers in the recycling chain; the collection of used or contaminated lubricating oil and unusable tires; among other progress. However, it should be noted that, concerning pollution and biodiversity, there is still much to be done to prevent environmental impacts such as those that occurred in Mariana, Minas Gerais state, involving iron ore mining corporations, which resulted in the breach of mine tailing dams, causing socioenvironmental impacts impossible to estimate.

Invasive Alien Species

Brazil revised its National Strategy on Invasive Alien Species through CONABIO Resolution nº 7, of 29 May 2018, which presents the objectives and indicators developed for the 2030 deadline. The National Strategy focuses on species that threaten or impact biological diversity, considering the integrated vision with other sectors that are also affected in terms of economic losses, health issues and social and cultural impacts. The objective of the National Strategy is to guide the implementation of measures to control, avoid the introduction and dispersion and reduce the impact from invasive alien species on Brazilian biological diversity and ecosystem services.

In 2013, ICMBio published the inventory of invasive alien species in federal protected areas (PAs), identifying 114 invasive alien species in 313 PAs, of which 106 vascular plants, 11 fishes, 11 mammals, 5 mollusks, 3 reptiles, 3 insects, 2 cnidaria, 1 amphibian, 1 crustacea and 1 isopod. The report on Invasive Alien Species of Brazilian Inland Waters, published by the Ministry of the Environment – MMA in 2016, registered the presence of 163 alien species of invasive potential in inland waters of the country, including microorganisms, invertebrates, fishes, reptiles, amphibians and aquatic macrophytes. In 2009, MMA had already published the report on Marine Invasive Alien Species in Brazil, registering 58 alien species, of which 21 already established, but only 9 considered invasive alien species. In 2018, the Oswaldo Cruz Foundation published the list of 91 invasive alien species that affect human health, prepared in 2006, with the review of virus, helminths and plants, and presenting impacts not only to humans, but also to wildlife.

The country also counts with the National Database on Invasive Alien Species since 2005, and Action Plans (national or regional) for the Prevention, Contention and Control of Alien Species, such as for the wild boar (*Sus scrofa*), orange cup coral (*Tubastraea coccinea* and *T. tagusensis*) and golden mussel (*Limnoperna fortunei*), which present the detailed diagnostic of the invasion status of the species in the country and the control strategies to be considered, in addition to the definition of priority actions for a five-year period.

The National Action Plans for the Conservation of Threatened Species – PAN also include specific actions for the diagnostic, prevention, control, monitoring and capacity building on invasive alien species. Of the 45 PAN under implementation for fauna conservation, 17 include specific actions for the control of invasive alien species, totaling 71 actions (ICMBio, 2018). And, of the four PAN under implementation for flora conservation, three include specific actions for invasive alien species, totaling eight actions.

Implementation of the NBSAP

The main current instrument for implementing the Convention on Biological Diversity – CBD in Brazil is the National Biodiversity Strategy and Action Plan – NBSAP, which provides the legal framework and institutional arrangement of the country for the theme, including the National Biodiversity Policy, in addition to the 2011-2020 National Biodiversity Targets and actions proposed to achieve those targets. In addition to policies, strategies and targets, Brazil implements, mainly through MMA, the Ministry of Science, Technology, Innovation and Communication – MCTIC, Ministry of Health – MS and Ministry of Agriculture, Livestock and Supply – MAPA, a variety of projects that contribute to fulfilling the CBD objectives. Under this context, of particular notice are the Project for the Conservation and Sustainable Use of Brazilian Biodiversity – PROBIO I and the National Project of Integrated Public-Private Actions for Biodiversity – PROBIO II, both supported by the Global Environment Facility – GEF.

PROBIO I was developed to promote the implementation of the Convention through the identification of priority

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actions to be implemented through subprojects, promotion of public-private partnerships and generation of knowledge on Brazilian biodiversity. Its results included the preparation of the first map of priority areas for the conservation, sustainable use and sharing of benefits of Brazilian biodiversity (the second version was published by MMA in 2018) and publication of 30 books and reports.

PROBIO II had the objective of furthering the transformation of production, consumption and land use models, beginning with the agriculture, scientific, fisheries, forest and health sectors. Its main objective was to mainstream biodiversity into the various sectors and promote public-private partnerships to facilitate the ecological management of landscapes and the integration of biodiversity values in economic sectors. The project on Wildlife Health and Digital Inclusion, developed by Fiocruz in partnership with the Brazilian Fund for Biodiversity – Funbio and Probio II, was one of the winners of the Sustainable Development Goals Prize – SDG Brazil 2018. The GEF-Species, GEF-Terrestrial, GEF-Mar and GEF-Landscapes are also relevant projects implementing specific actions for the protection of terrestrial and marine ecosystems, landscapes and species.

Already with its second edition implemented (2014 and 2017), the National Biodiversity Prize established by MMA has the purpose of recognizing the merit of notable initiatives, activities and projects that stood out for their contribution to improve the conservation status of Brazilian biodiversity species and to the achievement of the National Biodiversity Targets. The various categories have the objective of promoting new practices and leverage good initiatives for biodiversity conservation.

Since 2010, the participatory processes were initiated for the development of the National Biodiversity Strategy and Action Plan – NBSAP, which resulted in the integration of various legal instruments into the action plan that gathers the initiatives, actions and MMA partner institutions. The revised NBSAP published in 2017 reinforces the participative and collaborative character of the preparation and implementation of the strategy, given the engagement of the various sectors (MMA and subordinate agencies; other ministries and subordinate institutions; state and local governments; representatives of academia, civil society and private sector). The institutions engaged in the NBSAP contributed to the text and to the action plan. Thus, the commitment was materialized for the implementation of actions for the conservation and sustainable use of biodiversity, considering the equitable sharing of benefits arising from biological resources, sociocultural aspects, crosscutting gender issues and valuation of the knowledge of traditional communities. Over 231 institutions were invited to engage in the NBSAP. Up to the end of 2018, 66 institutions accepted the invitation. During the process of constructing the NBSAP and monitoring actions of the National Biodiversity Action Plan, 1,032 actions were systematized, distributed among the 20 National Biodiversity Targets.

Overall actions taken to contribute to the implementation of the Strategic Plan for Biodiversity 2011-2020

Conservation of species

The protection of threatened species complies with the rulings of the 1988 National Constitution, of the National Environment Policy and of the National Biodiversity Policy. The Complementary Law nº 140, of 8 December 2011, establishes in its Article 7, item XVI, that it is an administrative responsibility of the federal government to prepare the list of threatened fauna and flora species and of overexploited species in the national territory, promoting the activities to conserve these species *in situ*.

The Ministry of the Environment and its subordinate agencies are responsible, at the national level, for the conservation of species. This responsibility is shared with states, the Federal District and municipalities within their territories, given the common responsibility of these levels to protect the environment, and in compliance with Complementary Law nº 140, of 8 December 2011. This Complementary Law regulates Article 23 of the Constitution, to establish the rules for cooperation between the federal government, states, the Federal District and municipalities concerning administrative actions resulting from the common responsibility of protecting notable natural landscapes, protecting the environment, combatting pollution in all its forms, and preserving forests, fauna and flora.

