



REPORT

International Seminar on Linking Climate Change and National Accounting

17 October 2017
Auditorium Divonzir Gusso, Ipea, Brasília/DF

SUPPORTED BY:



ORGANIZED BY:



1. INTRODUCTION

Climate change and the economy are closely linked. Scientific evidence has shown that climate change is unequivocal and is due to the anthropic activity of increasing the concentration of greenhouse gases (GHG) in the atmosphere. Therefore, it can be inferred that it is caused by the emissions resulting from the exercise of economic activities. The main drivers of increased GHG emissions are the combustion of fossil fuels and land-use change (IPCC 2007).

Brazil, in its share of common yet differentiated responsibility, has made ambitious commitments to contain GHG emissions. Responsible for about 2.5 per cent of the world's GHGs, Brazil has ratified the Paris Agreement and committed to achieving a 37 per cent reduction in emissions by 2025, compared to 2005 levels. Over the last decade, Brazil has achieved significant GHG reductions thanks to efforts to halt deforestation and increase the use of renewable energy.

While economic activities are one of the main causes of climate change, it is also true that climate change is increasingly affecting economic activities. The possible positive impacts of global climate change, such as increased agricultural yields predicted for some regions, will be temporary and will not outweigh the negative impacts. Rising sea levels and the incidence of extreme weather phenomena are disastrous consequences that pose significant threats to communities and economies worldwide.

A considerable amount of scientific research has been done to determine whether human-induced climate change is taking place and what needs to be done to reduce the GHG emissions. In turn, the economic activity of a country is measured on an annual basis using the System of National Accounts (SNA). The SNA is popularly known for its estimate of gross domestic product (GDP) which is the monetary measurement of the market value of all final goods and services produced over a period (quarterly or yearly).

Until recently, measures undertaken by countries to mitigate GHG emissions, according to the United Nations Framework Convention on Climate Change and following guidelines established by the Intergovernmental Panel on Climate Change (IPCC), could not be integrated with regular national economic activity. This poses a significant problem, since economic activities are vital causes of climate change.

The adoption of the System of Environmental Economic Accounting (SEEA) by the United Nations Statistical Commission offers a framework to allow greater integration of information, which can ultimately help to better assess policy responses to climate change. The SEEA is a satellite account of the SNA and is a system for organising statistical data for the derivation of coherent indicators and descriptive statistics to monitor the interactions between the economy and the environment, as well as the state of the environment, to better inform decision-making.



2. CONTEXT OF THE EVENT

The Secretary for Climate Change and Forests of the Brazilian Ministry of the Environment (MMA), Mr. Everton Lucero, expressed the need for Brazil to implement a periodic monitoring of activities related to the mitigation and adaptation of climate change in the process of construction of national accounts. Understanding the need to deepen the debate on the subject, the Director of Directorate of Regional, Urban and Environmental Policies and Studies (Dirur) of the Brazilian Institute for Applied Economic Research (Ipea), Alexandre Ywata, and his team began developing a project dedicated to the theme, gathering other partners to better further the debate on what has been done in Brazil and in other countries. It should also be noted that the Brazilian Institute of Geography and Statistics (IBGE) has been advancing the agenda related to national accounts and the environment, therefore it was a valuable opportunity to discuss and work with partners on these themes during the Seminar. In this sense, both the IBGE and the Ministry of Science, Technology, Innovations and Communications (MCTIC) would be included in the project.

In this context, the organisation of an international seminar on the subject was discussed, to be implemented by the International Policy Centre for Inclusive Growth (IPC-IG) due to its efficiency and high degree of professionalism. The event could not have occurred without the invaluable financial support of the Institute for Climate and Society (ICS). The International Seminar on Linking Climate Change and National Accounting was held on 17 October 2017, at Ipea's headquarters, in Brasília.

3. OBJECTIVE

The objective of the Seminar was to discuss ways to include GHG emissions in the system of national accounts and the importance of matching national emission inventory data with the satellite accounting system. During the event, it was also discussed how national accounts can be used and adapted to better monitor national policies and programmes relevant to the mitigation of GHG and adaptation to the adverse impacts of climate change.

The event was attended by renowned Brazilian and international experts from institutions such as: the Ipea; the IBGE; MMA; the Ministry of Science; the MCTIC; the Ministry of Planning, Development and Management (MP); the Office of the Chief of Staff of the Brazilian Presidency of the Republic; the Centre for the Development and Regional Planning of the Faculty of Economic Sciences (CEDEPLAR) of the Federal University of Minas Gerais (UFMG); the National Water Agency (ANA); the Getulio Vargas Foundation (FGV); the Economic Commission for Latin America and the Caribbean (ECLAC) in Brazil; The United Nations Economic Commission for Europe (UNECE); the United Nations Statistics Division (UNSD); the Organisation for Economic Co-operation and Development (OECD); and Statistics Sweden.

4. ORGANISERS

The International Seminar on Climate Change and National Accounting was jointly organised by:

- the Brazilian Ministry of Planning, Development and Management;
- the Brazilian Ministry of the Environment;
- the Institute for Applied Economic Research;
- the Institute for Climate and Society;
- the International Policy Center for Inclusive Growth;
- the Economic Commission for Latin America and the Caribbean;
- the Brazilian Institute of Geography and Statistics;
- and had the institutional support of the Brazilian Research Network on Global Climate Change (Rede Clima).

5. TARGET AUDIENCE

Researchers, civil servants, representatives of embassies, international organisations and civil society in general interested in themes related to climate change and national accounts.

