

Chapter 1

Contextualizing Sustainable Development Goals in Brazil and Embrapa

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Introduction

During the 1960s, particularly after Rachel Carson's *Silent Spring* (Carson, 1962) was released, global society started paying attention to environmental problems stemming from human activity on the planet. Since then, a number of United Nations (UN) conferences have addressed the issue, such as those in [Stockholm in 1972](#) and [Rio de Janeiro in 1992](#). In 1987, the Brundtland Report, also known as "Our Common Future" (United Nations, 1987), prepared by the UN's World Commission on Environment and Development, coined the first universally recognized definition on Sustainable Development: "[...] development that meets the needs of the present without compromising the ability of future generations to meet their own needs [...]".

In 1992, during Rio 92, [Agenda 21](#) was agreed upon; it was consolidated in 2000, when 191 UN member states signed a commitment entitled [Millennium Declaration](#) (United Nations, 2000), which resulted in the definition of the [United Nations Millennium Development Goals \(MDGs\)](#).

As this policy unfolded, the [Sustainable Development Goals \(SDGs\)](#), as set out in the [2030 Agenda](#) (Transforming our World: the 2030 Agenda for Sustainable Development), were agreed upon in 2015 during the United Nations Summit on

Sustainable Development. SDGs result from the decision of 193 nations, including Brazil, and representatives of global civil society.

The 2030 Agenda guides the planning of actions and public policies so that Brazil can effectively reach sustainable development. Its foundations lay on the three pillars of sustainability. Thus, the economic and social pillars were derived from MDGs, and the environmental pillar from Agenda 21. In addition, as part of a more ambitious effort to fulfill aims that demand greater focus, the institutional vision focusing on partnerships for target implementation was included.

SDGs are [17 goals](#), with a total of [169 targets](#), based on five structuring elements, known as areas of critical importance to mankind and to the planet, named by the UN as the [5 Ps: Peace, Prosperity, Planet, People and Partnership](#). In this work, these five elements or areas of critical importance were considered as “dimensions” that encompass the 17 SDGs:

- **Goal 1** – End poverty in all its forms, everywhere.
- **Goal 2** – End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
- **Goal 3** – Ensure healthy lives and promote well-being for all, at all ages.
- **Goal 4** – Ensure inclusive and equitable quality education, and promote lifelong learning opportunities for all.
- **Goal 5** – Achieve gender equality and empower all women and girls.
- **Goal 6** – Ensure availability and sustainable management of water and sanitation for all.
- **Goal 7** – Ensure access to affordable, reliable, sustainable and modern energy for all.
- **Goal 8** – Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
- **Goal 9** – Build resilient infrastructures, promote inclusive and sustainable industrialization and foster innovation.
- **Goal 10** – Reduce inequality within and among countries.
- **Goal 11** – Make cities and human settlements inclusive, safe, resilient and sustainable.
- **Goal 12** – Ensure sustainable consumption and production patterns.

- **Goal 13** – Take urgent action to combat climate change and its impacts.
- **Goal 14** – Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
- **Goal 15** – Protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss.
- **Goal 16** – Promote peaceful and inclusive societies for sustainable development, provide access to Justice for all and build effective, accountable and inclusive institutions at all levels.
- **Goal 17** – Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Governance of SDGs in Brazil

Taking into consideration the specificities and complexities of Brazilian society and its agricultural vocation, the Presidency of the Republic established the governance of SDGs by setting up the [Comissão Nacional para os Objetivos de Desenvolvimento Sustentável](#) (Brazilian Commission for Sustainable Development Goals – CNODS), whose structure is presented in Figure 1.

Previously to the official launch of the Brazilian Commission, established by Decree No. 8,892 of October 27th, 2016, the Secretariat of Government (Segov) and the Ministry of Planning, Development and Management (MP) proposed that all ministries validated a proposal for aligning the 17 goals, 169 targets and 241 UN indicators with the 54 programs, 303 goals, 1,132 targets and 3,094 initiatives of the [Plano Plurianual 2016-2019](#) (2016-2019 Multi-Annual Plan – PPA) of the federal government.