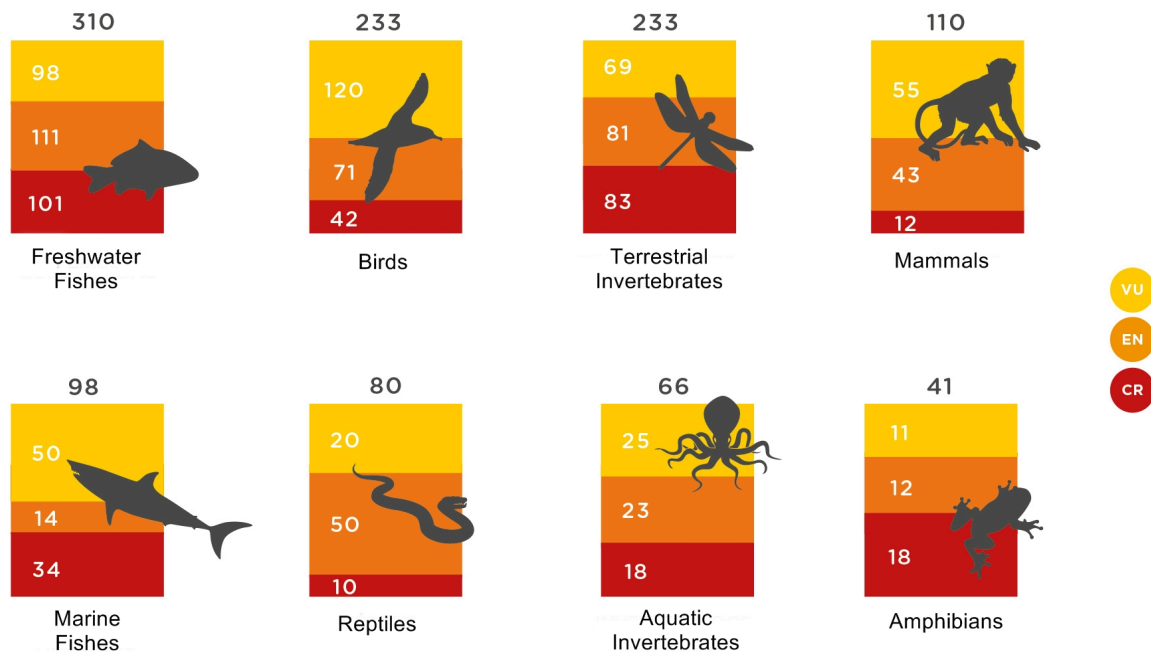
In 2013, the Red Book of Brazilian Flora was published, containing the indicative list of plant species considered threatened according to the criteria of the International Union for the Conservation of Nature – IUCN (a supplementary volume was published in 2014 containing the rare and threatened species of the Cerrado biome and, in 2018, another supplementary volume was published on the endemic threatened species of Rio de Janeiro state). The executive summary of the Red Book of Brazilian Threatened Fauna was launched in December 2016 during the 13 Conference of the Parties – COP 13 of the Convention on Biological Diversity; the seven volumes of its final version were published in 2018. The inventory carried out between 2010 and 2014 represents the largest effort ever carried out on the theme in the world.

The official list of threatened Brazilian flora species, published in December 2014, included 2,113 threatened plant species and, in the official list of threatened fauna species, published in the same period, 1,173 species were considered threatened. The main identified threats are: habitat loss due to the expansion of agriculture and large infrastructure projects; overexploitation and illegal traffic, and occurrence of invasive alien species.

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Figure 257

List of threatened fauna species by taxonomic group



Source: ICMBio, 2014.

To combat the main causes of species extinction, Brazil implements the GEF Pro-Species Project, under which it is expected that, by 2022, protection measures will be taken to protect all threatened species in the country, particularly for the 290 critical status species, with the involvement of 13 Brazilian states. In parallel, the country works with the Brazilian Alliance for Zero Extinction, which recognizes the areas housing the last refuges of threatened species under the “endangered” or “critically endangered” categories, and which present geographical distribution limited to one or few sites very close to each other. The objective is to contribute to direct public policies and conservation actions to these areas, given the imminent extinction risk of the species.

Sustainable use of native species

Another initiative for species conservation is the list of native species from Brazilian socio-biodiversity with food value. This is an important instrument to guide the acquisition of food and other public policies targeting the conservation of species diversity. The list was published by the Ministry of the Environment and the Ministry of Social Development through the Inter-ministerial Administrative Ruling nº 163, of 11 May 2016, and updated in 2018 with the publication of Inter-ministerial Administrative Ruling nº 284, of 30 May 2018, which includes 100 species organized in 83 common names. This measure impacts the valuation of species from the Brazilian biodiversity, improves human food safety and nutrition, and can strengthen the economic chains of these extractive products, generating and improving the income of the involved traditional communities.

The valuation of socio-biodiversity was pushed forward in Brazil by the GEF Project on Biodiversity for Food and Nutrition – BFN. The BFN Project developed activities of national scope in partnership with various federal government initiatives, among which: Food Acquisition Program – PAA; National School Nutrition Program – PNAE; National Food and Nutrition Policy – PNAN; National Plan for Promoting Socio-biodiversity Product Chains – PNPSB; Action for the Development of Organic Agriculture – Pro-Organic; Health in School Program – PSE; and Minimum Price Policy for Sociobiodiversity-based Products – PGPM-Bio. By increasing the recognition of socio-biodiversity species listed in the Federal Administrative Ruling nº 284/2018, small agricultural producers received incentives to use them sustainably, conserve and commercialize them. Still through BFN, the Biodiversity & Nutrition tool was made available with the objective of presenting the composition (nutrition value) of food derived from Brazilian native species and disseminate information on the use of these species. The tool was developed by SiBBR and presents a

nutrition value database and a recipes database on native species of the Brazilian flora of current or potential economic value, emphasizing fruits and greens prioritized by the “Plants for the Future” initiative of the Ministry of the Environment. The tool is available at the SiBB portal.

Conservation and Sustainable Use of Ecosystems

Through an initiative coordinated and developed by the Ministry of the Environment, Brazil published in 2018 the second updating of the priority areas for the conservation, sustainable use and sharing of benefits from biodiversity for all continental biomes and marine and coastal zone. Through time, the priority areas became an important public policy instrument to support objective and participatory decision making, planning and implementation of actions such as the creation of protected areas, environmental licensing, enforcement and promotion of the sustainable use of natural resources.

The project on “Biodiversity conservation through the integration of ecosystem services in public policies and in corporate action - Regional-Local TEEB Project” developed studies and tools for evaluating ecosystem services for corporations and for the public sector, to integrate biodiversity and ecosystem service values into sustainable development. Some examples are: the component on Trends in Ecosystem Services - TeSE and the component on Environmental Economic Accounting. The value of biodiversity for the production sector was also evidenced through a BPBES study on pollination, which analyzed 141 agricultural crops in the country, of which 85 depend on pollination carried out by animals.

Complementing the Regional-Local TEEB project, MCTIC is coordinating the GEF Atlantic Forest Connection, with the objective of increasing carbon stocks, promoting the conservation of habitat needed for biodiversity conservation through the reconnection of forest fragments, strengthening ecosystem resilience, and measuring ecosystem services associated to biodiversity, carbon, water and soil provided by rural properties of the Brazilian Southeast Atlantic Forest corridor. The project complements efforts by state governments (SP, RJ and MG) to conserve protected areas and promotes the participation of rural landowners in the sustainable management of forest landscapes through the promotion of activities for the ecological restoration of native forests and assisted natural regeneration of forests.

Brazil undertook a voluntary commitment during the 11 Conference of the Parties - COP 11 of the United Nations Framework Convention on Climate Change, held in 2015 in Paris, to reduce, by 2025, the emission of greenhouse gases by 37% below the 2005 levels. To that end, among the commitments undertaken through the Nationally Determined Contribution - NDC, Brazil committed to restore 12 million hectares and promote the strengthening of policies to reduce to zero the illegal suppression of native vegetation in the Amazon by 2030.

In line with the strategy to reduce emissions of greenhouse gases, the approval of the Law on the Protection of Native Vegetation, Federal Law nº 12.651, of 25 May 2012, represents significant progress for the policy to restore degraded areas. The law regulates protection over extensive areas of the Brazilian territory that encompass permanent protection areas - APPs and legal reserves - RLs, which represent an important gain for the preservation of habitats and ecosystem conservation in all Brazilian biomes. With the development of the System of the Rural Environmental Registry - SICAR, proposed by Law 12.651/2012, it became possible to diagnose remnants of native vegetation in private rural properties, which will allow planning, enforcement and implementation of public policies providing incentives to the conservation and recuperation of native vegetation.