6. EVENT SCHEDULE

8:30AM - 9AM — Opening remarks	<ul style="list-style-type: none">• Alexandre Ywata, Substitute President, Ipea;• Roberto Olinto, President, IBGE;• Everton Lucero, Secretary of Climate Change and Forests, MMA;• Marcos Ferrari, Secretary of Planning and Economic Affairs, MP;• Carlos Mussi, Director, ECLAC in Brazil.
9AM - 10:30AM — Panel 1: International experiences in climate change-related statistics	<ul style="list-style-type: none">• Presentation 1: “Recommendations on climate change-related statistics” — Robert Smith, Chair of the UNECE’s Task Force on Climate Change Related Statistics;• Presentation 2: “System of Environmental Economic Accounts and its relevance for Climate Change” — Sokol Vako, Statistician in the Environmental-Economic Accounts Section of the UNSD;• Presentation 3: “Towards Global Air Emission Accounts” — Pierre-Alain Pionnier, Section Head, National Accounts Division of the OECD. <p>Moderator: Kristina Taboulchanas, Environmental Affairs Officer, ECLAC Brazil.</p>
11AM - 12:30PM — Panel 2: Brazilian environmental accounting initiatives	<ul style="list-style-type: none">• Presentation 1: “Overview and progress of Brazilian Environmental Accounting Initiatives”, Wadih Scandar, Director of Geosciences, IBGE;• Presentation 2: “Application of Water Accounts for the development of National Water Resources Policy”— Sergio Ayrimoraes, Superintendent of Water Resources Planning at ANA, MMA;• Presentation 3: “National Water Resources Plan: priorities, actions and goals for 2016-2020”, Geraldo Goes, specialist in Public Policy and Government Management at the Water Resources Directorate of the Secretariat of Water Resources and Environmental Quality (SRHQ) of the MMA. <p>Moderator: André Luiz Campos de Andrade, Advisor, Branch of Monitoring and Analysis of Government Policies, Office of the Chief of Staff of the Brazilian Presidency of the Republic.</p>
2PM - 3:30PM — Panel 3: Linking national emission inventories to economic accounting	<ul style="list-style-type: none">• Presentation 1: “Compiling Air Emission Accounts: the Swedish experience and possible approaches for Brazil” — Maria Lidén, Senior Advisor Environmental Accounts and Natural Resources at Statistics Sweden;• Presentation 2: “Brazilian GHG Emissions and Removals Inventory” — Mauro Meirelles, Specialist Supervisor in Greenhouse Gas Emissions Analysis, MCTIC;• Presentation 3: “Emission Inventories, National Accounts and Economic Simulation Models for Climate Policy”— Edson Domingues, Associate Professor, Department of Economic Sciences and Research at CEDEPLAR/UFMG. <p>Moderator: Angelo Gurgel, Adjunct Professor, School of Economics of São Paulo of the FGV, and coordinator of the Professional Master Degree Program on Agribusiness — FGV-Agro.</p>
3:30 - 4PM — Discussion panel: Challenges and the way forward	<ul style="list-style-type: none">• Adriano Santhiago de Oliveira, Substitute Secretary for Climate Change and Forests, MMA;• Wadih Scandar, Director of Geosciences, IBGE;• Márcio Rojas, Coordinator on Climate, Secretariat of Policy, Programs and Development Research, MCTIC;• André Luiz Campos de Andrade, Advisor, Branch of Monitoring and Analysis of Government Policies, Office of the Chief of Staff of the Brazilian Presidency of the Republic. <p>Moderator: Gustavo Luedemann, Researcher, Directorate of Regional, Urban and Environmental Policies and Studies, Ipea.</p>
17:30PM — Closing session	<ul style="list-style-type: none">• Alexandre Ywata, Substitute President, Ipea;• Adriano Santhiago de Oliveira, Substitute Secretary for Climate Change and Forests, MMA;• Niky Fabiancic, Interim Director of the IPC-IG, Resident Coordinator of the United Nations System and Resident Representative of the United Nations Development Programme (UNDP) in Brazil.

7. SPEAKERS BIOGRAPHY

Alexandre Xavier Ywata de Carvalho

Alexandre Ywata is a Mechanical and Aeronautical Engineer (1994) and Specialist in Air Armament (1995) by the Aeronautics Institute of Technology (ITA). He holds a Master's Degree in Statistics (1999) from the University of Brasília (UnB), and a PhD in Statistics from Northwestern University (2002). He was first lieutenant engineer at the Aerospace Technical Center before joining the Ipea in 1996, where he was coordinator of Regional and Urban Studies and head of the Technical Advisory Office of the Presidency. His areas of interest are land use dynamics, natural resources and economic regulation. He has published several articles in periodicals in Brazil and abroad. He is the author of the book *Introdução aos Métodos Estatísticos para Economia e Finanças* (Introduction to Statistical Methods for Economics and Finance), published by UnB. Currently, he is the Director of the Dirur.

Roberto Luis Olinto Ramos

Roberto Olinto is the current President of the IBGE, the agency in charge of the National Statistical System and of statistical cooperation in Brazil. He received his Master's Degree in Systems Engineering and his Ph. D. in Production Engineering from Federal University of Rio de Janeiro (UFRJ). He has worked for almost 38 years in the Government Statistical Service, mainly in the field of economic statistics. He was formerly the Director of Statistics, an area responsible for all official statistics—production, planning and analysis. He was the Coordinator of National Accounts, and responsible for the planning and implementation of the 2008 System of National Accounts. He has also worked on several projects in the field of economic statistics, such as the compilation of input-output tables and managing the implementation of Quarterly National Accounts in Brazil.

Internationally, he represents the National Statistics Offices of MERCOSUR and Chile in the United Nations Inter-agency Expert Group on Sustainable Development Goal (SDG) Indicators (IEAG – SDG); and is a member of the International Comparison Program – ICP Governing Board. He is an international advisor on National Accounts for the Statistics Department of the International Monetary Fund. Since 2002, he has been a member of the United Nations Advisory Expert Group on National Accounts. He is a native speaker of Portuguese and fluent in English, Spanish and French.

Everton Lucero

Everton Lucero is Secretary for Climate Change and Environmental Quality at the MMA. A career diplomat since 1992, he served in Brazilian embassies in Singapore, Vienna and Washington, headed the International Office of the MCTIC, served as focal point for the UNFCCC and was part of Brazil's negotiating team for the Paris Agreement.

Marcos Adolfo Ribeiro Ferrari

Marcos Adolfo Ribeiro Ferrari holds a Bachelor's degree in Economics from the Federal University of Espírito Santo (1997), a Master's Degree in Economics from the Federal University of Espírito Santo (2000) and a PhD in Industrial and Technological Economics (2008). He is a professor of Basic, Technical and Technological Education at the Federal Institute of Education, Science and Technology of the State of Espírito Santo (IFES). He is currently the Secretary of Planning and Economic Affairs and is the Acting Secretary of the Economic Advisory Office of the MP. Previously, he has served as Deputy Secretary of the Secretariat of Economic Policy of the Ministry of Finance. His area of expertise Economics, focusing on technological innovation and economic dynamics, public sector microeconomics, economic theory; new classical macroeconomics; real exchange rate and external restriction.

Niky Fabiancic

Niky Fabiancic has been the Resident Coordinator of the United Nations System and the Resident Representative of the UNDP in Brazil since October 2015 and is the Interim Director of the IPC-IG. An Argentinian national, Niky Fabiancic holds a Master's Degree in Computer Science and Telecommunications from Brooklyn Polytechnic University, New York, and a Bachelor's degree in Electrical and Electronic Engineering from the University of Mendoza, Argentina. During his 30-year career with the United Nations, Niky Fabiancic has held such positions as: Resident Coordinator of the United Nations System

and Resident Representative of the UNDP in Venezuela; Deputy Administrative Assistant and Deputy Regional Director for the Latin America and Caribbean region of the UNDP in New York; Resident Coordinator of the United Nations System and Resident Representative of the UNDP in the Dominican Republic; Deputy Resident Representative of the UNDP in Venezuela; Chief of Staff to the Director of the Development Group in New York; and Information Management Director for the UNDP Information Management Service Department.

