TALANOA BRAZIL
DIALOGUES

COMPILATION OF STORIES FROM THE TALANOAS DIALOGUES HELD IN BRAZIL

Disclaimer

The information contained in this document does not necessarily reflect the institutional opinion of the Brazilian government regarding the topic addressed. The document aims to inform the international community about the Talanoa Dialogue held in Brazil in 2018. The actions advocated by different sectors of Brazilian society should be viewed as a demonstration of their engagement with the fulfillment of Brazil´s commitments under the United Nations Framework Convention on Climate Change (UNFCCC).

Background

During the Conference of the Parties (COP 15) held in Copenhagen, the Brazilian government made a voluntary national commitment to the UNFCCC secretariat to reduce greenhouse gas emissions. This commitment, enshrined in Law No. 12.187, which established Brazil's National Policy on Climate Change (PNMC), provides for a reduction of between 36.1% and 38.9% of projected emissions by 2020. In order to achieve this emissions reduction goal, the government created Sectoral Plans for Mitigation of and Adaptation to Climate Change, aimed at implementing technologies that contribute to climate change mitigation in various sectors of the economy such as agriculture, industry, energy, waste, etc.

The Paris Agreement, signed in 2015 at the COP 21 in Paris, further strengthened Brazil's commitment to combating climate change. Brazil submitted to the COP its Nationally Determined Contribution (NDC), which entails the reduction of greenhouse gas emissions by 37% below 2005 levels by 2025. Brazil's NDC also indicates a subsequent indicative contribution involving a 43% reduction below 2005 emission levels by 2030. Brazil´s plan to achieve its goals includes, for example, increasing the share of sustainable bioenergy in its energy matrix, and other actions.

In addition, Item 20 of the COP Decision for adopting the Paris Agreement enjoins parties to undertake a facilitative dialogue to take stock, in 2018, of the parties´ collective efforts towards achieving the long-term goal of the Agreement. At COP 23, under the Presidency of Fiji, this process was renamed the Talanoa Dialogue, aimed at encouraging UNFCCC signatory countries to strengthen their commitments to curb global warming during the period up to 2020. The Talanoa Dialogue is an international platform where all countries can exchange experiences and present their actions to combat climate change.

" Talanoa is a word used in Fiji and other Pacific islands to reflect a process of inclusive, participatory and transparent dialogue. The purpose of Talanoa is to share stories and build empathy in order to make wise decisions that are for the collective good. The Talanoa process involves the sharing of ideas, skills and experience through storytelling ".

The Talanoa Dialogue is based on three questions regarding Climate Change actions:

- Where are we?
- Where do we want to go?
- How do we get there?

In Brazil, this process has been endorsed and implemented in different spheres and sectors. The Ministry of Environment has played an active role in the Dialogues, with the participation whenever possible of the Executive Secretary, Romeu Mendes, and the Secretary for Climate Change and Forests, Thiago Mendes. The Ministry considers that it is extremely important to conduct all the dialogues, and has every expectation that this process will continue to form an ongoing part of all the initiatives to be taken by Brazil to combat climate change. Through its support for the process, the Environment Ministry was able to present to COP 23 not the Federal Government´s position on climate change, but rather the story as told by Brazilian society – effectively a set of positive confidence-building stories from Brazil that show the need to deepen the commitments already undertaken and increase cooperation.

The first Talanoa Dialogue in Brazil took place in July 2018, with the event "São Paulo in the Climate – the Talanoa Dialogue", organized by the São Paulo State Government as its contribution to the process. The event consisted of an exchange of ideas by academics, civil society, government and private sector representatives on climate issues.

A further Talanoa Dialogue event took place on August 2, 2018, in the Rio de Janeiro Botanic Garden, coordinated by the Ministries of Environment and Foreign Affairs (MRE), with support from the World Bank. This event was attended by more than 30 representatives of different sectors, such as the UNA University Center, the Brazilian Wind Energy Association (ABEEólica), the Secretary of State for Civil Defense (SDC-SC), the MMA Forest Service, the Canidé Semi-Arid Rural Settlement, the Brazilian Association of Vegetable Oil Industries (ABIOVE), Greenpeace, the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA), Banco Pérola, the Extractive Reserves Sustainable Use Units (RESEX), the National Council of Extractivist Populations (CNS), the Environment Secretariat of the Municipality of Extrema (MG), the Brazilian Business Council for Sustainable Development (CEBDS), the Ministry of Mines and Energy (MME), the National Association of Manufacturers of Automotive Vehicles (ANFAVEA), the National Institute of Space Research (INPE), and the Brazilian Forum on Climate Change (FBMC).

On September 27, 2018, the Civil Society Talanoa brought together in Brasilia public sector and civil society representatives from the Ministry of Environment (MMA), the Ministry of Foreign Affairs (MRE), the Government of São Paulo, the Management and Strategic Studies Center (CGEE), the International Council for Local Environmental Initiatives (ICLEI), the Federal University of Minas Gerais (UFMG); the Municipal Prefecture of Recife; the Alberto Luiz Coimbra Institute for Graduate Studies and Engineering Research of the Federal University of Rio de Janeiro (UFRJ/ COPPE), the Amazonia Network (RCA), the Caixa Econômica Federal (Federal Mortgage Bank), the World Wide Fund for Nature (WWF), and others.

The Brazilian Academic and Scientific Community Talanoa took place on October 15 in Brasilia, attended by representatives of the Federal University of Minas Gerais (UFMG), the Federal University of Rio de Janeiro (UFRJ), the University of São Paulo (USP), the University of Brasilia (UnB), the State University of Rio de Janeiro (UERJ), the Federal University of Amazonas (UFAM), Datagro Consultoria, the National Center for Monitoring and Early Warnings of Natural Disasters (CEMADEN), the Ministry of Science, Technology, Innovation and Communications (MCTIC), the National Institute for Space Research (INPE), the Oswaldo Cruz Foundation (FIOCRUZ), and the Brazilian Agricultural Research Institute (EMBRAPA). All these institutions contributed presentations related to Brazil's Paris Agreement goal.

On October 19, the Talanoa Business Sector Dialogue was organized by the Brazilian Business Council for Sustainable Development (CEBDS), attended by representatives of the Brazilian business community, including Banco Santander, Votorantim, Shell, the Climate and Society Institute (ICS), C40 Cities, and SUNEW. The main aim of this event was for participants to gain an understanding of how

large companies contribute to complying with the Paris Accord, as well as examining the role of society in combating climate change.