Protected Areas

In 2014, the continental area covered by protected areas in Brazil corresponded to approximately 17.20% of the total national territory. Between 2014 and 2018, a significant progress was observed in the creation of new protected areas, increasing the continental cover to 18.08%. All biomes, except for the Pantanal, had their PA networks increased. Most of this increase occurred in the Amazon, where PA cover increased from 26.61% to 28.08%. Currently, 8.83% of the Caatinga, 8.26% of the Cerrado, 9.50% of the Atlantic Forest, 3.14% of the Pampas, and 4.55% of the Pantanal are under protection. Indigenous Lands add to these numbers 12.64% of the national territory and have provided important protection to a large territorial extension of the country, particularly in the Amazon biome.

The marine area covered by PAs increased significantly in 2018, from 1.51% to 26.36% of the Exclusive Economic Zone - EEZ, after the creation of the marine protected areas of the archipelagos of São Paulo and São Pedro and islands of Trindade and Martim Vaz. The creation of these areas has extremely high value for biodiversity conservation, as they were created in regions defined by the CBD as Ecologically or Biologically Significant Marine Areas - EBSAS. In addition to the relevant EEZ cover, a considerable percentage of the coastal ecosystems, including shallow reefs, is well represented under SNUC. However, the representativeness of deep-water reef (mesophotic) habitats in protected areas is still low, as well as that of the recently described “Amazonian” reefs.

The Amazon Region Protected Areas Program - ARPA, launched in 2002, supports 117 protected areas and contributed to the creation of over 27 million hectares of effectively managed protected areas. It is considered the largest program for the conservation of tropical forests in the world. In May 2014, the program had its third phase instituted by MMA Administrative Ruling nº 187, to complement the consolidation of supported PAs and contribute to the long-term management of these protected areas. In this context, the Transition Fund - FT was established as a private long-term financing mechanism, created through contracts among institutions, citizens, legal entities and

donors. The objective of the Fund is to ensure the conservation of biodiversity and ecosystem services in the Brazilian Amazon through the effective management of protected areas.

The National Registry of Protected Areas – CNUC is an integrated database system with standardized information on protected areas managed by the three governmental levels (federal, state and municipal) and by private landowners, organized and maintained by the Ministry of the Environment. Until December 2018, 2,309 protected areas were recorded for the country. The system makes information available on the registered protected areas; provides status reports, facilitating diagnostics, problem identification and decision making; and facilitates the development and monitoring of indicators on the SNUC implementation status; verifies compliance of protected areas with the creation rules and criteria established by Law nº 9.985/2000; and provides information for planning, management and enforcement.

In addition to protecting specific areas, the Ecological Corridors Project, concluded in 2015, contributed to the consolidation of corridors in the Atlantic Forest and Amazon biomes. In 2018, Brazil instituted the National Landscapes Connectivity Program through Administrative Ruling nº 75, of 26 March 2018, with the objective of promoting ecosystem connectivity and landscape management in the Brazilian territory.

Access and benefit sharing

The National Management System of the Genetic Heritage and Associated Traditional Knowledge – SisGen was created to promote the interface between controlled, users and providers, and the Genetic Heritage Management Council to fulfill the obligations defined under Law nº 13.123, of 2015, and its regulations. Through SisGen records, authorizations and notifications of finished products or reproductive materials are made, and the respective receipts and diplomas can be obtained. In 2018, the number of SisGen processes, records and deliberations reached over 46,000 records, a number significantly higher than expected. The regulation also identifies the governmental agencies responsible for enforcing compliance with the law. With the implementation of SisGen it is possible to verify information on the activities resulting from access to genetic heritage or associated traditional knowledge, including on the economic use resulting from this access.

Availability of data and information on Brazilian biodiversity and ecosystems

The Information System on Brazilian Biodiversity – SiBBR, coordinated by the Ministry of Science, Technology, Innovation and Communication – MCTIC, was established through the MCTIC Administrative Ruling Nº 6.223, of 29 November 2018, with the objective of promoting the organization, indexation, storage and availability of data and information on Brazilian biodiversity and ecosystems. The platform uses international standards that facilitate data sharing and, as taxonomic references, uses the List of Species of the Brazilian Flora and the Taxonomic Catalogue of Brazilian Fauna. It currently makes available online approximately 15 million species occurrence records, in addition to information on Brazilian collections, threatened species, endemic species, biomes, biodiversity use, and conservation efforts in Brazil. The platform enables search for publications, theses bank, photographs and information under different formats and makes a spatial portal available that allows data crossing and various analyses. With SiBBR, the Brazilian government fulfills a CBD recommendation on the integration and availability of information on biodiversity.

Support mechanisms for national implementation (legislation, funding, capacity-building, coordination, mainstreaming, etc.)

Legal framework and institutional arrangement

Brazil possesses a legal framework comprised by legal instruments and public entities responsible for ensuring environmental protection. The National Environment Policy – PNMA was defined by Law nº 6.938, of 31 August 1981, consisting of the general norm on environmental protection, which defines principles and instruments for actions, in addition to establishing the National Environment System – Sisnama. Sisnama is a coordinated set of governments and institutions at the municipal, state, district and federal levels for environment protection and implementation of responsibilities defined under the Environment chapter (Article 225) of the 1988 Constitution. The shared administrative responsibilities under Sisnama follow the rulings of Article 23 of the Constitution, as well as Complementary Law nº 140/2011, which partially regulates this article and states the rules for federative cooperation in the environmental theme.

The protection of Brazilian biodiversity was also the object of another legal instrument, the Convention on Biological Diversity, ratified by Brazil through Decree nº 2.519, of 16 March 1998. Through Decree nº 4.339, of 22 August 2002, the National Biodiversity Policy was established, with the main objective of promoting the integrated implementation of CBD in Brazil and ensuring the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from the use of genetic resources, of genetic heritage components and of traditional knowledge associated to these resources. The National Biological Diversity Program and the National Biodiversity Commission – Conabio were established through Decree nº 4.703, of 21 May 2003, to support the implementation of the National Biodiversity Policy. The main implementing agencies for biodiversity policies are the Ministry of the Environment and its subordinate

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agencies such as IBAMA, ICMBio and JBRJ, in addition to other ministries and federal agencies, state and municipal governmental entities, non-governmental organizations and private sector actors.

Biodiversity Financing

In Brazil, the number of studies on biodiversity financing has significantly increased and started to provide information and parameters for accounting the value of biodiversity assets related to the direct or indirect use, sharing of benefits or ecosystem services provided by biodiversity. Despite the efforts applied, as seen also in other countries, the mechanisms to promote biodiversity conservation and sustainable use are being studied or tested, such as payment for ecosystem services and Ecological ICMS. Also of notice are the Brazilian efforts to include environmental accounting in the National Economic Accounts, as well as in the construction of the Green National Product - PIV, also known as Green GNP. This is an index created to calculate the national ecological property, created through Law nº 13.493/2017, and which should create methodologies and systems of environmental economic accounts to be officially adopted in Brazil, under responsibility of the Brazilian Institute of Geography and Statistics - IBGE. This scenario tends to provide greater legal safety and parameters to leverage resources for financing the theme.

From the market point of view, it was noted that various public and/or private institutions, including financial institutions, implement actions that are directly or indirectly connected to biodiversity protection, even though there is still a lack of knowledge on the importance of this type of investment and its impacts on economic actors.

The available resources are known to be insufficient to ensure the conservation and sustainable use of national biodiversity, including for investing on instruments to enable its sustainable economic use, scientific research on medicine components and other uses, as well as the adequate and fair sharing of benefits.