Adriano Santhiago de Oliveira

Adriano Santhiago is a chemical engineer, graduated from the School of Chemistry of the UFRJ. He holds a Master's Degree in Energy Planning (with an emphasis on Environmental Planning) from the COPPE/UFRJ's Energy Planning Programme. He has been an Environmental Analyst at the MMA since 2005. From February 2009 to May 2011, he was seconded to the MCTIC to serve as the Ministry's Substitute Coordinator of Global Climate Change. He is the MMA's senior representative at the Interministerial Commission on Global Climate Change and alternate member of the Executive Group on Climate Change and at the Interministerial Committee on Climate Change. He is also a member of the Brazilian Delegation at the Conferences of the Parties to the United Nations Framework Convention on Climate Change. Currently, he is Director of the Department of Climate Change of the Secretariat of Climate Change and Environmental Quality at the MMA, and Deputy Secretary of the same Secretariat.

Andre Luiz Campos de Andrade

André Andrade holds a Bachelor's Degree in Economics from the State University of Rio de Janeiro (UERJ), a Master's Degree in economics from the Federal University of Santa Catarina (UFSC) and a Master's Degree in Environment and Sustainable Development from University College London. He is permanent civil servant, as Specialist in Public Policy and Government Management. He has worked for the ministries of Defence, Social Security, Planning, Transportation and Environment. Since January 2017, he works as Adviser at the branch of Analysis and Monitoring of Government Policies Department at the Office of the Chief of Staff of the Presidency of the Republic of Brazil.

Angelo Costa Gurgel

Angelo Gurgel is an adjunct professor at the School of Economics of São Paulo of the FGV, coordinator of the Executive Masters in Agribusiness Programme and Coordinator of the Observatory of Low-Carbon Agriculture. He holds a Bachelor's Degree in Agronomy Engineering from the Federal University of Viçosa (1996), a Ph. D. in Applied Economics from the same institution (2002) and a postdoctoral degree from the Massachusetts Institute of Technology (2006-2008). He develops academic and applied research in the areas of agribusiness economics, climate policy, economic modelling, economics of biofuels and changes in land use. He has already developed consulting projects for institutions such as the World Bank, BNDES, FIESP and CNI.

Carlos Henrique Fialho Mussi

Carlos Mussi holds a Bachelor's Degree in Economics from the (1979) and a Master's Degree in Economics from the Pontifical Catholic University of Rio de Janeiro (PUC-Rio/1982). He is an economist with the ECLAC since 1983. He is the director of the ECLAC Office in Brazil since October 2011. His work and studies focus on the topics of macroeconomic and fiscal policies and growth and economic development in Brazil and Latin America. He has collaborated with various secretariats and advisors of ministries and institutions of the economic area of the Brazilian Federal Government, through cooperation and technical assistance projects between these bodies and ECLAC. He was Professor of Economics at the Rio Branco Institute of the Ministry of Foreign Affairs and held lectures and classes at several Brazilian and international universities.

Edson Domingues

Edson Domingues is an associate professor and researcher at the Department of Economic Sciences and a researcher at the CEDEPLAR at the UFMG. He is the president of the Brazilian Association of Regional Studies (ABER), a fellow researcher on Productivity Scholar (CNPq) and fellow researcher of the Minas Gerais Research Programme (PPM-Fapemig). He holds a PhD in Economics from the University of São Paulo (USP/1995), a Master's Degree in Business Economics from the FGV (1998) and a PhD

in Economics from the USP(2002). He holds a PhD from the University of Illinois at Urbana-Champaign (2000-01). He has experience in Applied Economics, with emphasis on computable general equilibrium models, working mainly in the following subjects: regional economy, environmental economy, climate change, and commercial and tax policies.

Geraldo Sandoval Góes

Geraldo Sandoval Góes holds a Bachelor's Degree in Electrical Engineering from the State UERJ, and a PhD in Economics from the UnB. He is a specialist in Public Policy and Government Management at the Water Resources Directorate of the SRHQ of the MMA. For eight years he was a researcher at the Dirur of the Ipea.

He is a contributing professor at the National School of Public Administration (ENAP) and has published several books. In March 2017, he was awarded 1st place in the IV Prize of the Brazilian Forest Service in Studies of Economy and Forest Market. Currently, he is working on studies and in the construction of the Environmental Economic Accounts for Water and indicators for Sustainable Development Goal 6 (SDG 6). He is a professor of Macroeconomics, Microeconomics, Statistics and Econometrics.

Gustavo Luedemann

Gustavo Luedemann is a researcher at the Ipea, where he joined in 2009. Between July 2011 and January 2013, he took over the Coordination of Environmental Sustainability Studies (COSAM), where he was already an eventual substitute for the coordinator, until he was seconded to the MCTI. In the Ministry, he acted as general coordinator of global climate change until September 2014, when he returned to Ipea. He has held positions such as: executive secretary of the Interministerial Commission on Global Climate Change; representative of the MCTI at the IPCC; and national director of international cooperation projects, such as the Third National Communication to the United Nations Framework Convention on Climate Change (UNFCCC); in addition to the Greenhouse Gas Emissions Mitigation Options project. Currently, he works as a researcher at COSAM, where he is also an eventual substitute coordinator. He graduated in biology from the UnB, where he also obtained a Master's Degree in ecology. He is a PhD candidate at the TU-Munich University, pending the defence of his thesis, which has been partially published as scientific articles.

Marcio Rojas

Marcio Rojas holds a Bachelor's Degree in Biological Sciences (2000), and a Master's Degree in Molecular Biology (2002). He is specialist in Bioethics (2005) and holds a Ph. D. in Ethics in Science and Technology (2011). Since 2003, he is an analyst in science and technology at the MCTIC, where he acts as General Coordinator of Climate (since 2014). He is also a contributor to the UnB, with a position in the Unesco Chair in Bioethics and in the Bioethics Postgraduate Programme. He was a member of the board of the Brazilian Society of Bioethics (SBB, first treasurer, 2011-2013 mandate). He works as science, technology and innovation manager, with a focus on global climate change.

Maria Lidén

Maria Lidén has been working in the field of environmental statistics since 2000, starting at environmental statistics at Statistics Sweden, where she specialised in inventories of emissions of GHG and air pollutants. From 2011 to 2014 she was mainly responsible for national air emissions inventories at the Swedish Environmental Protection Agency (EPA). In 2014, Maria joined the air emission accounts at Statistics Sweden and is now responsible for air emission accounts. She has assisted Eurostat in compiling manual and technical notes on calculations for air emission accounts. Maria is also a member of the United Nations Framework Convention on Climate Change (UNFCCC) Roster of Experts, leading reviews of national greenhouse gas inventories reported to the UNFCCC.