Implementation of SDGs by the Ministry of Agriculture, Livestock and Food Supply

The Ministry of Agriculture, Livestock and Food Supply (Mapa) created the Commission on Sustainable Development of Agribusiness (Comissão de Desenvolvimento Sustentável do Agronegócio - CDSA) (Brasil, 2016), which joins working groups (WGs) – one of them is on SDGs – with Mapa representatives

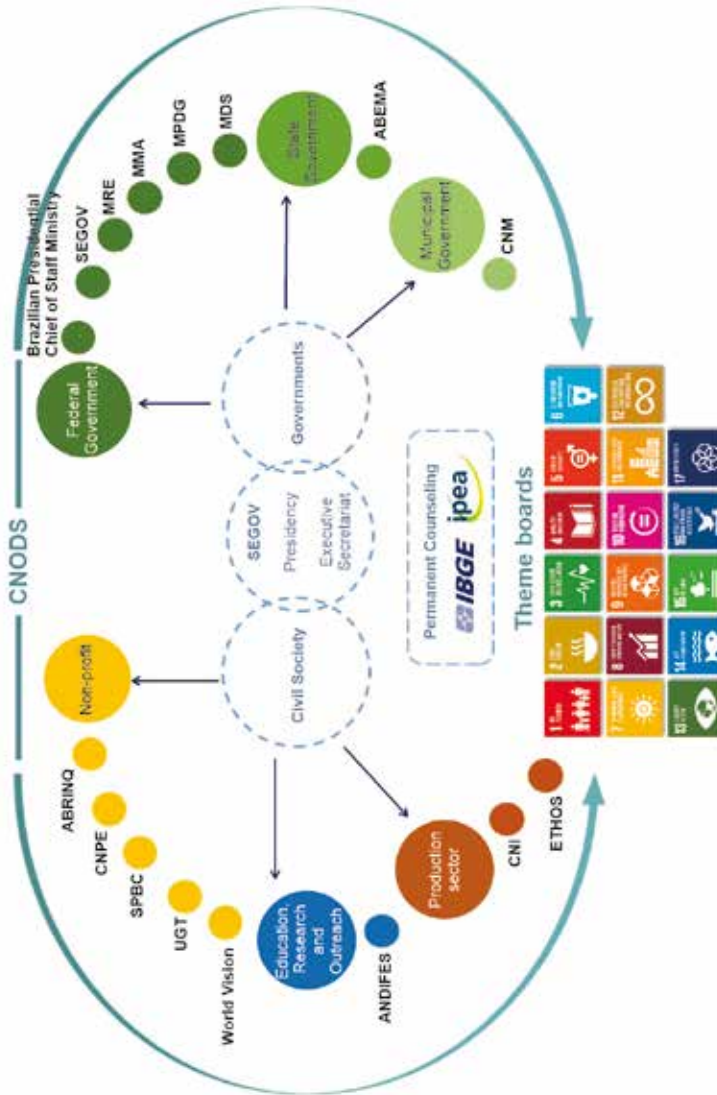


Figure 1. Structure of the Brazilian Commission for Sustainable Development Goals (CNODS).

ABRINQ = Brazilian Association of Toy Manufacturers; CNPE = National Council for Energy Policy; SPBC = Brazilian Society for the Advancement of Science; UGT = General Union of Workers; ANDIFES = National Association of Directors of Higher Education Federal Institutions; CNI = Brazilian National Confederation of Industry; SEGOV = Secretary of Government; MRE = Ministry of Foreign Affairs; MMA = Ministry of the Environment; MPDG = Ministry of Planning, Development and Management; MDS = Ministry of Social Development; ABEMA = Brazilian Association of State Environmental Authorities; CNM = National Confederation of Municipalities.

Source: Brasil (2017).

appointed by the Executive Secretariat and representatives of Embrapa and of the Companhia Nacional de Abastecimento (National Supply Company – Conab).

In order to institutionalize Embrapa's efforts, its Board of Directors has appointed an internal working group to assign an institutional locus for the theme SDGs – the SDG Embrapa WG.

The steps – from the MDGs design to the consolidation of CNODS, with the involvement of Embrapa, the response to demands of the Federal Court of Accounts (TCU) and the participation of Mapa – are represented in a timeline, in Figure 2.