To conclude the Talanoas rounds conducted in Brazil, the Indigenous Peoples Dialogue - the most symbolic of all - was held in Brasilia on November 6. This event covered discussion on the actions and results achieved to date by indigenous peoples from different ethnic groups to keep forests standing. In the words of Alberto Terena, one of the representatives of National Articulation of the Indigenous Peoples of Brazil (APIB) "Our lands are preserved because we are able to live in harmony with nature". This round of the Talanoa Dialogue was attended by, among others, representatives from a variety of ethnic groups: Arara, Baré, Borajó, Guajajara, Ikpeng, Kayabi, Macuxi, Manchineri, Manoki, Pankará, Rikbaktsa, Tariana, Tempé, Terena, Tuxá, Wajãpi, Wapichana, Xerente and Xokleng.

The *Talanoas Dialogue Brazil* produced 136 stories of actions that contribute to strengthening Brazil's leading role in the climate agenda. The following compilation synthesizes these stories.

Energy Sector

Brazil's energy sector is characterized by its diverse renewable energy matrix, responsible for around 33% of GHG emissions (according to the 4th Edition of the Annual Estimates of Emissions of Greenhouse Gases in Brazil). As with the agricultural sector, steps are being taken to optimize the performance of the energy sector while reducing greenhouse gases.

Where are we?

The representative of the Management and Strategic Studies Center (CGEE), **Barbara Bressan Rocha**, said that while the energy sector is close to achieving the agreed target on emissions there is still room for improvement. Although the government has taken some action to promote renewable energy, such as RenovaBio (Brazil is the world's second-largest producer of bioethanol and continues to support research on this energy source) there are certain internal issues that run counter to this scenario, for example the fact that "Petrobras has deactivated several biofuel plants".

The Executive President of ABEEOLICA (Brazilian Wind Energy Association), **Elbia Aparecida Silva Melo**, presented data on wind energy, which is currently the third most important energy source (9%) in Brazil´s electricity matrix. Public policies, such as the Alternative Energy Sources Incentive Program (ProInfra), contributed in the past to boosting the wind energy sector, but government subsidies are no longer required since the sector is now highly competitive due to the competitive energy auction mechanism. Wind energy, currently R$40.00 cheaper than hydroelectric power, also promotes economic and social development in low-income regions such as the North and Northeast of Brazil where wind energy is generated.

Professor **Elizabeth Marques Duarte Pereira**, coordinator of energy studies at the UNA University Center, spoke about the use of photovoltaic solar energy in Federal Government social housing projects (Minha Casa Minha Vida Program - MCMV). The solar energy program directly benefits the low-income population by generating clean, environmentally-friendly renewable energy on

the roofs of MCMV residences and condominiums. This technology makes it possible to reduce electricity costs by more than 50% and thus enable users to invest the money saved in other items such as house improvements (in the South and Southeast) and food (North and Northeast).

Carlos Alexandre Príncipe Pires, Director of the Department of Energy Development of the Ministry of Mines and Energy (MME), explained Brazil's National Biofuels Policy known as RenovaBio. This State policy aims to develop a joint strategy to reflect the strategic role played by all types of biofuels in the Brazilian energy matrix to benefit energy security and GHG reduction. Policy objectives are: to promote the appropriate expansion of biofuels in the energy matrix, with emphasis on the need to ensure regular supplies of the fuels; to ensure predictability in the fuel market; to generate energy efficiency gains; and to reduce GHG in the production, marketing and use of biofuels.

Alexandre Salem Szklo, research professor at the Alberto Luiz Coimbra Institute for Postgraduate Studies and Engineering Research of the Federal University of Rio de Janeiro (COPPE / UFRJ), spoke about modeling studies. *The Computable Framework for Energy and the Environment model (COFFEE) involves tracking the macro scenario related to global CO2 emissions, while the Brazilian Land Use and Energy Systems* Model (BLUES), focuses on energy and land use optimization. "Integrated modeling allows the analysis of all the components of the process, and the model uses the data produced to propose new technological options, thus boosting the competitiveness of industry". The COFFEE model is, for example, able to identify the relationships between land use and the production of, and demand for, biofuels.

Where do we want to go?

Elbia Melo, Elizabeth Pereira and Carlos Alexandre Pires strongly emphasized the importance of ensuring renewable energy generation during the periods of intermittency inherent in each energy supply source, and to ensure that all the regions are interconnected (especially the North region).

How do we get there?

According to **Elbia Melo**, the success of wind energy in Brazil is mainly due to two factors: (i) political intervention (subsidies, incentives, science and technology investment), which has made the sector strong and competitive; and (ii) the change in energy contracting methods undertaken by the government, which undertook energy purchasing through the holding of renewable energy auctions. This was an example of a successful market-based approach: the market was able to respond to the political initiatives, and the wind energy generation sector became self-sufficient as a result.

According to **Elisabeth Pereira**, in many of the Minha Casa Minha Solar Energy Program units the residents put up resistance. This called for a need to shift the paradigm in order to convince communities to accept solar energy. "I was even asked whether the hot tap water caused skin cancer!" Training projects have now been set up for all the stakeholders involved in the program (architects, engineers, CAIXA (housing bank) employees, etc.), and user satisfaction monitoring schemes initiated.

In order to achieve the goals of the RenovaBio Program, plans have been drawn up to: (i) establish national emission reduction targets for the fuels matrix over a period of 10 years. The national targets will be broken down into annual targets for individual fuel distributors in accordance with their share of the fossil fuel market; (ii) introduce certification of biofuels production, with

different ratings attributed to each producer, to indicate the amount that is inversely proportional to the carbon intensity of the biofuel produced. This rating will accurately reflect the individual contribution of each producer agent to the mitigation of a specific amount of GHG in relation to its fossil substitute (in terms of tons of CO 2 e). Linking these two instruments will lead to the creation of a Decarbonization Credit Unit (CBIO), a financial asset traded on the stock exchange, issued by the biofuel producer based on sales invoices (nota fiscal). Fuel distributors will achieve the goal by confirming ownership of CBIOs in their portfolio.

With regard to modeling studies, researcher **Alexander Szklo** said that "With these models it is possible to outline scenarios to estimate the effort required to meet the targets of the Paris Agreement, to restrict global warming to 2ºC, and to offset weak environmental governance that could potentially result in emissions from land use changes. Brazil is the only developing country with an Integrated Global Assessment Model (IAM) which enables it to track global integrated mitigation scenarios to fight global warming".

Agricultural Sector

The 4th Edition of the Annual Estimates of GHG Emissions in Brazil states that the agricultural sector is responsible for 31% of GHG emissions and is highly vulnerable to climate change. Although the Brazilian agriculture sector is of great importance for the country´s trade balance it was, in the past, characterized by low productivity and inappropriate agricultural practices. However, over the last few decades the sector has reached record levels of productivity and production diversification, and excels in the use of more sustainable practices. It is also undertaking numerous actions to reduce greenhouse gas emissions.

Where are we?

Embrapa researcher **Eleneida Doff Sotta** addressed the financing component of the Low Carbon Agriculture Plan (ABC Plan). This Plan focuses on encouraging more sustainable technologies to reduce emissions. It also promotes product and technician training using demonstration units. At present, only one federative state does not possess a State ABC Plan. Credit lines are financed through bank contracts. The ABC Platform monitors emissions and the adoption of appropriate technologies, and generates emission coefficients that are specific to each technology covered by the Plan. "Change through knowledge!" are the watchwords of the ABC Plan.