Financial resources have been obtained both from public budget and from donation and third-party projects, particularly international ones, given the internationally recognized importance of Brazilian biodiversity. The federal public budget concentrates part of the resources in the Ministry of the Environment, but also implements direct or indirect biodiversity conservation and sustainable use actions through several other agencies. Ongoing studies carried out by the Biodiversity Finance Initiative - BIOFIN under the United Nations Development Program - UNDP, which seeks to improve nature and ecosystem services management through the detailing and use of knowledge on mechanisms and solutions to enable nature conservation and sustainable development, are currently being finalized and will be of great support to the theme.

Mechanisms for monitoring and reviewing implementation

The NBSAP implementation is monitored through a system to assess the management of actions included in the action plan and monitoring indicators of the National Biodiversity Targets. By evaluating the implementation status and efficacy of actions in the action plan, it is possible to define the most strategic and successful actions and, from there, better define program actions and the most adequate mechanisms and support for the implementation of policies and programs. With the engagement of various institutions in the Brazilian NBSAP, this strategy can also function as an instrument to facilitate communication and cooperation among institutions in the country.

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Additional Information

Convention on Biological Diversity and National Biodiversity Targets

The Convention on Biological Diversity (CBD), adopted in 1992 in Rio de Janeiro during the United Nations Conference on the Environment and Development (The Earth Summit), is one of the most important international instruments related to the environment and represents a milestone for the conservation of biological diversity. The CBD aims at promoting societies in harmony with nature and, to that end, the Convention possesses three objectives: to conserve biodiversity, to promote the sustainable use of

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biodiversity components, and the fair and equitable sharing of benefits resulting from the use of genetic resources and associated traditional knowledge.

In 2010 in Nagoya (Aichi), Japan, during the 10th Conference of the Parties (COP-10), the Strategic Plan for Biodiversity 2011-2020 was adopted, comprising a set of 20 global targets (the Aichi Targets) to be reached by 2020. The member States of the Convention were invited to define their own national targets based on the Aichi Targets, considering the national needs and priorities, as well as their capacity to contribute to the achievement of the global targets. Following this guidance, Brazil initiated a broad consultation process for the collective construction of the National Biodiversity Targets for 2020, an initiative known as the “[Dialogues on Biodiversity](#)”, which resulted, in 2013, in the adoption of the Aichi Targets with minor modifications and the publication of [20 National Biodiversity Targets](#) through [Conabio Resolution nº 06/2013](#).

Following the publication of the National Biodiversity Targets, the Ministry of the Environment promoted successive meetings that led to the creation of the National Biodiversity Panel (PainelBio) in 2014. The Panel was conceived as a multi-sector collaborative platform with the objective of integrating efforts to the achievement of the National Biodiversity Targets. The PainelBio is comprised by a voluntary network of organizations from different sectors of society, including representatives of academia, non-governmental organizations, governmental agencies, private sector and international cooperation institutions. Its mission is to create synergy among institutions working towards the achievement of the National Targets by making scientific information available, promoting capacity building and informing decision making and public policies associated to biodiversity.

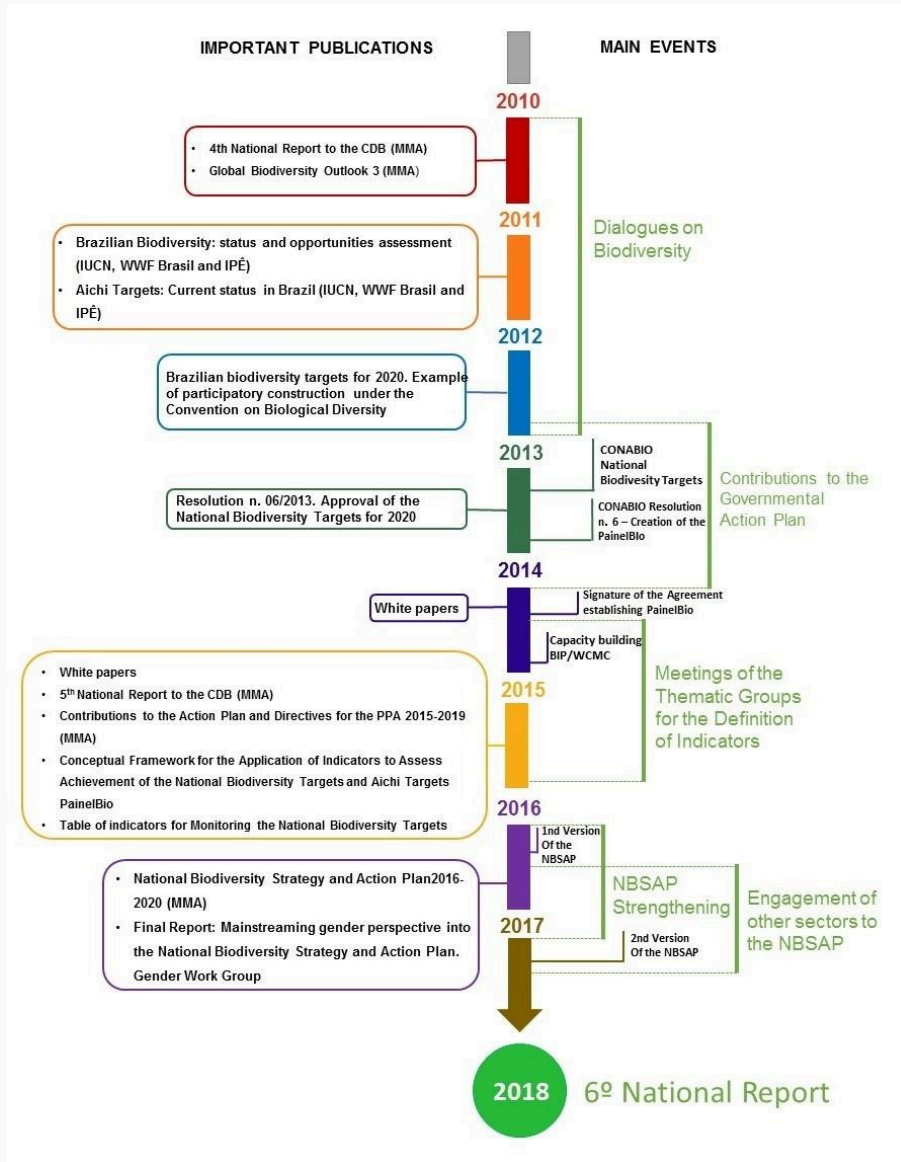
To face the challenges of achieving the National Biodiversity Targets, initiatives were developed between 2015 and 2017 to define biodiversity indicators and to develop the [National Biodiversity Strategy and Action Plan](#) (NBSAP). To inform the workshops for the definition of indicators, five white papers were produced in 2014 and 2015. These documents had the objective of mapping and proposing conceptual models and indicators to monitor the achievement of the National Biodiversity Targets (Figure 1). A total of 231 institutions were invited to participate in the process of developing the NBSAP, of which 66 contributed to the text of the Strategy and to the Action Plan, and 52 contributed exclusively to the Action Plan. The Action Plan received the additional contribution of approximately 700 actions during the period from October to December 2016, distributed among the 20 National Targets. After the first revision to eliminate redundancies in April 2017, the Action Plan was consolidated with a total of 712 actions, 68 of which proposed by the Secretariat of Biodiversity under the Ministry of the Environment, and 644 actions proposed by the other engaged institutions.