Mauro Meirelles de Oliveira Santos

Mauro Meirelles is a specialist supervisor on greenhouse gas emissions at the MCTIC and the UNDP. He works on national inventories of GHG with the General Climate Coordination since 2000. He holds a Master's Degree in Urban

and Environmental Engineering from PUC-Rio/*Technische Universität Braunschweig* (Germany). He is also post graduated in Environmental Management and Production Administration, and an electronic engineer from the Military Engineering Institute. He is the lead reviewer of GHG emissions inventories for Annex I countries to the UN Framework Convention on Climate Change (UNFCCC).

Pierre-Alain Pionnier

Pierre-Alain Pionnier started his career at the French National Institute of Statistics and Economic Studies (INSEE) where he worked in the field of national accounts and macroeconomic analysis. In 2008/2009, he acted as a rapporteur of the Stiglitz Commission on the Measurement of Economic Performance and Social Progress. In his last position at INSEE, he headed the macroeconomic analysis division. He joined the national accounts' division of the OECD in 2013 where he is now responsible for short-term economic forecasting, environmental accounting, price indices and purchasing power parities. Currently, he is the Head of Section at the OECD Statistics Directorate.

Robert Smith

Robert Smith is an experienced consultant with an international reputation as an environment-economy expert. He has a broad knowledge of the science, policy and economics related to natural capital, climate change, natural resources, ecosystems, wastes, environmental technologies and environmental expenditures. In addition, he has deep knowledge of official statistics, including the national accounts. He is especially known for his work developing and promoting the concept of natural capital and its use as a basis for measuring sustainable development. He worked for more than 20 years at Statistics Canada, Canada's national statistical agency. During this time, he was responsible for moving the agency's environment statistics programme into many new areas: climate change; natural resource wealth; household environmental practices; industrial and agricultural water use; ecological goods and services; municipal water treatment and others. He strongly promoted linkages between the environment and economic statistics programmes.

After seven years as Director of Statistics Canada's environmental statistics programme, he spent 18 months on executive exchange helping TELUS Communications Inc. rethink its data centre strategy to meet the company's financial and sustainability goals. He left Statistics Canada in 2013 to establish Midsummer Analytics, where he is the Director.

Sérgio Ayrimoraes

Sérgio Ayrimoraes is a Civil Engineer and holds a Master's Degree in Environmental Technology and Water Resources from the UnB. Since 2003, he is a specialist of the ANA. Currently, he is Superintendent of Water Resources Planning, responsible for coordinating water resource plans; hydrological studies; water quality assessments and framework proposals; management of information on water resources and the annual edition of the situation report; in addition to sector studies to support the planning and compatibility of the multiple uses of water. Especially worthy of note among these studies, are the 'Atlas Brazil — Urban Water Supply', 'Atlas Sewers — Watershed Pollution', 'Atlas Irrigation — Water Use in Irrigated Agriculture' and the 'National Water Security Plan'.

Sokol Vako

Sokol Vako is a statistician in the Environmental-Economic Accounts Section of the UNSD, where he has worked on the revision and implementation of the SEEA. He works directly with countries to increase capacity, formalize national SEEA implementation plans and develop relevant indicators such as the SDGs to support policymakers. He also manages the global training programme for the SEEA and is responsible for the implementation of the energy and air emissions accounts.

Wadih João Scandar Neto

Wadih Scandar is an agronomist engineer, graduated from the USP. He holds a Master's Degree in Population Studies and Social Research from the National School of Statistical Sciences. He has worked at IBGE's Directorate of Geosciences since 2000,

where he coordinated the production of the series of Sustainable Development Indicators, published since 2002, participated in meetings and international working groups promoted by the United Nations Environment Programme and the Statistics Division of the ECLAC. He is currently Director of Geosciences of IBGE.

8. SUMMARY OF THE SESSIONS

Opening remarks

Participants:

- **Alexandre Ywata**, Substitute President of Ipea;
- **Roberto Olinto**, President of IBGE;
- **Everton Lucero**, Secretary of Climate Change and Forests at the MMA;
- **Marcos Ferrari**, Secretary of Planning and Economic at the MP;
- **Carlos Mussi**, Director of ECLAC in Brazil.

Summary of the session: The Substitute President of Ipea, **Mr. Alexandre Ywata**, expressed his gratitude that all national and international participants who were invited had accepted to participate in the seminar. He also briefly explained the Seminar's agenda and highlighted its importance for linking climate change and national accounts.

In his opening remarks, the Director of ECLAC in Brazil, **Mr. Carlos Mussi**, highlighted that the high profile of institutions participating in the seminar demonstrate the relevance and concern around climate change. He pointed out that, regarding methodology, it is important to distinguish between stocks and flows. Mussi also reflected on the importance of the joint work between the United Nations (UN) and Brazilian institutions.

Joint interinstitutional work was also the focus of the speech by the Secretary of Planning and Economic Affairs of the MP, **Mr. Marcos Ferrari**. He stated that he was glad to see people from different organisations preoccupied with the same topic. While the theme is still being developed, the government has many plans and the Seminar is one of the ways to bring these ideas together.

The Secretary of Climate Change and Forests at the MMA, **Mr. Everton Lucero**, mentioned some of the changes that have taken place as a result of the Paris Agreement. Furthermore, he stated that Brazil is already aware of sectors that need improvement, but also that the country is already an example of success in areas such as the use of clean energy.

Finally, the President of IBGE, **Mr. Roberto Olinto**, highlighted the enormous growth of the system of national accounts and national accounting in Brazil over a short period of time, stating that these are long-term projects. He underlined the importance of institutionalising this initiative, and of partnerships between different national and international actors. He also pointed out the success of water accounting, announcing the development of energy accounts. He stated that with the creation of teams, guidelines and technologies, many further steps will be taken.

Panel 1: International experiences in climate change-related statistics

The panel was moderated by **Ms. Kristina Taboulchanas**, Environmental Affairs Officer at the ECLAC office in Brazil.

Presentation 1: "Recommendations on climate change-related statistics"

Speaker: **Robert Smith**, Chair of UNECE's Task Force on Climate Change-Related Statistics.

Summary of the session: In his opening presentation, **Mr. Robert Smith** shared insights on the mandate and background of the development of the SEEA, its origins and defining principles. Mr. Smith focused his attention on the guidelines that were developed by the SEEA, highlighting both the main and the specific recommendations for national



accounting systems. Specific recommendations relevant to national accounting mainly refer to identifying potential and already available information in national statistical offices (NSOs), which could be used for statistics related to climate change.

Furthermore, he highlighted the opportunities and challenges for national accounts regarding the assessment of climate change. For example, isolating changes in economic activity related to climate change, from changes due to other factors is not trivial and it is sometimes challenging to determine which sector is responsible.