According to the Ministry of Agriculture, Livestock and Supply (MAPA), 30,568 such contracts were signed between 2010 and August 2018, involving the disbursement of R$ 14.570.421,59 (an average of R$ 476,66 per contract). The total available for this particular credit line was R$ 25.67 billion for this period. 40,484 trainings in the technologies enshrined in the plan were conducted between 2011 and 2017 in the 940 demonstration units distributed throughout the country.

In addition to Federal Government actions under the ABC Plan, private and productive sectors are also actively participating in the implementation of more sustainable technologies in the field. Embrapa researcher and President of the Management Council of the Integrated Crop-Livestock-Forest (ILPF) Network Association, **Renato de Aragão Ribeiro Rodrigues** drew attention to ILPF initiatives, which include the establishment of a public-private partnership comprising Embrapa,

the Cocamar cooperative and a number of different companies (Bradesco, John Deere, SOESP and Syngenta). The Association aims to foster and expand the use of this technology in the field. Currently an estimated area of 11.5 million hectares have ILPF technology (the states of Mato Grosso do Sul, Mato Grosso and Rio Grande do Sul are the largest areas covered). According to this researcher "The ILPF is a technological package that brings together various technologies that were in the ABC Plan but not included in the NDC. It is a means of combining adaptation with mitigation".

The president of DataAgo, **Plínio Nastari**, outlined agribusiness data: agriculture occupies 7.8% of the territory, livestock farming 21.3%, and the forest 6.6 %. Native vegetation on private properties (environmental assets) accounts for 25.6%. The annual value of the latter consists of 3 trillion environmental services provided by rural land owners (Embrapa Territorial Data). He drew attention to the error made in the past to consider degraded pasture as land use, such as that in the Amazon region. Plínio added that Brazil is a leader in the biofuels area and points to RenovaBio as an example.

Where do we want to go?

Eleneida Sotta highlighted the important progress made in studies related to tropical agriculture emission factors as a way of enhancing the reporting of emissions reductions in the agricultural sector. Brazil's NDC seeks to strengthen the Low Carbon Agriculture Plan (ABC Plan) as the key strategy for sustainable agricultural development, including by restoring an additional 15 million hectares of degraded pasture by 2030, and by adding 5 million hectares using ILPF systems by 2030.

According to **Renato Rodrigues**, the ILPF Network Association aims to achieve a target of 1 million hectares with ILPF, monitored and certified, by 2030 . This will involve focusing on small and medium producers and strengthening the market differential for producers that adopt this technology. This will strengthen the market, with the assistance of SEBRAE (Brazilian Micro and Small Business Support Service), APEX (Brazilian Agency for Promotion of Exports and Investments) and similar institutions.

Plínio Nastari pointed out that Brazil can look forward to strong growth in the agricultural sector, a forecast backed up by data from the United Nations Food and Agriculture Organization (FAO) and USDA (United States Department of Agriculture) showing that Brazil will account for 50% of global agricultural expansion in the coming years. Compared to China and the US, Brazil produces, and exports, more soybean than corn. Plinio went on to say that the decision of the US (and especially China) to grow more corn and import more soybean, owes much to the fact that larger amounts of water are needed to produce soybean. These two countries are actually importing water. Moreover, corn production in Brazil will greatly expand from 92 million to 150 million tons, in Maranhão, Tocantins, northern Mato Grosso, western Bahia and southern Piauí. Increased production will most likely occur in areas with degraded pastures and not necessarily in the native forest areas of the Amazon region.

How do we get there?

On the subject of emission factors, Eleneida Sotta talked about the work of the ABC Platform, which involves collecting all the data on what has already been developed. This makes it possible to identify bottlenecks and devote increased efforts and resources to researching the areas where emission factors have not yet been developed. The ABC Plan provides for the implementation of its goals in the following ways:

- Publicity campaigns;
- Training of technicians and rural producers;
- Technology transfer;
- Environmental regulation;
- Land legalization;
- Technical assistance and rural extension;
- Studies and planning;
- Research, development and innovation;
- Supply of inputs;
- Production of seeds and forest saplings;
- Rural Credit.

These actions provide the basis for overcoming weaknesses and encouraging alternative proposals for substituting or reorienting environmentally sustainable production aimed at enhancing levels of sustainable development. To achieve the objectives outlined in the ABC plan between 2011 and 2020, an estimated R$ 197 billion will be needed, financed from budgetary sources or borrowings. Of this total, an estimated R$ 157 billion would be resourced through rural credit mechanisms to finance the activities needed to achieve the physical goals of each program. Funds, to be provided from different sources such as BNDES and banks' own resources, will involve expenditure and equalization transfers, with a total estimated value of around R$ 33 billion, from the General Budget of the Union.

According to **Renato Rodrigues**, the ILPF Network Association will need to do the following in order to achieve its goals: promote and implement technology transfer projects and actions, promote R&D, and scale up communication and strategic approaches to disseminate the benefits of the ILPF systems. The Association will also need to focus on the possibility of capturing resources and executing projects. These actions are implemented with funds from members' annual subscriptions. "We currently have around 100 million hectares of degraded pastures and 35 million hectares producing grains. If we were to increase grain production on an additional 20 million hectares by using more sustainable technologies, it would be possible to at least double the production of meat, milk, timber and grains in Brazil without knocking down a single tree ".

Plinio Nastari added economic incentives are needed to protect land from deforestation and to promote more sustainable agriculture by rewarding owners who preserve and conserve the forest. This requires investing in research and advocating sustainable agricultural practices. RenovaBio is an example to follow. We must also consider the use of control and enforcement as important components in the fight against deforestation.

Land-Use Change and Forestry Sector

According to the 4th Edition of the Estimates of Greenhouse Gas Emissions in Brazil, the Land-Use Change and Forestry sector accounts for the largest amount of GHG emissions (24% of the total). However, much has been done to reduce emissions from deforestation.

Where are we?

Jair Schmitt, Director of the MMA Department of Forests and Combating Deforestation, said that Brazil plays a major role in anti-deforestation efforts: "Curbing GHG by reducing deforestation in the Amazon is the world's largest emissions reduction effort". The MMA is responsible for deforestation surveillance and prevention, and adherence to the guidelines established by the Action Plans for the Prevention and Control of Deforestation which applies to all the biomes in Brazil. The Action Plan for the Prevention and Control of Deforestation in the Amazon (PPCDAm), has succeeded in reducing the annual deforestation rate from 20,000 km² to the current level of around 6,000- 7,000 km². 2016 witnessed a 59.3% reduction of deforestation compared to the average deforestation of 19,625 km² under the National Climate Change Policy in years 1996-2005.

