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Climate Change in Brazil: Economic, Social and Regulatory Aspects

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Current levels of greenhouse gas (GHG) concentrations are already worryingly high, and scientists predict that the average temperature on the planet could rise between 1.8°C and 4°C by 2100, which would cause drastic damage to the environment.

This scenario would bring higher intensities of extreme weather events and changes in rainfall patterns, resulting in greater and more frequent droughts and floods. Studies demonstrate that, in addition to putting the lives of large urban populations at risk, climate change can unleash epidemics and plagues and threaten water and energy infrastructures and transport systems. Agriculture would also be severely affected, especially in regions where water scarcity already persists such as the Brazilian northeast. Many of these impacts may occur before 2050, with greater economic effects.

Understanding the nature and dimensions of these impacts is crucial to designing policies that address climate change. Moreover, action from governments, citizens and companies is urgently needed. Minimising the impacts of climate change requires a global and coordinated effort of mitigation and adaptation that demands great commitment from present and future generations in each country. The scope and distribution of this effort, however, is far from being agreed.

Countries have been negotiating since 1992, aiming to reach a high level of cooperation to deal with climate change. However, results achieved so far have fallen short of the size of the challenge. The United Nations Framework Convention on Climate Change (UNFCCC) reached a consensus about the need to avoid a temperature increase beyond 2°C, but even the voluntary commitments assumed at the Conference of the Parties (COP) 15 and 16 are far from the reductions that would be necessary for a 2°C trajectory.

However, recent years have transformed the debate on addressing global warming. The debate has attracted public opinion, is already part of political agendas in many countries and ranks among the most important issues on the multilateral global agenda. In Brazil, this transformation resulted in a first regulatory accomplishment on the mitigation and adaptation of climate change and a change in Brazil's position in international negotiations. Brazilian scientific research, which helped to set out this new regulatory framework, continues its advances in providing insights regarding the challenges of implementation.

It was in this context that the *Instituto de Pesquisa Econômica Aplicada* (IPEA – Institute for Applied Economic Research) from Brazil released the book *Climate Change in Brazil: economic, social and regulatory aspects*. The book aims to analyse, from the perspective of various Brazilian scientists and policymakers, structures of costs and benefits and winners and losers, as well as governance structures that determine, regulate and monitor the implementation of actions to combat global warming.

Its main objective is to provide a national publication on the policies needed to combat global warming, bringing together articles by specialists on pertinent topics with an analytical focus. The edition in English has the additional objective of offering the international community a comprehensive view of the discussions on this topic in Brazil.

Thus, the book contains analytical texts by 38 authors, many of whom have participated in the negotiations at various COPs and are members of the Intergovernmental Panel on Climate Change (IPCC). They represent 18 Brazilian institutions such as universities, research centres, associations and ministries of the federal government.

Part I, 'Climate change in Brazil', deals with these topics in relation to the Brazilian context at both national and subnational policy levels, the characteristics of the Brazilian emissions and the impacts of climate change on the Brazilian economy and society, including aspects of efficiency, equity, income distribution, climate justice and international trade.

Among other things, this section shows how the Brazilian emissions profile is strongly characterised by emissions resulting from land use change and that, consequently, our 2020 mitigation targets are concentrated on controlling deforestation. Nevertheless, by 2020 and certainly after that, Brazil will need to implement mitigation efforts in other sectors such as agriculture, transportation and energy. For agriculture, for example, chapters show how and where it will be most harmed and that its technological transition towards more sustainable practices is not an option, but rather a prerequisite to improving systemic resilience to the effects of climate change.

Part II, 'Brazil and the international climate change regime', discusses these aspects in the context of international negotiations, with a focus on the results from COP 15 and COP 16, highlighting the most promising and controversial issues such as the second commitment period of the Kyoto Protocol, reducing emissions from deforestation and degradation (REDD), financing and technology transfer. Many of the chapters show, for each topic analysed, how important it is for the international community to reach agreement, and how far we are from reaching it and why. Moreover, many chapters analyse the positions taken by Brazil concerning these topics and our voluntary targets by sector.

We hope that the chapters of this book offer the reader a comprehensive and, in many cases, detailed view of the economic, social and regulatory aspects of climate change that in recent years have mobilised science, public opinion and the political agenda in Brazil and around the world.

A series of IPC-UNDP one-pagers following this one will introduce the main findings of some of our chapters.

Publication: *Climate Change in Brazil: Economic, Social and Regulatory Aspects*, available at: http://www.ipea.gov.br/portal/images/stories/PDFs/livros/livros/livro_climatechange_ingles.pdf.