The publication of the NBSAP represents a milestone for the national biodiversity conservation strategy. This strategy was previously comprised of the sum of the various legal instruments created along the years for the protection and sustainable use of biodiversity, many of which globally recognized as pioneering initiatives. The consolidation of the NBSAP allows the Federal Government to carry out the integrated management of biodiversity actions in the country, and to monitor the progress of the various elements that comprise the action plan. The dynamic and multisectoral character of the NBSAP requires it to be periodically monitored and updated, as occurred in 2018, during the process of collecting information for the 6th National Report to the CBD (see [Annex I - Monitoring the NBSAP Action Plan.xlsx](#)). Complementary actions reported in 2018 by institutions engaged in the NBSAP action plan, combined with actions of institutions that are not engaged, have increased the total actions featured in the NBSAP Action Plan to 1,032 distributed among the 20 National Biodiversity Targets. At the conclusion of the monitoring process and with the engagement of additional institutions, 66 institutions[1] have reported actions related to biodiversity for inclusion in the NBSAP action plan. The current biodiversity action plan reflects the great diversity of actors working for conservation in Brazil. For additional information, please refer to Section II.

[1] When more than one sectional environmental agency of the same State responded, these were accounted in a combined group as a single agent. Different departments under a single institution were also grouped and accounted as a single institution.

Figure 1

Timeline representing the main publications and events occurring after the approval of the Strategic Plan for Biodiversity



Source: MMA, 2016.

Legal framework and institutional arrangement for consolidating the National Biodiversity Policy

Sisnama – National Environment System

The national public policy for Brazilian biodiversity originated with the publication of the National Environment Policy - PNMA. The PNMA was instituted by Federal Law nº 6.938, of 31 August 1981, which also established the National Environment System - Sisnama - comprised by a group of coordinated institutions for environment protection. PNMA has the objective of preserving, improving and recuperating the environmental quality suitable to life to ensure the necessary conditions for national socioeconomic development, for national security interests and for the protection of the dignity of human life. Sisnama is comprised by agencies and institutions at the three governmental levels (Federal, State and Municipal), civil society and the private sector with the duty and responsibility for the protection, improvement and recuperation of environmental quality in Brazil, and has the objective of establishing a coordinated and decentralized set of actions for environmental management in the country, integrating and coordinating specific and complementary rules and practices at the three governmental levels. Sisnama has a variety of institutional arrangements comprised by representatives of various sectors, with the purpose of informing, monitoring and supporting the work of the governmental environmental institutions.

In 1988 the new Federal Constitution of Brazil was approved, including a chapter (Article 225) dedicated to the protection of the environment and establishing specific governmental duties for the protection of biodiversity.

After the CBD entered into force in 1993, the coordination of the implementation of the Convention in Brazil was assigned to the National Biological Diversity Program - Pronabio, instituted by Decree nº 1.354, of 29 December 1994 (Box 1). The Federal Decree nº 4.339/2002 transferred the coordination duty for the implementation of this National Policy for biodiversity protection to the National Biodiversity Commission - CONABIO.

Box 1: Summary of the objectives of the National Biological Diversity Program - Pronabio (Federal Decree nº 4.703/2003)

- Guide the elaboration and implementation of the PNB;
- Promote the implementation of the national commitments under the CBD;
- Coordinate actions to implement PNB principles and directives;
- Develop and implement programs and projects;
- Promote interinstitutional and international cooperation under the CBD;
- Promote the preparation of proposals for the creation or modification of instruments necessary to the adequate implementation of actions;
- Promote the integration of sectoral policies to increase synergy in the implementation of actions;
- Promote actions, projects, research and studies to produce and disseminate information and knowledge on biodiversity;
- Promote the training of human resources, institutional strengthening and public awareness for the conservation and sustainable use of biodiversity;
- Guide actions for monitoring and evaluating the execution of the thematic components to comply with the principles and directives for PNB implementation; and
- Guide the monitoring of progress of planned actions for the implementation of PNB principles and directives, including through the definition of adequate indicators.

Source: MMA, 2018.

National Biodiversity Policy

The National Biodiversity Policy - PNB was instituted in 2002 by Federal Decree nº 4.339/2002. The overall objective of the PNB is to promote the coordinated implementation of the CBD in Brazil and to ensure

the conservation of biodiversity, the sustainable use of its components and the fair and equitable sharing of benefits arising from the use of genetic resources, of components of the genetic heritage and of the traditional knowledge associated to these resources.

The Federal Decree nº 4.703, of 21 May 2003, amended Pronabio to adjust it to the principles and directives of the National Biodiversity Policy – PNB and established the National Biodiversity Commission – Conabio, which is responsible for the coordination, monitoring and evaluation of Pronabio actions. Conabio also received the mandate to promote the implementation of the Brazilian commitments under the CBD, as well as to identify and propose priority themes and actions for research, conservation and sustainable use of the biodiversity components.

MMA is the Sisnama actor responsible for the elaboration and monitoring of the National Biodiversity Policy and for its synergy with the various sectors and governmental levels. The PNB principles, directives and objectives were instituted by Federal Decree nº 4.339, of 22 August 2002. The PNB is structured around seven components (thematic pillars), which guide its implementation (Box 2).

Box 2: Components of the National Biodiversity Policy – PNB (Federal Decree nº 4.339/2002)

PNB components:

- Component 1: Knowledge on Biodiversity;
- Component 2: Conservation of Biodiversity;
- Component 3: Sustainable Use of Biodiversity Components;
- Component 4: Monitoring, Evaluation, Prevention and Mitigation of Impacts on Biodiversity;
- Component 5: Access to Genetic Resources and to Associated Traditional Knowledge and Benefit Sharing;
- Component 6: Education, Public Awareness, Information and Dissemination on Biodiversity;
- Component 7: Legal and Institutional Strengthening for Biodiversity Management.

Source: MMA, 2018.

NBSAP strategic components (2016-2020)

****From this point forward, every time the NBSAP is mentioned we will be referring to the version addressing the period of 2016-2020.**

Mission

To promote biodiversity conservation and the sustainable use of its components in an integrated manner, ensuring the fair and equitable sharing of benefits resulting from the use of genetic heritage, valuing the associated traditional knowledge and respecting the gender and generation equality, which contribute to the eradication of poverty.

Vision

By 2050, the Brazilian biodiversity and ecosystem services will be valued, conserved, adequately restored and used in a sustainable manner, and the Brazilian society will be aware of its intrinsic value and of its essential contribution to human sustainable development and well-being in the present and in the future.

Principles and directives

The NBSAP is based on the same principles and directives that were established for the implementation of the National Biodiversity Policy, on the Brazilian commitments under the CBD and on the principles for the

internalization and implementation of the National Biodiversity Targets defined by Conabio Resolution nº 06/2013 (Box 3).

Box 3: Principles for the internalization and implementation of the National Biodiversity Targets 2011-2020 (Conabio Resolution nº 06/2013)

- I - Promote at Conabio, whenever necessary, the definition of the concepts used in the text of the targets with the purpose of establishing, in a clear and objective manner, the interpretation adopted, including through the creation of working groups, consultation to specialists and promotion of technical workshops.
- II - Propose the definition, at Conabio, of the analysis criteria and indicators for the assessment of the target implementation process, applying a participatory process involving various sectors of society.
- III - Propose the implementation of the national biodiversity targets 2011-2020 in coordination with a national strategy and an action plan for the conservation and sustainable use of biodiversity, recognizing the efforts and policies associated to the national targets.
- IV - *a.* Encourage the adoption of incentives for the implementation of the targets; *b.* Encourage the development of legislation and regulations for the implementation of the targets.
- V - Consider a broad agenda, comprising interinstitutional and multi-disciplinary actions to be developed by various agencies of the federal, state and municipal government, and by the various sectors of society.
- VI - Consider the specific characteristics of each biome and geo-political macro region in the country to ponder effective risks to the remaining ecosystems, technological viability, economic, social and environmental aspects, respecting the existing Ecological-Economic Zoning plans.
- VII - Promote the continuous generation, updating and incorporation of technical-scientific knowledge in the process of implementing the targets.

Source: MMA, 2018.

Strategic Objectives and National Biodiversity Targets

The NBSAP's five strategic objectives and respective National Biodiversity Targets 2011-2020, established according to [Conabio Resolution nº 06/2013](#), and a comparison between National Targets and Aichi Targets are presented below.