The SDG Embrapa WG aligned research, development and technology transfer actions/themes related to the [Sixth Master Plan of Embrapa](#) (Embrapa, 2015) to the 2016-2019 PPA, a federal government plan announced every 4 years. Analyses carried out in 2017 revealed that, by generating knowledge and technological assets for the sustainability of Brazilian agriculture, Embrapa contributes directly and indirectly to all 17 SDGs.

Internalization of SDGs at Embrapa

The 5 impact axes and the 12 Strategic Goals of the Sixth Master Plan of Embrapa (Figure 3) are clearly aligned with all SDGs. The impact axes refer to the main transformations that Embrapa expects to leverage in agriculture and Brazilian society in the 2014-2034 period. The 12 Strategic Goals, which are guidelines for achieving the desired transformations, are also in line with the 2030 Agenda.

Subsequently, at the request of the Secretary of Government (Segov) and the Public Prosecutor's Office (MP), the ministries aligned the targets and initiatives of the 2016-2019 Multi-Annual Plan programs with SDG targets. The SDG Embrapa WG participated in the alignment phase of Mapa, focusing on the governmental commitment of Embrapa established in [Program No. 2042](#) (Research and Innovations for Agriculture) and [Program No. 2050](#) (Climate Change), in which Embrapa has action responsibilities.

The selection of relevant targets for Embrapa's work within each SDG, carried out in line with the Sixth Master Plan of Embrapa, was used to cross-refer to the targets and initiatives of Program 2042 Goals. To align targets, the SDG Embrapa WG was based on the potential of agricultural research contributions to SDGs by 2030.