The importance of input and output tables was one of the questions raised by one of the participants of the panel during the closing round of the presentation. Mr. Smith stated that they are the foundation of NSOs from the point of view of environmental analysis — including climate change analysis, because there are undeniable linkages between economic and environmental impacts. He also answered a question regarding the issue of changes in land use. For example, if a farmer deforests an area and makes agricultural use of the soil, the agricultural sector is driving change; on another hand, if there is a natural event, emissions cannot be attributed to the economy.

Responding to a question regarding the implementation of the recommendations in Europe, Mr. Smith said that some countries are directly implementing recommendations, while in others these guidelines are helping build the case of those seeking the senior management in their institutions, to argue that climate change statistics is a topic that should be taken seriously.

Finally, Mr. Smith also commented on the possibility of creating statistics related to vulnerability and the capacity to identify sectors or territories that are more vulnerable towards climate change as something that should be considered in the future. However, this still has not been put in practice by the SEEA.

[Click here for the presentation.](#)

Presentation 2: “System of Environmental Economic Accounts and its relevance for Climate Change”

Speaker: Sokol Vako, Statistician in the Environmental-Economic Accounts Section of the UNSD.

Summary of the session: Mr. Sokol Vako sought to point out the relevance of SEEA for climate change, the application of air emission accounts and their link to emission inventories. To help participants better understand the system, he explained some of its main aspects in detail, such as the Central Framework and Experimental Ecosystem Accounting.

Furthermore, Mr. Vako concentrated on the SEEA implementation strategy, its objectives and targets, which are compatible with the SDG. Afterwards, he chose to give a more specific presentation of air emission accounts and gave two examples of air emission inventories, Sweden and Denmark: one showing differences between the government’s and the IPCC’s inventories, and the other showing the differences between various sectors and emissions they generate. Finally, he demonstrated possible applications of the strategy as well as its positive effects, such as how economic growth can be linked to the development of a ‘green economy’.

In his closing remarks, he expressed hope that Brazil will participate more in the programme. He stated that it is necessary to truly examine and understand the programme, as it spans various sectors and resources of the economy. Brazil should not feel discouraged, as no single country is able to follow everything perfectly. In his mind, Brazil needs to take the first step and build its participation from there. During the final round of questions, Mr. Vako once more

explained in further detail the links between the environmental economic accounts and emissions. He reflected on the specific situation of Brazil regarding deforestation, given that 80 per cent of the cases of deforestation in the Amazon are linked to production.

[Click here for the presentation.](#)

Presentation 3: “Towards global air emission accounts”

Speaker: **Pierre-Alain Pionnier**, Section Head, National Accounts Division of the OECD.

Summary of the session: The main topic of **Mr. Pierre-Alain Pionnier**'s presentation were Air Emission Accounts. Contrary to UNFCCC inventories, air emission accounts can be linked to national accounts and inter-country input-output (ICIO) tables, thus allowing to compute the intensity of air emissions by industry and demand-based air emissions.

UNFCCC inventories are a crucial source of data, spanning 42 Annex-I countries (which submit annual information) and 160 non-Annex-I countries, which submit less detailed data and more irregularly (Brazil is still within this group). Furthermore, the International Energy Agency (IEA) produces annual estimates of CO₂ emissions resulting from fuel combustion based on data from 110 countries. The data is organised according to several systems, and is sorted per the International Standard Industrial Classification (ISIC) for both general emissions road transport emissions.

In addition, there is the challenge of determining the allocation of fluorinated greenhouse gases (F-GHGs) by ISIC industries and households, which has proven rather complicated.

During the discussion following his lecture, Pionnier confirmed once again the commitment by the UN and all other national and international participants to support Brazil in its efforts, mainly through established manuals and guidelines, but also by sharing their own experiences. However, he agreed with some of the participants who argued that, for specific topics such as changing land use, Brazil will have to develop its own methodologies, which might perhaps serve as guidelines for other countries in the future. Replying to the last round of questions, Mr. Pionnier said that there is no need to integrate more inventories into the SNA. He added that there are no specific guidelines and that this is the significant advantage of the inventories. Many countries started to compile them long ago, where they are already available as a system.

[Click here for the presentation.](#)

Panel 2: Brazilian environmental accounting initiatives

The panel was moderated by **André Luiz Campos de Andrade**, Advisor, Branch of Monitoring and Analysis of Government Policies, Office of the Chief of Staff of the Brazilian Presidency of the Republic.

Presentation 1: “Overview and progress of Brazilian Environmental Accounting Initiatives”

Speaker: **Wadih Scandar**, Director of Geosciences at the IBGE.



Summary of the session: **Mr. Wadih Scandar** presented the Brazilian Accounting initiatives and statistics developed by the IBGE. He began his presentation by providing general information on SEEA, its development and its conceptual structure. Scandar paid special attention to the types and purpose of different accounts (stock, flow, activity/purpose and combined physical and monetary accounts) within SEEA.

Furthermore, he focused on the cases and practices within Brazil. First, the country has some specific issues, such as: various types of tillage, potential energy stocks; and the crucial importance of hydropower and forests to the country. Therefore, these factors must be incorporated into the accounts. Mr. Scandar shared his experience of working on different accounts, especially focusing on the water accounts, which will be presented in 2018 in the World Water Forum. In addition, he announced future projects, including creating a pilot for ecosystem-related accounts.

In the last round of questions, Mr. Scandar addressed two topics. The first one concerned the exclusion of oceans and coastline areas, and the second was about the number of people working on the water accounts. Regarding the first issue, he related the difficulties of including them in the accounts. As for the second question, he stated that it depended on the goals of the accounts, and that it was necessary to take one step at the time, especially because people had to be trained properly, which takes time.

[Click here for the presentation \(in Portuguese\).](#)

Presentation 2: “Application of economic environmental water accounts for the development of the National Water Resources Policy”

Speaker: **Sergio Ayrimoraes**, Superintendent of Water Resources Planning at the ANA.

Summary of the session: During his presentation, **Mr. Sergio Ayrimoraes** recalled that the participants already had a certain amount of knowledge regarding the more technical and practical aspects of working with economic environmental water accounts. He stated that various aspects are taken into account: physical and monetary data are collected. Physical data are data from water resources, which are obtained using the information generated by the national water resources management system, managed by the ANA, which is responsible for the implementation of the National Water Resources Policy (PNRH). Ayrimoraes explained that the data are gathered in documents, which report the physical state of the water, its quantity, quality, use and state of water resources management, among other points.

To these data, he added, are added the national accounts, the surveys and the methodological archive that is being developed by the IBGE over a long period of time. This information on water resources, together with the information on national accounts produced by the IBGE results in Brazil's water accounts, whose purpose is to measure how much water is used and how much is generated in each sector of the economy. In addition, the calculation should include different values: rain, water input and output, reservoirs, the country's natural water flow and the use of water within different sectors.