Suely Mara Vaz Guimarães de Araújo, of the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), introduced the subject of conversion of penalties into environmental services. In view of the substantial number of unpaid fines, this is basically a way of using the conversion mechanism to obtain resources for environmental improvement. This discretionary approach enables violators to replace penalties in exchange for carrying out environmental preservation, improvement and recovery services. "This is a way to muster resources for the environment!".

Raimundo Deusdará, Director General of the MMA Brazilian Forest Service explained details of the Rural Environmental Registry (CAR), a national electronic public registry, mandatorily implemented for all rural properties. Its purpose is to collect environmental data on farms and other rural properties with particular focus on properties in Permanent Preservation Areas (APP), Legal Reserves (RL), restricted use areas, consolidated areas, and other areas containing remnants of forests and other types of native vegetation. The result of this effort has been the establishment of a database used for environmental/economic planning, surveillance, and monitoring fragile areas, as well as for combating deforestation.

Raoni Guerras Lucas Rajão, professor at the Federal University of Minas Gerais (UFMG), acknowledged the efforts of the MMA and other state agencies to ensure compliance with the agreements to control deforestation. In his view, although deforestation has declined in recent years, Brazil's NDC is nevertheless over ambitious given the country´s current political situation and the perennial difficulties encountered in halting illegal deforestation.

University of Brasília (UnB) researcher **Mercedes Bustamante**, referring to anti-deforestation actions, criticized the government for "focusing on deforestation prevention in the Amazon, while leaving the other biomes out of the picture… the Cerrado (tropical savanna) suffers high rates of deforestation and should play an important role in any discussions on climate change… but this key biome receives little attention in terms of public policies".

Where do we want to go?

In addition to the actions already implemented by the government to prevent and control deforestation, Brazil intends to: strengthen compliance with the Forest Code at the federal, state and municipal levels; reinforce policies and measures for achieving zero illegal deforestation by 2030 in the Brazilian Amazon, and offset GHG from legal vegetation clearing by 2030; restore and reforest 12 million hectares of forest by 2030 for multiple uses; and scale up sustainable native forests management with the use of dedicated georeferencing and traceability systems aimed at discouraging illegal and unsustainable practices.

According to **Suely Araújo**, converting fines into environmental services does not relieve debtors of the duty to repair the damages resulting from the violations that led to the imposition of penalties in the first place. The key objective remains that of reducing the number of defaults and augmenting financial resources for fostering environmental preservation and improvement services, and the recovery of environmental quality overall.

Raymond Deusdará drew attention to the fact that the Brazilian Forest Service is currently negotiating an agreement with the SICOR (Central Bank Credit System) to provide credit via the CAR scheme, which is expected to lead to rural properties being described in greater detail in the electronic database.

Raoni Rajão presented the three scenarios of the Mitigation Options project: increased deforestation in the "trends" scenario; the abandonment of national environmental policies in the more "catastrophic" scenario; and, in the "strong governance" scenario, the present goals remain in place.

How do we get there?

According to **Jair Schmitt**, achieving the goals involves using the Plans to address the main causes of deforestation, and carrying out actions to promote the sustainable use of natural resources by reconciling agricultural production activities with environmental protection. If these targets are met and widely disseminated, Brazil will attract more resources as a reward for Reducing Emissions from Deforestation and Forest Degradation (REDD +), and ensuring the maintenance and increase of carbon stocks. Jair added that improved monitoring of forest cover, investment in overseeing enforcement measures to combat deforestation, creation of Conservation Units, and more involvement by society and along the entire productive chain, have made the PPCDAm a success. "One of the main challenges is to demonstrate that the standing forest can be attractive economically". In other words, we must promote economic development while maintaining the biodiversity of the forest. To achieve this, a substantial obstacle must be overcome: how to ensure that the benefits resulting from forest maintenance can be enjoyed by all.

Suely Araújo explained that there are two ways of converting fines: "directly", with services rendered by the violator, and "indirectly" , in which the violator is responsible for quotas of larger projects pre-selected by public tendering calls coordinated by IBAMA. The direct method involves a 35% discount on the fine, while the indirect method carries a 60% discount- a larger waiver in view of the interest in prioritizing large projects. Fines conversion, is a permanent and novel way of harnessing resources for the benefit of the environment.

Raimundo Deusdará highlighted several components contributing to CAR's success: the registration process of rural properties was voluntary and straightforward based on a friendly

approach to the agricultural productive sector, informal outreach, partnerships with a variety of agents, close liaison with state authorities, and feedback from public hearings. “These last two points have made CAR an instrument of territorial management”.

Raoni Rajão pointed out that the monitoring of deforestation rates can certainly be carried out using the CAR rural environmental register, and emphasized the need to curb land-grabbing and real estate speculation. “The government has an important role in maintaining the standing forest through the creation of new Conservation Units and strong action by IBAMA” .

Mercedes Bustamante voiced concern that “monitoring deforestation rates is not enough… we need policies that ensure that the standing forest will be maintained”.

Transportation Sector

Emissions arising from burning fossil fuels in the transportation sector is reported in the stories as a subsector of the energy sector. According to the latest annual estimates (2015), the sector accounts for 15% of Brazil’s GHG emissions, and 47% of all energy sector emissions.

Where are we?

Fábio Feldmann, sustainability consultant, was responsible for implementing the “Rodizio” Program (vehicle restrictions at peak times or rotating on alternate days) in the city of São Paulo from 1995 to 1998. This project came about as the result of worsening health quality in the city, particularly increased mortality rates among the elderly and children. The solution was to reduce vehicle movements within the city in order to cut down the amounts of atmospheric pollutants. This rotation system removed 20% of the total number of vehicles from the São Paulo Metropolitan Region. Despite the program’s success in reducing congestion and improving air quality, Feldmann was never re-elected in the state due to popular resistance to the project. According to him, rude stickers proclaiming “ Fabio Feldman’s mother also does a Rodizio” appeared on many vehicles.

Henry Joseph Junior, Vice President of Anfavea, commented that PROCONVE (Program for the Control of Air Pollution by Automotive Vehicles) was created to reduce and control air pollution and noise produced by vehicles. A further program called the Incentive Program for Technological Innovation and Automotive Vehicle Productivity Chain (InovarAuto), aims to make the vehicle fleet more efficient and less polluting. As one of the world´s most effective GHG-reducing and efficiency-gaining programs, the InovarAuto program makes a crucial contribution to actions to reduce transport-related emissions.

Where do we want to go?

The Brazilian government’s goal is to promote efficiency measures and improvements in the transportation infrastructure and public transportation in urban areas. In addition to participating in the 2030 Program aimed at meeting the Paris Agreement goal through actions to reduce GHG, the government´s goal is to establish the basis of an industrial policy for the automotive industry

for the next 15 years, to promote the long term modernization of the transport sector and to set rules for tax exemptions. To benefit from tax breaks, vehicle manufacturers will need to commit to investing in R&D to produce safer and more efficient vehicles.