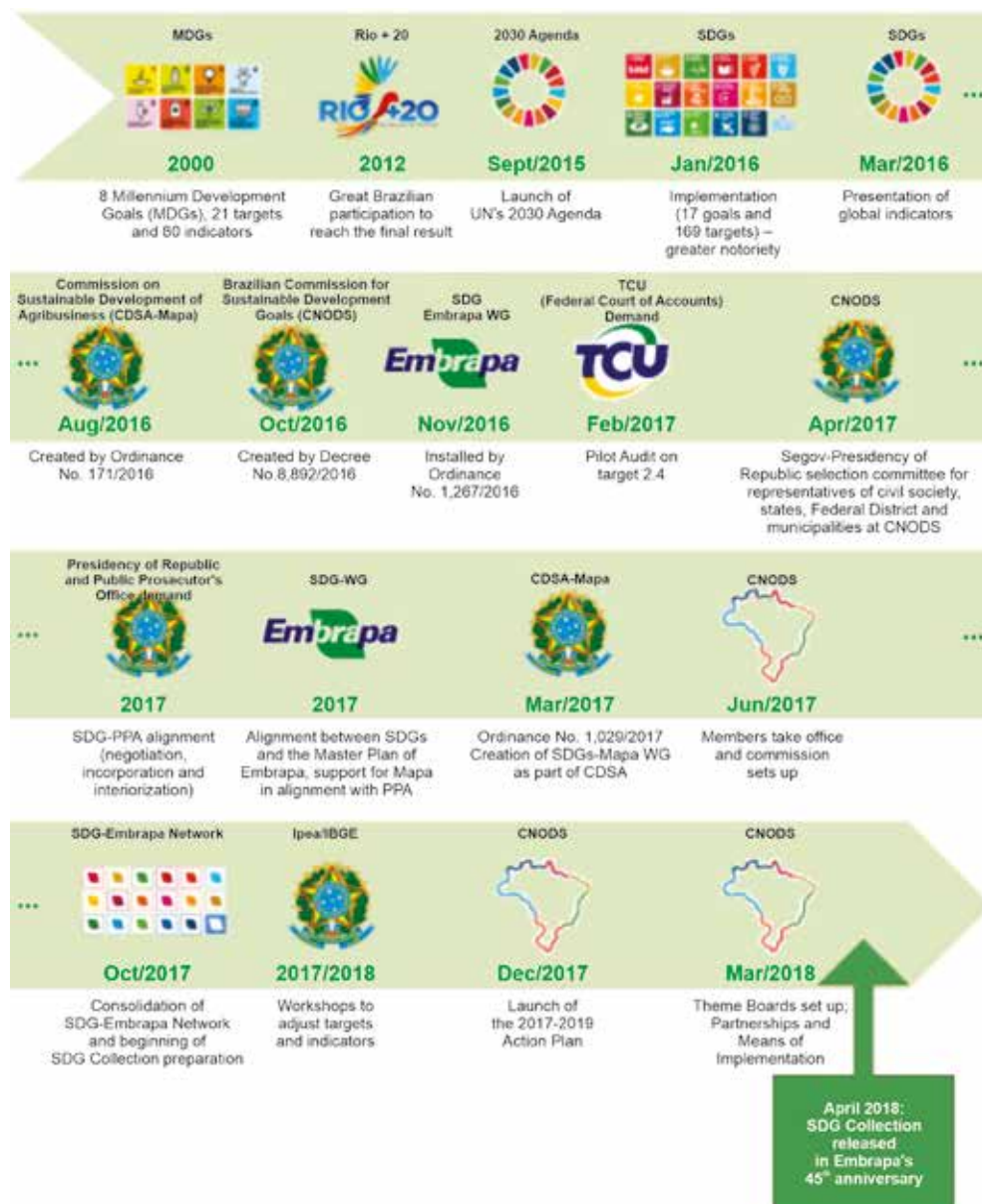


Figure 2. Timeline of the participation of Embrapa in the context of the Sustainable Development Goals (SDGs).

Ipea = Institute for Applied Economic Research; IBGE = Brazilian Institute of Geography and Statistics.

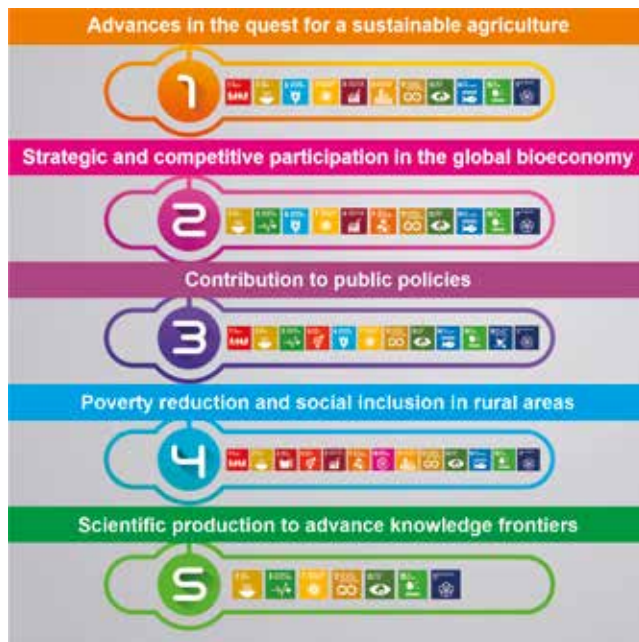


Figure 3. Alignment between Impact Axes of the Sixth Master Plan of Embrapa and the Sustainable Development Goals.

Source: Embrapa (2017).

The crossing results were categorized into three priority levels according to the direct or indirect participation of Embrapa, as follows:

- Perspective of direct action/influence of Embrapa not depending on other authorities.
- Perspective of action/influence of Embrapa depending on interaction with Mapa and/or other agricultural sector parties.
- Indirect action/influence of Embrapa depending on interaction with other authorities/parties outside the agricultural sector.

Figure 4 shows a summary of the programs, goals and actions under Embrapa's responsibility in relation to SDGs. There is great interrelation in terms of alignment, since actions and potential contributions cover all 17 SDGs and 76 of the 169 targets (45% of the Agenda targets).

Based on the results presented after aligning targets, one can infer that, since SDGs represent the most important current global agenda, the forthcoming scenario of

difficulties is an opportunity for Embrapa to strengthen its actions to promote institutional sustainability. In addition, SDG targets, which in turn will be aligned with national targets, are inspiring sources for the strategic planning of Embrapa.