The complexity of this task can be verified in each of the mentioned aspects. Ayrimoraes cited as an example the rainfall stock. To calculate this, it is necessary to consider the rainfall distribution, which varies according to the area of the country and varies between different times every year. In addition, he mentioned it was quite challenging to quantify the dimensions of water input and output, since rivers and water streams usually start in one state or country and continue in another. As for the use of water in different sectors, there are also many aspects that need to be included, such as water that is used for animals, water used in different industries, in urban areas, for hydropower generation, irrigation, etc.

ANA considers that irrigation is responsible for one of the most expensive uses of water. Irrigated fields comprise millions upon millions of hectares and demand enormous amounts of water, depending on the type of crop.

Mr. Ayrimoraes also mentioned how the final water accounts will be able to clearly demonstrate that some industries use far more water than expected. He believes that this may influence the creation of public policies in the future.

In the final round of questions, Mr. Ayrimoraes was asked about the number of people and resources needed to work on water accounts. He said the agency already had the necessary staff, organisation and divisions and that the effort is largely methodological. In his opinion, employees should understand how they should use the information already available in the system. He stated that while there might sometimes be a gap and more staff may be necessary, the main challenge is to find effective methodologies and adequate partners.

[Click here for the presentation \(in Portuguese\).](#)

Presentation 3: “National Water Resources Plan: priorities, actions and goals for 2016-2020”

Speaker: Geraldo Goes, specialist in Public Policy and Government Management at the Water Resources Directorate of the SRHQ of the MMA

Summary of the session: During his participation in the round of questions, **Mr. Geraldo Goes** recalled that the quality of public policies depends on their authors. The IBGE has done its part since its inception. Thus, whenever the UN divulges its methodology, the IBGE incorporates and assimilates these new technological frontiers into the statistic field. This has also happened in the environmental field. He stated that in 2003, an attempt was made to develop a system of environmental accounts in the country, noting that the UN methodology itself was rudimentary. This, added to a series of bottlenecks, prevented the development of these accounts.

Years later, in 2009, during a seminar with the participation of several Brazilian agencies, the creation of environmental accounts was discussed once more, given that there had been a solid methodology since 2008. He recalled that it took some time, from 2009 to 2012, to develop an institutional platform, which is the interministerial ordinance between the MP, with the IBGE, and the MMA, with ANA. This institutional architecture allowed for the creation of the country's environmental accounts.

He highlighted the strong investment in training, recalling the course created by the IBGE on national accounts. The course is based on the scenario of a fictitious country, *Cangaré*. He said that ANA managers took the course to teach “economics for hydrologists”, which comprised from the agency's directors to the coaching staff. To him, this is an example of the quality of the Brazilian public manager, who, recognising the importance of that field of knowledge, sought to incorporate it. This institutional capacity today makes it possible for technicians at the agency to assess the situation of water resources and incorporate this information into the SNA.

He also pointed out that this training was an active exchange of knowledge, with ANA technicians collaborating with colleagues from the IBGE to deepen their knowledge of hydrology, in a process that lasted about a year and a half.

Mr. Goes pointed out that from the earliest exchanges with international experts, it was clear that information existed but needed to be tailored to the SNA. There were bottlenecks in this process, such as questions about water recycling and reuse and industrial water use. Regarding point, he stressed the importance of institutional resources and support. He praised ECLAC's role in bringing international technicians to exchange experiences and knowledge with Brazilian managers through technical assistance. With this, he said, it has been possible to make progress in this area over the last two years.

Regarding the interministerial ordinance, Mr. Goes highlighted the role of the MMA as coordinator. The ministry was aware of the importance of and difficulty involved in bringing together such different fields of knowledge as economics and water resources. The SRHQ took this integration as an institutional mission, as there is a technical-scientific component in the National Water Resources Plan. According to him, in 2006 the need to create a computable general equilibrium model was identified for long-term planning in Brazil.

As for future steps in public policy planning, he stated that in March 2018, at the World Water Forum, Brazil will present its physical and hybrid environmental economic accounts. This fact allows for the calculation of several models: for example, what the water demand will be for economic activity inputs, or for physical inputs – that is, measuring the economic impact of water stress. This will provide a series of inputs for the implementation of public policy.

Another important fact, according to Mr. Goes, is that the water accounts provide a more efficient allocation of resources and increase water productivity. In a water stress scenario, this is something very revealing for MMA.

[Click here for the presentation \(in Portuguese\).](#)

Panel 3: Linking national emission inventories to economic accounting

The panel was moderated by **Mr. Angelo Gurgel**, Adjunct Professor, School of Economics of São Paulo of the FGV, and coordinator of the Professional Master's Degree Programme on Agribusiness — FGV-Agro.

Presentation 1: “Compiling air emission accounts: the Swedish experience and possible approaches for Brazil”

Speaker: Maria Lidén, Senior Advisor, Environmental Accounts and Natural Resources at Statistics Sweden.

Summary of the session: Air emission accounts were main topic of **Ms. Maria Lidén's** presentation. One of their

characteristics is that they include economic and emission data for all economic activities of a country, whether inside or outside of the country's territory. Conversely, the analysis of international air emissions is technological in nature and includes emissions defined by physical national boundaries and not by the economic activity of countries.

She reflected on the Swedish experience and provided general advice to countries preparing air emission accounts for the first time. Ms. Lidén said that technicians working on the Brazilian accounts should find their 'own way of doing things' — all solutions are acceptable as long as they lead to good results. They also need to focus on important data, even though they will probably have access to a great volume of information.

Furthermore, she dedicated her presentation to explain the complex process of how to use data from the emission inventory to create air emission accounts, including detailed analyses of data sources, distribution keys and residence adjustments. Towards the end of her presentation, Ms. Lidén briefly demonstrated how air emission accounts are produced in Sweden. She shared some more practical Swedish experiences in working with the account, as well as statistics produced as a result.

During the round of questions from the audience, Ms. Lidén highlighted once again importance of national economic accounts. They provide information which is not included in territorial accounts, such as Brazilian airlines operating abroad, shipping companies, cars and trucks that transport loads to neighbouring countries, etc. This helps in providing a more general overview. She also responded to a question regarding the biggest challenges involved in working on air emission accounts. She listed the three most difficult elements to determine: road transports, fluorinated gases and residence adjustments.

[Click here for the presentation.](#)

Presentation 2: "Brazilian GHG Emissions and Removals Inventory"

Speaker: Mauro Meirelles, Specialist Supervisor in GHG Emissions Analysis, MCTIC.