Box 4: Strategic Objectives and National Biodiversity Targets

Strategic Objective A - Address the underlying causes of biodiversity loss by mainstreaming biodiversity considerations across government and society.

National Target 1: By 2020, at the latest, Brazilian people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

The National Target 1 mirrors the Aichi Target 1 and intends to improve the population's knowledge about the values of biodiversity and the measures the population can adopt to conserve and use biodiversity sustainably.

The National Target 1 reflects the important concern with people's awareness and with how these people influence individual and collective decisions, from small consumer's choices to the greater decisions about public investments and policies. It is believed that greater awareness about the values of biodiversity will lead to better decisions, both at the individual level and at the public policies level.

The target is divided in two components:

1. Awareness of the values of biodiversity by the Brazilian population.
2. Awareness of the measures the population can adopt to conserve biodiversity and to use it sustainably.

The National Target 1 counts with 102 actions in the NBSAP action plan, focusing mainly on environmental education; publication of reports; and workshops. To know more about all the actions, see Section II and [Annex I - Monitoring the NBSAP Action Plan.xlsx](#).

National Target 2: By 2020, at the latest, biodiversity values, geo-diversity values, and socio-diversity values have been integrated into national and local development and poverty reduction and inequality reduction strategies, and are being incorporated into national accounting, as appropriate, and into planning procedures and reporting systems.

The National Target 2 mirrors the Aichi Target 2 and has the objective of integrating the values of biodiversity into development processes. The National Target 2 differs from Aichi Target 2 in that it incorporates the geo-diversity and socio-diversity components and promotes de reduction of inequalities. The National Target 2 strengthens the interdependence between development and biodiversity, increasing the value of biodiversity for the poorest segments of society and for governments, increasing the potential of their contribution and increasing perception of these values, as discussed in Target 1.

The target is divided in two components:

1. Integration of biodiversity values, geo-diversity values, and socio-diversity values into national and local development and poverty reduction and inequality reduction strategies.
2. Incorporation of biodiversity values, geo-diversity values, and socio-diversity values into national accounting, as appropriate, and into planning procedures and reporting systems.

The National Target 2 counts with 63 actions in the NBSAP action plan, focusing mainly on territorial management; methods for prioritizing areas; and national accounting and poverty eradication.

National Target 3: By 2020, at the latest, incentives harmful to biodiversity, including the so-called perverse subsidies, are eliminated, phased out or reformed in order to minimize negative impacts. Positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the CBD, taking into account national and regional economic conditions.

National Target 3 mirrors Aichi Target 3 and has the objective of eliminating harmful incentives and implement positive incentives for biodiversity. The National Target 3 addresses fiscal and credit incentives, and subsidies that may be harmful or positive to biodiversity. The target intends to encourage the employment of positive incentives, implicitly including fiscal incentives (tax deductions), credit, subsidies and payments for ecosystem services, to promote the conservation and sustainable use of biodiversity.

The target is divided in two components:

1. Incentives that may harmfully affect biodiversity, including the so-called perverse subsidies, are eliminated, phased out or reformed in order to minimize negative impacts.
2. Positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the CBD, taking into account national and regional economic conditions.

Target 3 counts with 43 actions in the NBSAP action plan, focusing mainly on land tenure regularization; Integration between environmental aspects and private sector; Environmental Reserve Certificates (CRA - *Cotas de Reserva Ambiental*); Ecological ICMS; Environmental Regularization Programs (PRA - *Programas de Regularização Ambiental*); and Payment for Ecosystem Services (PES).

National Target 4: By 2020, at the latest, governments, private sector and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption to mitigate or prevent negative impacts from the use of natural resources.

The National Target 4 mirrors the Aichi Target 4 and has the objective of promoting sustainable production and consumption. This target has two objectives: the adoption of the strategy (sustainable production and consumption plans) and the achievement of the desired outcomes (reduce the impacts from the use of natural resources). The achievement of the desired outcomes is broadly defined and can be interpreted as the use of natural resources within safe ecological thresholds.

The target comprises one component:

1. Governments, private sector and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption to mitigate or prevent negative impacts from the use of natural resources.

The National Target 4 counts with 45 actions in the NBSAP action plan, mainly focused on the management of concession contracts; quality seals; and waste management and ecosystem services.

Strategic Objective B - Reduce the direct pressures on biodiversity and promote sustainable use.

National Target 5: By 2020 the rate of loss of native habitats is reduced by at least 50% (in comparison with the 2009 rate) and, as much as possible, brought close to zero, and degradation and fragmentation is significantly reduced in all biomes.

The National Target 5 mirrors the Aichi Target 5 and has the objective to reduce the loss of native habitats and promote monitoring action and deforestation control. The conversion of native habitats into alternative land use is the main cause of biodiversity loss in Brazil and has traditionally represented a means to appropriate land. The National Target 5 establishes parameters for reducing the conversion of habitats at the Brazilian biomes.

The target comprises six components:

1. Reduction of the rate of loss of native habitats by at least 50% (in comparison with the 2009 rate) in the Amazon.
2. Reduction of the rate of loss of native habitats by at least 50% (in comparison with the 2009 rate) in the Cerrado.
3. Reduction of the rate of loss of native habitats by at least 50% (in comparison with the 2009 rate) in the Atlantic Forest, Caatinga, Pantanal and Pampas.

4. Significant reduction of degradation and fragmentation in the Amazon.
5. Significant reduction of degradation and fragmentation in the other biomes.
6. Bringing the rate of habitat loss as close to zero as possible.

The National Target 5 counts with 46 actions in the NBSAP action plan, focusing mainly on monitoring programs; reduction of fragmentation; and field actions to validate data.

National Target 6: By 2020, all stocks of any aquatic organism are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overharvesting is avoided, recovery plans and measures are in place for depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems, and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, when scientifically established.

The National Target 6 mirrors the Aichi Target 6 and has the objective of promoting sustainable fisheries. The National Target has a broader scope than the Aichi Target by addressing all aquatic organisms, rather than the Aichi Target's specific reference to "fish, invertebrates and aquatic plants". Furthermore, the National Target requests scientific studies to establish the safe limits for the sustainable use of fisheries resources, which is not mentioned by the Aichi Target. The target reflects a desired outcome (sustainable management and capture of fish, and of aquatic invertebrates and plants) and the strategy to achieve sustainability in the fisheries sector (promotion of legal practices, application of ecosystem approaches, development of measures for the recuperation of overharvested species, and establishment of safe ecological limits for sustainable use).

The target contains four components:

1. The management and capture of all stocks of aquatic organisms are managed and harvested sustainably, legally and applying ecosystem-based approaches, so that overharvesting is avoided.
2. Recovery plans and measures are in place for depleted species.
3. Fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems.
4. The impacts of fisheries on stocks, species and ecosystems are within safe ecological limits, when scientifically established.

The National Target 6 counts with 30 actions in the NBSAP action plan, focusing mainly on participatory management; and evaluation of the status of threatened species.

National Target 7: By 2020, the incorporation of sustainable management practices is disseminated and promoted in agriculture, livestock production, aquaculture, silviculture, extractive activities, and forest and fauna management, ensuring conservation of biodiversity.

The National Target 7 mirrors Aichi Target 7 and has the objective to promote sustainable development in agriculture, livestock production, aquaculture, silviculture, and extractive activities. The National Target lists the public sectors that are present in the text of the Aichi Target and includes other sectors that are important to the Brazilian economy, and that are not explicitly included in the Aichi Target, such as livestock, extractive activities, forest and fauna management.

The National Target 7 addresses the sustainability of areas converted by productive sectors. The target proposes the maintenance and increase of the production potential of areas through measures that prevent adverse environmental impacts on the landscape, reduce pollution by agricultural chemicals and fertilizers, and promote management practices that are aligned with the conservation of biodiversity.