How do we get there?

According to **Feldmann**, the main challenge faced by the implementation of the Rodizio system was "the need to change people's behavior and to encourage them to find alternative means of transportation". Although this was not an easy process the population over time began to accept that the new behavior pattern was gradually improving congestion in the city. "The Rodizio project, although initially concerned with environmental quality, became consolidated as an instrument for reducing congestion in the city". However, the main obstacles to the project were: (i) people´s desire to own and drive cars; and (ii) the lack of good quality pubic transportation. "Generating behavior change involves taking into account not only health and safety, but also values and the power of symbols".

Henry Junior highlighted the need for vehicle fleet inspections and renewal. He said that there is no point of vehicles leaving the factory with low emission capacity and high efficiency if users fail to carry out appropriate inspection and maintenance. "It is necessary to bring together all the programs related to improving the vehicle fleet so that the auto industry can implement actions to make these goals a reality. The programs referred to by Henry Junior provide, in addition to increased energy efficiency, road safety mapping, vehicle labeling, fining mechanisms and the loss of a manufacturer's license in the event of non-compliance with the goals.

Industrial Sector

According to the 4th Edition of the Annual Estimates of Emissions of Greenhouse Gases in Brazil, the industrial sector is responsible for 7% of GHG emissions.

Where are we?

Fábio Cirilo, eco-efficiency consultant at Votorantim Cimentos (Brazil's largest producer of cement, with a presence in many overseas markets) highlighted the initiatives implemented and under test in the company's production processes. The cement industry accounts for approximately 5% of anthropogenic CO 2 emissions. These emissions occur mainly during the process of calcination and the use of fuels. Votorantim Cimentos is conducting a range of actions aimed at reducing GHG emissions.

According to **Luisa Guimarães Krettli**, manager of the New Business division of SUNEW, said that the track record of her company, which manufactures organic solar panels (OPV), demonstrates the commitment to help resolve major challenges in the energy sector faced by society. The company, a world leader in organic photovoltaic film, seeks primarily to lessen the environmental impact of GHG by generating clean energy with the use of its products and in its own manufacturing processes. SUNEW has an installed production capacity of 400.000 m² of OPV per year. The manufacturing method is continuous and highly scalable, utilizing non-toxic natural organic materials in a roll-to-roll printing process similar to that used in the textile industry. The production process involves low, energy-saving temperatures. "There is a lot of technology

behind that panel. We have nanometer printing on this material, but it is as simple as printing a newspaper, a fabric or a photographic film. OPV panels have a smaller carbon footprint… everything is recycled, and the production process uses very little energy. “Sustainability is part of our DNA… there are five other OPV manufacturers in the world, but we are the largest”.

Where do we want to go to?

According to **Fábio Cirilo**, cement companies at COP 21 committed to reducing 20-25% of their emissions by 2030. As the largest manufacturer of building materials in Brazil and one of the world’s largest cement companies, the company seeks to increase its operational efficiency, innovate and improve its reputation by adopting the most advanced emissions-reducing technologies, improve energy efficiency, ensure the health and safety of its workers, strive to achieve zero accident rates, reduce its environmental footprint, and promote local development of the communities where its plants are located.

Luísa Krettli added that her company seeks to use the product in large structures, buildings, gas stations and so on. “To do this, we needed to expand our industrial structure... that is why we became the world’s largest OPV manufacturer… we are a 100% national company, using Brazilian technology. The goal is to have OPV spread everywhere over the next two years. This is an enormous challenge, and we are seeking partners who can help meet this challenge”. According to her, today the company faces the dilemma of how to satisfy demand for the product at reasonable cost. “In common with any other innovation company, with high inputs of R & D investment, the product is initially expensive, but with increasing demand and economies of scale, prices will drop”.

How do we get there?

Fábio Cirilo explained that 90% of the emissions in the cement industry arise from the production process. The went on to defend carbon pricing in Brazil, as is already the case in Spain and Canada, as a means to encourage the industry to make the transition to using cleaner carbon processes. “You can not escape this trend… carbon will be priced, and we see it as an investment variable. Investors are already looking at future carbon emissions and dependency on fossil fuels. The Dow Jones index alerts investors to companies with high carbon emissions and their prospects for generating future returns to shareholders”. Among the projects implemented by Votorantim, Cirilo highlighted a co-processing initiative involving phasing out 10 oil-burning coke trucks, replaced in 2016 by other fuels, thus saving the equivalent of 213,000 tons of carbon. A recent initiative is the use of açaí stones in a processing plant located in the state of Pará. The stone is 80% of the açai fruit (only the pulp is consumed) and is ground up and used to replace 37% of the fossil fuel, thereby further reducing methane emissions. Another technological initiative involves substituting limestone (the raw material for cement), with clay. This has cut carbon emissions by 43% as well as the amount of energy needed for the manufacturing process. He also drew attention to a carbon capture pilot project in Canada, which although high-cost, is experimenting with algae as a biofuel to reduce the impact of carbon emissions. The actual process involves transferring the carbon from the furnace to a reactor with microalgae. This photosynthesizes and converts the carbon and sulfur dioxide into fuel, fertilizer or animal feed. “While the Canadian project is still a very expensive, we believe that the carbon pricing process could help make this kind of initiative viable”.

According to **Luísa Krettli**, OPV can be incorporated in a variety of conventional building items such as facades, windows, skylights, tiles, weather protection devices, and so on. This new smart, sustainable building modality is energy-efficient, using surfaces for solar energy generation and

the reduction of thermal load. The material also contributes to luminosity management and adds value to properties by incorporating interesting designs and attracting good scores in green certifications. The panels can be used in different urban structures, affording sustainability, good design and energy-saving to smart cities. Likewise, the material can be integrated into cars, semi-trailers, trucks, buses and other vehicles to generate clean energy to improve performance and energy efficiency. The technology is the only one that can withstand the stresses and strains to which vehicles are subjected in real use situations. As well as reducing fuel costs, OPV can also be used to power auxiliary systems such as GPS, exhausts, and other electronic systems- even when a vehicle's engine is switched off.

Financing and means of implementation

The financial sector plays a key role in fostering the implementation of actions to combat climate change, acting as a driving force of change. While there is no regulatory framework for the sector, some financial entities are already taking initiatives in the climate area.

Where are we?

Carolina Learth, Sustainability Manager at Banco Santander, outlined the activities undertaken by the bank in Brazil and worldwide in the environmental and climate change areas, highlighting the key role of the financial sector. The Brazilian Federation of Banks (Febraban) currently convenes a group of around 25 financial institutions to discuss how climate change affects bank portfolios and society as a whole. She said that Santander began work on the topic soon after the regulated carbon market in Europe emerged. In Brazil, the bank has provided support to companies involved in selling carbon credits, and maintains portfolios in a number of related areas such as renewable energy, low carbon agriculture, forestry and energy efficiency.