Summary of the session: Mr. Mauro Meirelles presented Brazil's experience in producing inventories. Since the country is not in the group of developed countries, it only produces periodic inventories. The first one was produced in 2004, the second one in 2010, the third one in 2016 and the next one is expected to be completed at the end of October 2017. In total, reports have included data from 1990 up to 2010.

Mr. Meirelles also discussed the national and international legal frameworks and agreements that Brazil is part of. Even though country is a signatory of the Paris Agreement, the methodology which will be used to fulfil the resulting commitments is still not completely defined. On the other hand, Brazil's national plan is well-defined and quite ambitious: it predicts a 37 per cent reduction in emissions until 2025, and a total reduction in 43 per cent until 2030. The entire process is transparent and there is even an integrated online platform, the National Registry of Emissions (SIRENE), which compiles all publications and data related to emissions. Mr. Meirelles also presented detailed analyses of previously completed inventories, focusing on the structural and gas sectors, in addition to the national inventory and some potential initiatives for the future.

During the discussion following the presentation, Mr. Meirelles responded to several different questions. One of them referred to the level of detail of the Brazilian reports sent to the IPCC: since it's a non-Annex I country, Brazil is not obligated to submit reports as regularly as other countries. Mr. Meirelles replied that, as non-Annex I country, Brazil has submitted reports using the 1996 IPCC methodology, which was also used by Annex I countries until three years ago, when they started using the 2006 system. Until then, this methodology was used in some sections of the Brazilian reports, but from now on the 2006 methodology will be used in all sections. Given that the country is fully implementing the 2006 methodology, its reports will be comparable to all others, with a few differences. The first one is that there would be a certain amount of difficulty in obtaining all the data, such as numbers relative to vehicle emissions. The second difference is that industrialised countries use some of the forms Brazil doesn't use, independently from the fact that the report uses the same methodology to calculate the data, which is ultimately the most important factor.

[Click here for the presentation \(in Portuguese\).](#)

Presentation 3: "Emission inventories, national accounts and economic simulation models for climate policy"

Speaker: Edson Domingues, Associate Professor, Department of Economic Sciences and Research at CEDEPLAR/UFMG.

Summary of the session: Mr. Edson Domingues provided a different perspective from previous speakers, given that he works in a department that is the end user of emission data. They are developing climate change simulation models. He pointed out that the use of data to create a model is not a trivial process: data must be analysed and adjusted according to work demands.

He also provided more in-depth explanations about the models and the evaluations being used, as well as their impact. Mr. Domingues highlighted that these models not only have a theoretical use, but are also being used in our daily lives, assisting in the creation of public policies. He also addressed in further detail the different databases used in the different models. For example, he explained that there is a difference between analysing sectors and industries, and products. In his final remarks, he discussed the use of data and the methodology used, presenting some of the outcomes.

During the round of question, Mr. Domingues questioned how much we should trust the existing models. The difficulty emerges from the fact that the model reflects the economy under which it is build, and therefore they cannot be compared to any of previous models. There were past studies, mostly referring to commercial fields, but there are no studies focusing on gas emissions.

He also commented on the question of changing energy flows in the development of policies to stimulate a reduction in the use of carbon. He believes there are two important points. First, if we opt to use less carbon, change must be significant and policies should stimulate a more efficient use of energy. This would be very costly at present, as clean energy sources are more expensive. On the other hand, climate change is undeniable. It is a complex issue, therefore supporting public policies will need to be remarkably efficient. Some studies have already been conducted, however due to complexity of the issue, more needs to be accomplished and understood before a public policy addressing this topic can be created and implemented.

[Click here for the presentation \(in Portuguese\).](#)

Discussion Panel: Challenges and the way forward

This panel was moderated by **Mr. Gustavo Luedemann**, Researcher at the Directorate of Regional, Urban and Environmental Policies and Studies (Dirur) of Ipea.

Participants:

- **Adriano Santhiago de Oliveira**, Substitute Secretary for Climate Change and Forests, MMA;
- **André Luiz Campos de Andrade**, Advisor, Branch of Monitoring and Analysis of Government Policies, Office of the Chief of Staff of the Brazilian Presidency of the Republic;
- **Márcio Rojas**, Coordinator on Climate, Secretariat of Policy, Programs and Development Research, MCTIC;
- **Wadih Scandar**, Director of Geosciences, IBGE.

Summary of the session: To promote the debate, **Mr. Gustavo Luedemann** posed two questions to all participants. The first question was about their perception regarding the possibility of working on the accounts in other issues in addition to climate change. The second question regarded the link between international commitments and national interests.

Mr. André Andrade commented on the importance of draft legislative bill number 38 from 2015, which still hasn't been approved. He believes that the environment is a topic which must be institutionalised, as it is of utmost importance to all people. The institution he represents is in support of the bill, and many of the ministries that participated in the elaboration of the bill have expressed their agreement with their comments and points of view. He highlighted the importance of the bill, as it provides a base for capacity strengthening both in terms of the people involved in the elaboration of projects as well as in matters of financial support. In addition, Mr. de Andrade pointed out that in the Dallas Global Forum, one of the conclusions of the debate was that countries should try to attain some of the SDG through use of statistics, which follows the same line as the new bill. He said that this is a small bill, only comprising three articles, and that perhaps it could be improved. However, he recalled that for changes in the bill's text to be approved, it would have to go through the entire legislative process again. For that reason, they plan to make amendments once the bill has passed.



Mr. de Andrade said that since he is not an environmental specialist, he would prefer to comment on residence adjustment principle and the territory principle of the accounts. He believes that the topic is interesting, since they may influence the evaluation dynamics of polluting countries within a global scenario, therefore constituting a political issue. Mr. de Andrade also stated the fact that some countries have a strong industrial matrix outside their territories, and this must be taken into consideration especially when producing mission accounts. He believes this is a slow process, but it will yield good results in the future.

In the last round of questions, he commented on the methodology which is used in the accounts, and stated that science will be important in current scenario of information production. He believes each of us is a potential producer of data on a large scale that could be quickly accounted for. Therefore, when discussing, statistics — not only environmental statistics, but statistics in general — this should be re-evaluated. Mr. Andrade believes that prior to adopting a system of environmental and economic accounts there must be a comprehensive debate about the methodology and phases of the project, together with social institutions and Congress. He pointed out how the law itself is making this public discussion about methodology an obligatory step.

Mr. Wadih Scandar expressed his satisfaction for being part of the Seminar and briefly reflected on all previous presentations and discussions. He especially pointed out the need for and the benefits of a having universal accounting system of and stated that the dialogue between different communities must be stimulated so that they can understand each other. He believes that these efforts should be aligned so that public policies might be created and that already available data can be used for the estimates. Mr. Scandar pointed to the need of considering national priorities and stated that energy accounts are the bridge connecting data from national and emission accounts.