The target contains four components:

1. Sustainable management practices are disseminated and promoted for incorporation in agriculture and livestock production, ensuring conservation of biodiversity.
2. Sustainable management practices are disseminated and promoted for incorporation in aquaculture, ensuring conservation of biodiversity.
3. Sustainable management practices are disseminated and promoted for incorporation in silviculture, ensuring conservation of biodiversity.
4. Sustainable management practices are disseminated and promoted for incorporation in extractive activities, and forest and fauna management, ensuring conservation of biodiversity.

The National Target 7 counts with 98 actions in the NBSAP action plan, with the main focus on territorial management and good management practices; and introduction of native species in reforestation activities.

National Target 8: By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.

The National Target 8 mirrors the Aichi Target 8 and has the objective of achieving pollution control, including from excess nutrients, reaching levels that are not detrimental to ecosystem function and biodiversity. The National Target 8 addresses pollution in water, soil and air. The target proposes improving monitoring and control of pollution levels and the adequate waste disposal. The target highlights pollution from excess nutrients, which is a common type of pollution in water bodies, originating from the inadequate discharge of domestic wastewaters and from runoff of fertilizers applied by the agriculture sector. The objectives of this target are particularly important for the conservation of aquatic ecosystems and of the rich natural heritage that water resources represent to Brazil. Brazil possesses 12% of all freshwater available in the planet, which places at the global scale the positive impacts resulting from the control of pollution levels in water bodies. Furthermore, the target intends to promote initiatives for selective waste collection, recycling and adequate waste disposal.

The target contains one component:

1. Reduction of pollution, including from excess nutrients, to levels that are not detrimental to ecosystem function and biodiversity.

The National Target 8 counts with 31 actions in the NBSAP action plan, focusing mainly on the monitoring of water and soil quality; and selective waste collection programs.

National Target 9: By 2020, the National Strategy on Invasive Alien Species is fully implemented, with the participation and commitment of states and the elaboration of a National Policy, ensuring the continuous and updated diagnosis of species and the effectiveness of Action Plans for Prevention, Contention and Control.

The National Target 9 mirrors the Aichi Target 9 and has the objective of achieving the control of invasive alien species. The National Target 9 implicitly incorporates the same objectives of the Aichi Target 9, but integrates these objectives with the Brazilian policy to combat invasive alien species. The National Target 9 specifies legal instruments for fulfilling the target's objectives and names the National Strategy on Invasive Alien Species, the National Policy on Invasive Alien Species and the Action Plans for Prevention, Contention and Control as instruments to be implemented by the Federal Government with the participation and commitment of State Governments.

The target contains two components:

1. Implement the National Strategy on Invasive Alien Species with the participation and commitment of states and the elaboration of a National Policy by 2020.

2. Ensure the continuous and updated diagnosis of species and the effectiveness of Action Plans for Prevention, Contention and Control.

The National Target 9 counts with 44 actions in the NBSAP action plan, focusing mainly on mechanisms for monitoring invasive alien species; and on the National Strategy on Invasive Alien Species.

National Target 10: By 2015, the multiple anthropogenic pressures on coral reefs, and other marine and coastal ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

The National Target 10 mirrors the Aichi Target 10 and has the objective of reducing pressure on coral reefs, and other marine and coastal ecosystems. Together with coral reefs, the mangroves stand out as an important target ecosystem. Differently from most of the National Targets, target 10 has 2015 as its deadline for achievement, which clearly indicates the concern about the conservation status of the marine ecosystems and the need for prompt implementation of actions. Many of the pressures referred by National Target 10 are also addressed under other targets that deal with pollution, unsustainable use of marine organisms and climate change. However, this target highlights the relevance of these impacts for marine and coastal ecosystems and proposes affirmative actions for their mitigation as a priority.

The target contains one component:

1. By 2015, the multiple anthropogenic pressures on coral reefs, and other marine and coastal ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.

The National Target 10 counts with 13 actions in the NBSAP action plan, focusing mainly on research and monitoring actions for marine ecosystems; and increase marine and coastal protected areas.

Strategic Objective C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.

National Target 11: By 2020, at least 30% of the Amazon, 17% of each of the other terrestrial biomes, and 10% of the marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation, ensuring and respecting the demarcation, regularization, and effective and equitable management, so as to ensure ecological interconnection, integration and representation in broader landscapes and seascapes.

The National Target 11 mirrors the Aichi Target 11 and has the objective of expanding and implementing the National Protected Areas System. The National Target 11 incorporates the same objectives of the Aichi Target 11, but differs by integrating them to the elements of the National Protected Areas Policy. The National Target 11 incorporates the Law on the National Protected Areas System - SNUC and adds other possible protected areas for accounting target achievement, such as permanent protection areas - APP, legal reserves and indigenous lands with native vegetation. Additionally, the National Target establishes a differentiated target for the Amazon Biome at 30% cover.

As the Aichi Target, the National Target is comprised by a quantitative element (protected areas cover) and qualitative elements (effective and qualitative management, ecological representativeness, connectivity among areas and other spatial conservation measures, and integration of protected areas in broader landscapes and seascapes).

The target contains five components:

1. Conservation of 30% of the Amazon through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation.
2. Conservation of 17% of each of the other terrestrial biomes through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation.
3. Conservation of 10% of the marine and coastal areas through protected areas foreseen under the SNUC Law and other categories of officially protected areas such as Permanent Protection Areas, legal reserves, and indigenous lands with native vegetation.
4. Ensure and respect the demarcation, regularization, and effective and equitable management.
5. Ensure ecological interconnection, integration and representation in broader landscapes and seascapes.

The National Target 11 counts with 118 actions in the NBSAP action plan, focusing mainly on the integration of protected areas recorded in the National Protected Areas Registry; preparation and implementation of management plans; evaluation of biodiversity protection effectiveness; support to studies and projects focusing on mosaics, fragmentation effects and Systematic Conservation Planning.

National Target 12: By 2020, the risk of extinction of threatened species has been significantly reduced, tending to zero, and their conservation status, particularly of those most in decline, has been improved.

The National Target 12 mirrors the Aichi Target 12 and has the objective of preventing the extinction of species. The National Target 12 proposes affirmative actions for the conservation of threatened species. The main causes of species extinction are habitat loss and fragmentation, introduction of alien species, and predatory exploitation of natural resources, which are factors also related to other targets.

The target contains two components:

1. By 2020, the risk of extinction of threatened species has been significantly reduced, tending to zero.
2. The conservation status, particularly of those most in decline, has been improved.

The National Target 12 counts with 48 actions in the NBSAP action plan, focusing mainly on the monitoring of threatened species; regional actions for the conservation of threatened species; updating the lists of threatened species.

National Target 13: By 2020, the genetic diversity of microorganisms, cultivated plants, farmed and domesticated animals and of wild relatives, including socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing the loss of genetic diversity.

The National Target 13 mirrors the Aichi Target 13 and has the objective of promoting the conservation of agrobiodiversity species and wild relatives, including microorganisms, cultivated plants and farmed animals with focus on the preservation of genetic diversity. Target 13 addresses the relevant conservation of domesticated genetic resources and their wild relatives, which are important for the traditional livelihoods and for the genetic improvement of modern culture and commercial farming. The inclusion of microorganisms contrasts the National Target with the Aichi Target's text.

The target contains two components:

1. Maintenance of the genetic diversity of microorganisms, cultivated plants, farmed and domesticated animals and of wild relatives, including socio-economically as well as culturally valuable species.
2. Development and implementation of strategies for minimizing the loss of genetic diversity.

The National Target 13 counts with 46 actions in the NBSAP action plan, focusing mainly on the promotion of research on genetic diversity; and data systematization.

Strategic Objective D: Enhance the benefits to all from biodiversity and ecosystem services.