The Caixa Econômica Federal representative, **Morenno de Macedo**, outlined CAIXA´s involvement in the climate change area; As a participant in Clean Development Mechanism (CDM) projects, this public bank currently provides loans to the ABC Plan and the energy and forest areas.

A representative of the Banco Pérola, **Barbara F . Dalla Costa**, said the bank, a nonprofit public interest civil society organization, provides loans to small businesses, micro-businesses and micro-entrepreneurs.

The COPPE research specialist, **Emilio Lèbre La Rovere**, questioned where we are going to get to if we continue where, and how, we are at present? He raised three scenarios contained in a study prepared by YesBrasil for the FBMC. In the trend scenario, we will not be able to meet the NDC targets for 2030 based on where we are at present. The 2020 and 2025 goals will only be met on the basis of past achievements, but Brazil's economic recession and political crisis have undermined city governance and seriously delayed the necessary changes that need to be made in the cities. Governance issues need improving if all the commitments are to be achieved.

The UFMG researcher, Aline Magalhães, commented on the importance of risk management in the economy, emphasizing the need for public policies based on economic instruments. The sector most vulnerable to the effects of climate change is agriculture, given its dependence on

temperature and rainfall. One hypothesis is that declining soil productivity due to climate change could probably lead to increased land use (i.e.deforestation) in order to maintain agricultural production levels.

Where do we want to go?

According to **Carolina Learth**, the Financial Stability Board, an international organization that monitors and makes recommendations on the global financial system, published a paper in 2016 describing how large companies deal with climate risks, governance, strategy and the publication of business outcomes related to climate change. This study gave rise to the formation of a UN Working Group comprising Brazilian and foreign banks. “We need to understand how climate change impacts on bank’ portfolios. Santander is aware that the financial sector plays a key role in this discussion. Since money passes through the financial sector we need to assess how we can apply resources to help move society in one direction or another. Our view is that climate change is here to stay. It has everything to do with development, competitiveness and the kind of country and the world that we want to live in “.

Policies, measures and actions to achieve this NDC will be implemented without prejudice to the use of the Convention´s financial mechanism. Other cooperation and international support modalities will be used to strengthen NDC effectiveness and/or anticipate its implementation. While the implementation of Brazil’s NDC is not conditional on international support, it is open to developed country support as a means of generating global benefits. Additional actions will require a large-scale increase of international support in terms of investment flows, development, employment, and technology transfer and diffusion. As for the forestry sector, the implementation and retention of REDD + activities and outcomes call for the continued provision of performance-related payments in an appropriate, predictable manner in accordance with the relevant decisions of the Conference of the Parties.

How do we get there?

The present challenge , according to **Carolina Learth**, is how to make the move from an economy still based on fossil energy sources to one in which renewable sources represent the largest part of the energy produced. “We have to be extremely careful. It is the responsibility of all of us to learn more about transition. We have to realize that at some moment we will need to actually disinvest. For the present we need to look at how much we have to back-peddle, and simultaneously where we should invest more resources to spur progress. We know that several oil and gas companies are repositioning themselves and moving towards renewables. This raises the question of whether to move more quickly or retrench” In order to make its choice, Banco Santander has mapped the activities that fit within the green economy concept. It has also assessed the vulnerability of its portfolios to climate change. With regard to climate risk, the bank has conducted this analysis using models containing five scenarios. Although the process is incipient within the bank, climate risk is a key driver for banks in general and must be taken into account by decision makers in view of the major impact that risk analysis has on the entire financing process.

Morenno de Macedo drew attention to the Caixa Econômica’s partnership with the Getúlio Vargas Foundation (FGV) to create a methodology for measuring the resources that the financial system allocates to the green economy. From 2014, the total green economy portfolio reached R$ 400 million, representing 30% of the current corporate portfolio of R$ 1.5

trillion. The data show the efforts being made by banks to finance projects that include emissions reduction, resource use efficiency and social inclusion. The CAIXA will soon be accredited to the Climate Fund.

According to **Bárbara Costa**, Banco Pérola bridges the gap between small entrepreneurs and potential investors through an FIDC (Investment Fund in Credit Rights) with shared guarantee obligations. As demand for loans increases in tandem with customers payment capacity, bigger loans are made available. It is important to note that Pérola is a credit association with social rather than financial aspirations.

Emílio La Rovere reported on the command and control instruments and economic instruments needed to achieve an inclusive low carbon society. He argued that resumption of economic growth involves prioritizing the main bottleneck: infrastructure financing and development. Financing instruments are vital for incorporating the climate dimension into a national development project. Brazil's abundant, low-cost renewable natural resources are capable of attracting infrastructure investment, as has been the case of wind energy. Credit guarantor funds could be used to attract more investment since they reduce potential risk and could possibly attract external capital to finance projects at low interest rates and with longer grace periods. The result of this would be to generate positive demand. "Fining people who emit and providing incentives for those who do not emit, is also a way to boost sustainable development". To do this, it is important to price a ton of CO_2 eq. The Finance Ministry is examining this option. Mechanisms are, for example, already in place for taxing and selling emission quotas for certain sectors such as transport and agriculture. Command and control mechanisms are particularly important for the AFOLU (Agriculture Forestry and Land Use) sector. Progress has been made using robust, well defined economic instruments towards expanding the ABC Plan to the level of the Plan Safra. "We should prioritize shorter livestock fattening cycles in order to reduce emissions per animal, and to invest in all the mitigation measures of the ABC Plan". Moreover, it is vital to implement the mechanisms provided for in the Paris Agreement for scaling up projects to the programs/plans level, following the example of the Clean Development Mechanisms (CDM). The positive impacts of these actions include increased employment (renewable energies, as opposed to fossil fuels, generate more jobs), generation of skilled jobs, better income distribution (renewable energy generation in per capita low-income areas). All this encourages a virtuous economic development cycle. However, for this to occur, the instruments must be supported by political will and good governance (institutional effectiveness), including stronger regulatory agencies.

Public Policies

The story about Climate Change knowledge .

Gylvan Meira Filho, a professor at USP, outlined the history of knowledge about climate change. Discussions on the subject began in the United States in the late 1980's. These eventually resulted in the creation of the IPCC, responsible for climate change-related scientific issues and the compilation of globally produced scientific material on the topic. In recent years, research progress has made it possible to present more accurate future scenarios. Meanwhile, is important to study current climate events as effects of climate change in general, and to establish a timescale for the consequences. "We should do our part and penalize those who does not".

Clean Development Mechanism (CDM) projects were a great success in mitigating climate change.