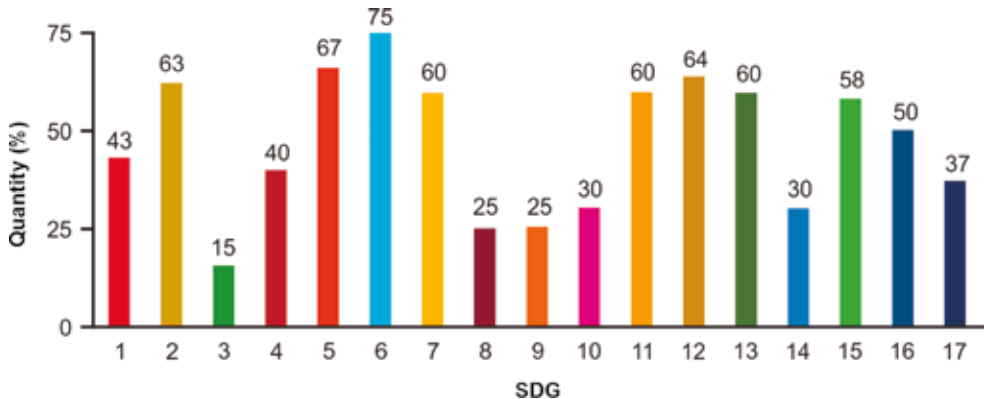


Figure 4. Relative quantity of targets per SDG referred to in the 2016-2019 Multi-Annual Plan of Embrapa addressed by Embrapa initiatives.

Creating the SDG Embrapa Network

In order to internalize the 2030 Agenda at Embrapa, a collaborative network was created to join employees of several Units (Embrapa Research Units) into a virtual community called SDG Embrapa Network. It was based on Embrapa's PGMacro method (Hammes; Arzabe, 2016), which relies on collaborative and systemic work, that is, one that gathers the whole internal community. It is a work methodology conducted by a moderator, based on planned actions, in which three assumptions are considered:

- Multilevel training of teams with the future perspective of involving everyone who act to produce results.
- Creation of space for all in the working environment.
- Participatory planning to produce results in line with SDGs purposes.

Based on the adherence to the 17 SDG and the 76 targets selected, the SDG WG was requested to answer the question "How does Embrapa contribute to achieve the selected targets?". Because of the complexity of Embrapa's mission, which has been operating throughout Brazil for 45 years, this response should be given by researchers of all Embrapa Units.

By organizing the collaborative work and gathering the collective intelligence through the PGMacro method targets previously selected by the SDG WG were validated. To do so, the team of voluntary researchers and analysts made a quick survey limited to records in easily accessible internal systems over the last 10 years to identify contributions resulting from interactions between Embrapa and partners. The intention was to identify technologies, products, processes and contributions to public policies with potential impact in the 2030 Agenda context.

PGMacro involves planning and collaborative implementation to achieve a collectively ratified result. In this case, this process was managed according to the following steps:

- **Ideation** – Outlining a proposal to create the SDG Network based on three pillars: people, work environment and result.
- **Responsibility assignment** – Assigning responsibility in the process of gathering a multilevel team (coordination, technical editors and authors).
- **Reconstruction** – Reconstructing and expanding the systemic view on the contributions of Embrapa to achieve SDGs (outlining an editorial design for each SDG and its respective selected targets).
- **Adjustment** – Adjusting active surveys guided by Embrapa’s search system managers to gather and group possible solutions to problems related to the selected targets, for which Embrapa, according to its mission, conducted agricultural research with its partners (prototype development).
- **Habituation** – Habituating to effectively incorporate this new way of perceiving the solutions compiled by the teams in debating, organizing and summing information on context, problems, different ways of contributing, and future challenges for Embrapa to meet the 2030 Agenda, as validated from the perspective of the five UN dimensions: People, Planet, Partnership, Peace and Prosperity (creation of the book collection).

The creation of this book collection was the first step towards internalizing SDGs in Embrapa. The SDG Embrapa Network intends to expand its activities to include all Embrapa researchers and analysts, in a process of institutional strengthening, and then gradually involve all its partners so as to enhance their assuming responsibilities within the three (economic, social and environmental) pillars of sustainability. Figure 5 sums the process of establishing governance, organization, and outcome/target production of the SDG Network.