National Target 14: By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, traditional peoples and communities, indigenous peoples and local communities, and the poor and vulnerable.

The National Target 14 mirrors the Aichi Target 14 and has the objective of promoting the restoration of ecosystems that provide essential services. The target incorporates the objectives of restoration of degraded areas related to the rulings of the Law on the Protection of Native Vegetation and of the National Plan for the Restoration of Native Vegetation – PLANAVEG.

The target contains two components:

1. By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded.
2. Taking into account the needs of women, traditional peoples and communities, indigenous peoples and local communities, and the poor and vulnerable.

The National Target 14 counts with 45 actions in the NBSAP action plan, focusing mainly on creating awareness on the value of biodiversity and ecosystem services; and restoration of degraded areas and conservation of priority areas.

National Target 15: By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions, including restoration of at least 15% of degraded ecosystems, prioritizing the most degraded biomes, hydrographic regions and ecoregions, thereby contributing to climate change mitigation and adaptation and to combatting desertification.

The National Target 15 mirrors the Aichi Target 15 and has the objective of promoting the restoration of degraded ecosystems for climate change mitigation and adaptation. The target incorporates the objectives of the Nationally Determined Contribution (NDC) under the Paris Agreement of the United Nations Framework Convention on Climate Change (UNFCCC) to reduce, by 2025, the emissions of greenhouse gases by 37% below the 2005 levels and increase ecosystems' resilience to climate change. The National Target determines the minimum percentage of 15% for the restoration of degraded ecosystems.

The target contains three components:

1. By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions (in the Amazon).
2. By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced through conservation and restoration actions (in the other biomes).

3. Including through the restoration of at least 15% of degraded ecosystems, prioritizing the most degraded biomes, hydrographic regions and ecoregions, thereby contributing to climate change mitigation and adaptation and to combatting desertification.

The National Target 15 counts with 75 actions in the NBSAP action plan, focusing mainly on support to the implementation of projects for the restoration of degraded areas; and territorial management tools.

National Target 16: By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

The National Target 16 mirrors the Aichi Target 16 and has the objective of implementing the Nagoya Protocol. The National Target determines that the Nagoya Protocol must be operational in compliance with local legislation, which requires Brazil to ratify the Protocol and create tools and public policies for its implementation. The implementation of the Protocol requires the development of a platform for the systematization of information on access to genetic resources and traditional knowledge, and the creation of a fund to receive contributions arising from access to resources and knowledge for benefit sharing.

The target contains one component:

1. By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.

The National Target 16 counts with 18 actions in the NBSAP action plan, focusing mainly on the systematization and implementation of portals related to access to genetic resources; and development of methodologies for systematizing traditional knowledge.

Strategic Objective E: Enhance the implementation through participatory planning, knowledge management and capacity building.

National Target 17: By 2014, the national biodiversity strategy is updated and adopted as policy instrument, with effective, participatory and updated action plans, which foresee periodic monitoring and evaluation.

The target contains one component:

1. By 2014, the national biodiversity strategy is updated and adopted as policy instrument, with effective, participatory and updated action plans, which foresee periodic monitoring and evaluation.

The National Target 17 contains 12 actions in the NBSAP action plan, focusing mainly on the construction, enhancement and monitoring of NBSAP actions; and to facilitate the achievement of the National Biodiversity Targets.

National Target 18: By 2020, the traditional knowledge, innovations and practices of indigenous peoples, family rural producers and traditional communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, in accordance with their uses, customs and traditions, national legislation and relevant international commitments, and fully integrated and reflected in the implementation of the CBD, with the full and effective participation of indigenous peoples, family rural producers and traditional communities, at all relevant levels.

The National Target 18 mirrors the Aichi Target 18 and has the objective of promoting respect to indigenous peoples, family rural producers and traditional communities, and conserving the traditional knowledge retained by these communities. The text of the National Target differs from the Aichi Target by including, in addition to indigenous peoples and traditional communities, the family rural producers. Brazil is home to a great variety of traditional groups, such as quilombolas, rubber tappers, geraizeiros, faxinal communities, river-side communities, romani, pomeranos, babassu coconut-crackers, caiçaras, among others, which are also represented in the National Target, although not individually mentioned. Just as most indigenous peoples, these communities maintain their original traditional knowledge incorporated into their livelihoods, including through the sustainable use of biodiversity and natural resources.

The target contains three components:

1. The traditional knowledge, innovations and practices of indigenous peoples, family rural producers and traditional communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, in accordance with their uses, customs and traditions, national legislation and relevant international commitments.
2. The traditional knowledge, innovations and practices are fully integrated and reflected in the implementation of the CBD.
3. Full and effective participation of indigenous peoples, family rural producers and traditional communities, at all relevant levels.

The National Target 18 counts with 36 actions in the NBSAP action plan, focusing mainly on the strengthening of indigenous peoples and traditional communities; family agriculture; and rural extension activities.

National Target 19: By 2020 the science base and technologies necessary for enhancing knowledge on biodiversity, its values, functioning and trends, and the consequences of its loss, are improved and shared, and the sustainable use of biodiversity, as well as the generation of biodiversity-based technology and innovation are supported, duly transferred and applied. By 2017, the complete compilation of existing records on aquatic and terrestrial fauna, flora and microbiota is finalized and made available through permanent and open access databases, with specificities safeguarded, with a view to identify knowledge gaps related to biomes and taxonomic groups.

The National Target 19 mirrors the Aichi Target 19 and has the objective of promoting progress in science and technology for biodiversity. The National Target 19 expands the Aichi Target 19 to include a sub-target with a 2017 deadline and the objective of compiling the existing records on Brazilian fauna, flora and microbiota into open access databases. This addition to the Aichi Target highlights the importance of progress in the synthesis of knowledge on the Brazilian biodiversity and its availability to society.

The target contains three components:

1. By 2020 the science base and technologies necessary for enhancing knowledge on biodiversity, its values, functioning and trends, and the consequences of its loss, are improved and shared.
2. The sustainable use of biodiversity, as well as the generation of biodiversity-based technology and innovation are supported, duly transferred and applied.
3. By 2017, the complete compilation of existing records on aquatic and terrestrial fauna, flora and microbiota is finalized and made available through permanent and open access databases, with specificities safeguarded, with a view to identify knowledge gaps related to biomes and taxonomic groups.

The National Target 19 counts with 109 actions in the NBSAP action plan, focusing mainly on the compilation of existing records; field activities for data collection; and implementation of platforms and databases for the publication of technical-scientific materials.

National Target 20: Immediately following the approval of the Brazilian targets, resources needs assessments are carried out for the implementation of national targets, followed by the mobilization and allocation of financial resources to enable, from 2015 on, the implementation and monitoring of the Strategic Plan for Biodiversity 2011-2020, as well as the achievement of its targets.

The National Target 20 mirrors the Aichi Target 20 and has the objective to facilitate the mobilization and allocation of financial resources for actions in the Strategic Plan for Biodiversity 2011-2020 and achievement of the National Biodiversity Targets. The National Target 20 has objectives that are similar to those of the Aichi Target; however, the text of the National Target places the financial mobilization and allocation of resources in the context of the process that originated the Brazilian NBSAP. The National Target refers to the onset of activities in 2015, after the consolidation of the National Targets, and determines the assessment of resource needs for NBSAP implementation followed by the mobilization and allocation of the necessary resources.

The target contains two components:

1. Immediately following the approval of the Brazilian targets, resource needs assessments are carried out for their implementation.
2. Mobilization and allocation of financial resources to enable, from 2015 on, the implementation and monitoring of the Strategic Plan for Biodiversity 2011-2020, as well as the achievement of its targets.

The National Target 20 counts with 10 actions in the NBSAP action plan, focusing mainly on the inventory of biodiversity expenditures; constitution of institutional partnerships; and dissemination of information on the achievement of National Targets.

Source: MMA, 2018.