José Domiguez Gonzales Miguez, Director of MMA Climate Change Policies and a UNFCCC member, emphasized that the use of flex-fuel cars and ethanol were responsible for part of the emission reductions. He highlighted the special importance of carbon credits within the CDM framework as helping to drive GHG emissions reduction in various sectors of the economy. Carbon credits, the key to sustainable development, job creation and quality of life improvements in regions where implemented, have also helped to substantially reduce the costs of GHG reduction implementing actions. CDM projects have led to significant reduction of greenhouse gases in Brazil and worldwide. The Director shared two stories related to his experience as climate change coordinator at the Ministry of Science, Technology and Innovation:

- The Gramacho Landfill (Rio de Janeiro): used to be home to large numbers of vultures on a nearby hillside. After flares had been installed to burn methane from the dump, the birds took advantage of the rising hot air to take flight;

- The Sadia Project: this CDM project was based on 1,500 pig farms. Prior to the project´s implementation, pig manure was disposed of in an uncovered pond. After installing bio-digesters and covering the ponds, the burned methane provided energy for a large number of adjacent farms. "When I went to visit one of the farms in the rain the owner said that since the implementation of the CDM project he was much less worried about rainy days. He was also able to avoid fines levied by the environmental agency because the pond covers prevented waste from entering the river".

Climate Change and Health

Sandra de Souza Hacon, researcher at the Oswaldo Cruz Foundation (FioCruz), commented that the health area is linked to different sectors of the economy. "Air pollution in the cities impacts on the population's health and quality of life. Increased pollution leads to large numbers of patients with pulmonary diseases. These are a major burden on the Unified Health System (SUS) and generate increased costs for the government. Climate change also exacerbates the impacts of the lack of basic sanitation, which leads to increased disease, particularly related to vectors which transmit tropical diseases such as malaria and dengue, and others. "Health questions must be included in discussions on climate-related actions"

Many Brazilian states and municipalities have strong climate change agendas.

Where are we?

Frederick Rudorff, the manager of monitoring and early warning systems of the State of Santa Catarina Civil Defense Department (SDC-SC), mentioned projects for dealing with major climate-related disasters in the state. Santa Catarina created a technical/scientific group in 2008 to investigate procedures and actions that could minimize the impact of extreme climatic events which had over the years caused many deaths, major infrastructure damage, paralyzed ports, etc. The State´s risk management had improved in recent years. In 2011, the State, together with the Japan International Cooperation Agency (JICA), announced the joint implementation of a major disaster mitigation project (one of the largest in Brazil).

Pedro Ivo Mioni Camarinha, Researcher at the General Coordination of Operations and Modeling (CGOM) of the National Center for Monitoring and Early Warning of Natural Disasters (CEMADEN) said "The subject of disasters covers many different sectors and it is difficult to measure causality".

The challenge is how to link climate change to natural disasters? To answer this question, the Center mapped the distribution of disasters in the country and sought to identify causal factors by creating models to match vulnerabilities with socioeconomic and environmental variables (i.e. a "disaster map"). Indices were first created for floods and landslides, and subsequently for droughts (jointly with the MMA and WWF). These indicators served as the basis for the National Adaptation Plan (PNA). "With a better understanding of the impacts and the causal relationships between climate, environment and society, we can think about adaptation actions… many disasters are not caused by extreme events, but by economic circumstances that force people to live in risk areas where meteorological events can trigger disasters, as happens in the city of Salvador…different adaptation strategies can be created with the use of indicators".

Paulo Henrique Pereira, Environment Secretary of the Municipality of Extrema, Minas Gerais, presented his municipality´s water conservation project. This project involves conducting a planimetric survey of each property and drawing up virtual plans of rural properties to indicate the current situation and outline proposed goals. The Environment Department is responsible for designing these projects, defining the actions to be taken and the targets to be achieved (depending on property characteristics). Farmers who provide some environmental service on their properties are recompensed (the first law in Brazil to allow this). The project, which has been running for 12 years, currently covers more than 7,000 properties and ensures water supply for the region´s inhabitants. It has also attracted a number of different firms to the region. In the course of implementation over 1.3 million trees have been planted, which have helped to conserve thousands of hectares of land and produce billions of liters of water.

Bruna Cerqueira, Institutional Relations Manager of the International Council for Local Environmental Initiatives (ICLEI), highlighted the work of ICLEI to implement the climate change agenda in support of the municipalities. ICLEI is the world's leading association of cities and local governments dedicated to sustainable development. It is a powerful movement, covering 12 "megacities", 100 "super-cities", 450 large cities and urban regions, in addition to 450 small and medium-sized cities in 83 countries. ICLEI promotes local action for global sustainability, encouraging cities to become sustainable, resilient, resource-efficient, biodiverse, and low carbon. Other goals are to promote smart infrastructure and develop a green, inclusive urban economy with the end-goal of producing happy, healthy communities. As for the actions taken under the Mayors´ Agreement on climate change in Brazil, of the 76 participating municipalities, 42 now report their actions, 28 have initiated inventories, 14 have set targets, 11 have assessed their vulnerability, and, finally, 16 have produced action plans. "This shows the willingness and desire of Brazilian municipalities to put climate change on their agendas".

The representative of the Recife City Hall (Prefecture), **Carlos Maurício Fonseca Guerra**, talked about Brazil's current focus on active networks that mobilize highly diverse sectors and bring different organizations together. "This spirit of liaison and networking has greatly helped to set the agenda of local and other governments, and society, regarding climate change". This robust institutional movement could be improved by further consolidation policies and by expanding the urban policy agenda to include climate change topics many cities already do this). There is an urgent need to increase funding for the necessary actions to be carried out.

Naziano Pantoja Filizola Junior, researcher in the Department of Geosciences (Undergraduate and Graduate) of the Federal University of Amazonas (UFAM), described how hydrosystems affect the lives of people living in the Amazon region. He drew attention to the disorderly activities of illegal mining and agricultural activities which contributed to rivers silting up and directly affecting the riverine population. "This population used to eat fish and bought their food from riverboats. Now they have to buy sausage and pasta at the roadside, and they have

developed diseases that were previously unknown to them". The Amazonian population possess scant resilience to climate change since the population is unable to keep abreast of the rapid changes affecting the region's water resources. "Knowledge has always been passed from father to son, but now many people are leaving their homes in the interior and making their way to the outskirts of the larger Amazon cities". Moreover, the National Water Resources Plan makes no distinction between the different actors (fisherman, farmer, industrial, indigenous peoples) living and working in the Amazon basin.

Where do we want to go?

Frederico Rudorff said that the state of Santa Catarina's Risk Management and Disaster Center coordinates the disaster prevention and mitigation actions of several different agencies. The Center's main goal is to reduce vulnerability to natural disasters caused by climate change.