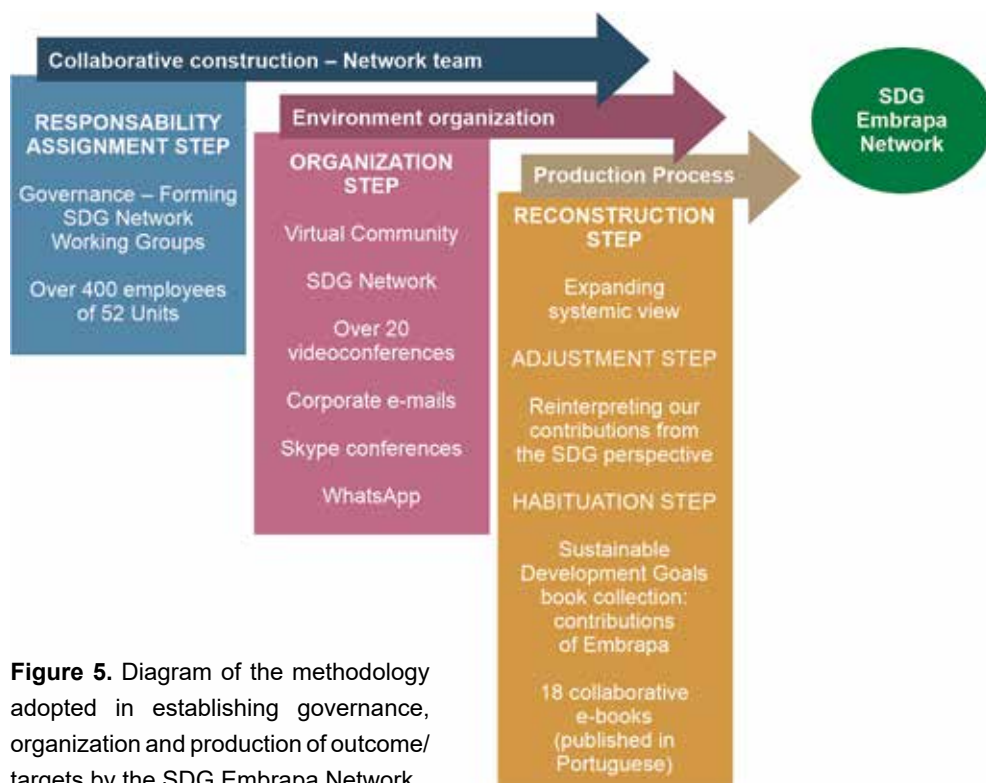


Figure 5. Diagram of the methodology adopted in establishing governance, organization and production of outcome/targets by the SDG Embrapa Network.

The process was established in agreement with the following PGMacro indicators:

- Efficacy in involving the target audience.
- Efficiency in creating an adequate work environment for providing rapid response (response time).
- Effectivity in producing the expected results.

This work reveals the strength of Embrapa's team, made up of researchers and analysts from several areas of knowledge and active throughout Brazil, which allowed us to set up discussions and debate, in addition to producing, in four months, book prototypes and launching this collection of 18 books, with the main purpose of providing Brazilian society with an overview on the contributions of Embrapa to the 2030 Agenda according to Brazil's commitments.

The SDG Embrapa Network is a strategy to encourage the Embrapa internal community to take part in a productive debate on the solutions already available,

those that are underway and future actions that will contribute to reaching SDGs. The platform will also be a repository of documents and action records, thus providing input for institutional strategic planning. In the process of internalizing the 2030 Agenda, it is necessary, at first, to raise the awareness of administrators, from directors to supervisors at Embrapa Units, and to engage researchers/analysts who lead research and technology transfer initiatives, in order to ensure the proper support for actions and individuals joining the network.

Our hope is that this work may be the basis for a long-term perspective, since SDGs can permeate all the work of Embrapa by 2030, according to the targets validated during the internalization step, described in this book. With this collection, it is possible to know how Embrapa can contribute to achieve SDGs. The [next chapter](#) addresses this set by assessing its potential to contribute to five dimensions: People, Prosperity, Planet, Partnership and Peace.

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