Mr. Scandar stated that several of issues that had been discussed during the Seminar regarding national accounts were recurring and are necessary considerations in the creation of energy accounts. He considers himself an optimist and he thinks that Brazil has a promising future regarding these processes.

Answering questions from the audience, Mr. Scandar focused on two topics. First, he addressed the models and the importance of academic backing, which he believes already exists through Rede Clima. Issues such as deforestation and change in land use need to be further developed, as well as possible solutions. The approach to these questions is always in a state of change due to new technologies, as well as the diverse nature of the communities affected by climate change. Mr. Scandar stated that the MCTIC will have to continue supporting this network and, to that end, communication with academia is crucial.

The second topic he commented on were subnational accounts. Speaking as director of the IBGE, it is standard procedure not to consider at things as a whole, but rather to separately analyse individual aspects. However, he stated that it is necessary to use the correct instruments to measure the right objects, and he believes that national accounts are not covered by all measures. Formal structure does not allow to see a portion of the data, such as, for example, when observing the economic movement from one state to another: this information cannot be produced, therefore it is necessary to use alternative tools, which are not exactly the same measurement tools.

In turn, **Mr. Márcio Rojas** reflected on the issue of Brazil's national and the international commitments and obligations. He believes that the simple answer would be that international guidelines must be followed, since different inventories can be compared among each other. However, he also understands that producing these exercises and reports benefit the country in some way. For example, at the national level there is already a group that analyses gas emissions in the country every four years and this very same data could be used to fulfil international obligations as well, using the same people. The second example he provided were the models of vulnerability regarding the impact on climate changes. In this case,

regional experiences from different countries were relayed to Brazilian experts of different fields. Created as a result of Brazilian commitments, these models would often be used afterwards, in the creation of national policies.

Mr. Rojas delivered a short presentation ([click here](#)) and also discussed the national inventory of gas emissions. He provided a detailed account of the results of the national inventories developed so far. He also demonstrated the distinct characteristics and possibilities of the SIRENE online platform created by the Brazilian government, highlighting that the platform contains all the data collected for both national and international commitments. Mr. Rojas believes that these data will help in the development of public policies regarding climate change.

In the last round of question, Mr. Rojas briefly commented on two points: subnational initiatives and strengthening the research network. He thinks that in the future, institutions will try to regionalise more and strive to do a more thorough job, not only showing emissions, as in some previous works. Institutions will consider the necessary adjustments and this exercise should be undertaken very carefully so as to avoid any possible mistakes. On Brazil's need to strengthen its research and scientific network, he mentioned Rede Clima as a notable example of a successful existing programme and that the group of researchers in this wide network are seeking not only to reinforce their knowledge, but also to make this information available for public policy makers, a crucial factor.

For **Mr. Adriano Santhiago de Oliveira**, the most important topics are those related to emissions. He recalled that the Paris Agreement calls for halting the rise in global temperature to below 2 degrees Celsius, and that the way to achieve that goal is to control emissions. He also believes that discussing climate change and national accounts is vital and should happen frequently, exactly as it was during the Seminar, by including various specialists and a diverse audience. On the other hand, he pointed out that Brazil is internationally recognised as one of the most ambitious countries regarding the reduction of emissions. As mentioned earlier, to achieve its goals Brazil must reduce its emissions by 37 per cent by 2025 and then by 43 per cent in total by 2030. He highlighted that there is no strict or predetermined way to reach this goal. Brazil is capable of finding its own way and achieving it with complete success.

Another important question to him is how measures are calculated, so that we can calculate the result taking into account the progress Brazil has made in emission reductions. To that end, he highlighted the need to find a proper method to collect data and to allocate human and financial resources.

Mr. de Oliveira stated that the challenges facing Brazil are linked to the emission of CO₂, given the importance of the agricultural sector for the national economy. Once again reflecting on the Paris Agreement, he restated that its main goals, beyond the standardisation of ecological and national accounts, also include finding a way to adapt to changes. It is necessary to find efficient and intelligent initiatives to promote financial flows to generate positive climatic effects.

Towards the end of the discussion, he responded to a question about the importance of the subnational accounting. He mentioned that initiatives regarding climate change as a whole already exist, but that it is necessary to develop an optimal methodology and to consider ways to improve pre-existing ones. Mr. de Oliveira also commented on how the main objective is to discuss integration and adaptation policies.

Closing session

Participants:

- **Alexandre Ywata**, Substitute President, Ipea;
- **Adriano Santhiago de Oliveira**, Substitute Secretary of Climate Change and Forests, MMA ;
- **Niky Fabiancic**, Interim Director of the IPC-IG, Resident Coordinator of the United Nations System and Resident Representative of the UNDP in Brazil.

Summary of the session: The Interim Director of the IPC-IG, Resident Coordinator of the United Nations System and Resident Representative of the UNDP in Brazil, **Mr. Niky Fabiancic**, expressed his gratitude to all participants and organisers of the Seminar. He said that he believes it is very important to encourage debates on how the SNA is managing to incorporate environmental issues. He pointed out that, as Resident Coordinator of the United Nations System, speaks for 26 agencies when he says that the climate change issue is of utmost importance for the UN.

Mr. Fabiancic also recalled that the UN celebrates the fact that the President of Brazil, Michel Temer, has reiterated the country's commitment to the Paris Agreement, which emphasises the importance of climate change for sustainable development. He also highlighted how the UN has been supporting the Brazilian federal government regarding environmental issues, especially with joint activities to reduce gas emissions.

Finally, he pointed out that the Seminar's exchange of knowledge between national and international actors constitutes an important step in the consolidation of these sustainable alternatives for development.

The Substitute Secretary of Climate Change and Forests at the MMA, **Mr. Adriano Santhiago de Oliveira**, expressed his satisfaction with the many initiatives and projects resulting from the partnership between the UN and the Brazilian government. He thanked all the participants, institutions and the Seminar's organising staff. He invited everyone to continue discussing these topics and to continue working together, confident in the achievement of good results in the future.

Finally, Ipea's Substitute President, **Mr. Alexandre Iwata**, reflected on the process of knowledge exchange among ministries, which spurred the organisation of the Seminar. He also pondered on all the topics which were presented and discussed during the event. He mentioned that he was grateful that so many professional specialists participated in the event and that he hoped that this was first of many events dedicated to the theme to be held in the future.

Videos: Watch the full coverage of the event:

Part 1 - Opening remarks (in Portuguese) and Panel 1 "International experiences in climate change related statistics";

Part 2 - Panel 1 "international experiences in climate change related statistics"(Cont.);

Part 3 - Panel 2 "Brazilian environmental accounting initiatives (in Portuguese)";

Part 4 - Panel 3 "Linking national emission inventories to economic accounting" (in Portuguese);

Part 5 - Discussion Panel: "Challenges and the way forward" and closing remarks (in Portuguese).

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