According to **Paulo Pereira**, the Extrema project seeks to increase forest cover in hydrographic sub-basins, implant ecological micro-corridors, reduce the levels of diffuse pollution in rural areas due to sedimentation, eutrophication, and the lack of environmental sanitation, disseminate the concept of comprehensive vegetation, encourage soil and water management in the Jaguari River basin, and finally ensure the socioeconomic and environmental sustainability of forest management practices already implemented, through the provision of financial incentives to rural landowners. The Extrema Prefecture provides incentives for the latter to improve and preserve existing springs. Good practices to improve water supply and quality must be encouraged and rewarded.

Bruna Cerqueira said that legislation has progressed exponentially but that little progress has been made in policy implementation. Even less progress had been made in monitoring and measuring the various actions. Five development approaches were called for: nature-based, low carbon, and resilient; equitable and people-centered; transversely integrated under good governance; science-based policies; and access to financing to ensure implementation. Bruna went on to emphasize that this comprehensive approach must be incorporated into the plans already prepared by the municipalities. A substantial challenges is how to monitor actions? How to integrate development approaches with appropriate monitoring tools with monitoring tools? How to bring together all the commitments assumed by Brazil?

Maurício Guerra highlighted the importance of including biodiversity on the urban agenda. Some municipalities already do this e.g. Campinas, Belo Horizonte and Curitiba. Meanwhile, others such as Salvador and Rio de Janeiro, have projects to improve cities' capacities for resilience. Challenges include the important question of tree planting in the context of adaptation, and how to encourage cities to have a minimum framework approach to climate change (inventory and climate change plans). Guerra went on to mention some initiatives benefiting the energy sector such as the use of LEDs for public lighting, photovoltaic generation, and the first trials for electric public transport. He cited the example of Recife, which has made progress in preparing public policies on climate change, for incorporation into city planning.

How do we get there?

Frederico Rudorff commented that Santa Catarina invested in monitoring and risk management, encouraging coordination between the different spheres of government and forging partnerships with sectors such as civil society, academia and international agencies. This approach aimed at improving risk management, disaster prevention and territorial planning, as well as budgetary and financial planning. Efforts have been made to improve the region's infrastructure, including the

construction and expansion of dams and levees, better river management and the creation of early warning systems and meteorological radars. There remained an ongoing need to evaluate the probable frequency, impacts, and costs of natural disasters (forest fires, heavy rainfall, heatwaves etc.) caused by climate change.

Pedro Camarinha said that it was important to establish how this causal relationship happens, and to identify vulnerability hotspots, as a prelude to working up viable adaptation measures. It is necessary to look first at the macro scale of events and to make sure that the relevant data is dispatched to decision makers. “People should be trained to identify simply what is happening and in this way to engage with the adaptation process”. A major challenge is how to ensure that the municipal indicators are submitted to the federal level, and how to integrate adaptation agendas with others in specific territories in terms of risk and disaster reduction and sustainable development. “It matters little what title is given to a particular action. What is important is to reduce the impacts of climate change and improve the resilience of society and the environment”.

According to **Paulo Pereira**, the entire process is made easier at the local municipal level by ensuring that government plans are transformed into local public policies. “With the use of environmental services payments (PSA), it has been possible to inform farmers about the process and ensure that rural properties conform to environmental standards”. Pereira went on to say that “municipal taxes are used to cut the municipality´s emissions, and selling carbon credits releases resources for the municipality while helping to attract new businesses to the region. The project also involves protecting springs with funds provided by industrial concerns (“paying users”) through the creation of economic arrangements to finance different project areas. Meanwhile, the municipality uses part of the taxes collected such as the tax on urban property and land (IPTU), the tax on motor vehicles IPVA) and the Tax on Services (ISS), to help reduce vehicle emissions, and those from homes and commercial properties in the area. In addition to creating public policies to reduce emissions within the municipality, we believe that it is necessary to include these initiatives as an integral part of the environmental licensing process. A major challenge is the need for a public policy to further implement and scale up these actions.

For **Bruna Cerqueira** it is important to integrate municipal and state actions with those of the federal government to ensure a systemic and comprehensive view of policy development. Ways have to be found to scale up local development and endorse the important role of local governments. “The climate change question has advanced at the local level, and has spurred interest among the mayors, but the municipalities continue to need support in the process, especially regarding the question of adaptation”.

Maurício Guerra said “The federal climate change agenda needs to involve the states and cities more “. To do this, the direct participation of other federative units is needed, and the entire process should be more dynamic. The creation of the climate change law is important for guiding actions and incorporating them into other urban policies. Furthermore, City Master Plans need to be revised to include climate change questions. “Cities with low carbon development are more resilient and inclusive”. The major challenge is to ensure that planning bodies work alongside the implementing agencies.

Naziano Junior argued that it was important to ensure that data on public policies was accessible to members of the public. This would give people the opportunity to make their views known. The region suffers numerous environmental and other problems. These include extreme climatic

events such as heavy flooding in the rivers, causing overloading of dams, silting up of hydroelectric dam machinery, abandoned dam construction projects, an exodus of the population from the interior to the outskirts of larger cities of the region, the use of conservation area resources for building hydroelectric installations, cross-border problems, lack of frontier security, etc. A further problem is that rivers from other countries deposit sediment in Brazil's waterways: "it is important to discuss with these countries how they intend to manage their water resources". Illegal mining in Sierra Pelada in Peru has increased the sediment load in tributaries of our Rio Madeira. Other issues include increased crime among riverine communities in the absence of state authorities. Indigenous peoples have for example been co-opted into drug trafficking, and the Javari River is now used as a drug conduit. "Brazil needs to reconnect and somehow ensure that macro policies reach all the way to the periphery". Siltation of the rivers greatly hinders school transport (by boat), and there is a need for a "hydrologically synchronized" school schedule to suit the circumstances of the region. As for health, erratic water levels in the rivers are a major cause of malaria (e.g. involving a 2-month time lag for the disease to appear). It is clear that malaria prevention and control programs should be coordinated with the variable river levels, and vaccination campaigns need to be arranged for suitable periods within the flood cycle. This and other public policy modeling outcomes need to be Incorporated into the various procedures. "Afterall, it is the river that dominates life in the Amazon".

Actions by Society

Where are we?

Geodinio and daughter Deiziane, representatives of the Canindé de São Francisco (Sergipe) community settlement, spoke about how farming in the settlements, especially in the hinterland, is suffering from low productivity and inappropriate practices that negatively impact the environment. This segment of the population is extremely vulnerable to climate change. Their community had been suffering from the substantial drop in production due to drought and groundwater contamination.

Paulo Adário, Greenpeace representative and coordinator of the Soy Moratorium (SoyM), pointed out that the organization is an example of consensus and the only alternative to ensure that the Dialogues work. SoyM is an environmental agreement involving representative bodies of soybean producers in Brazil, NGOs and government. Its main goal is to press for measures to halt deforestation in the Amazon, including halting the activities of firms responsible for purchasing soybeans grown in deforested areas. When it was discovered that McDonald's was a main purchaser, the Soy Moratorium pressured this and other companies to desist from buying products made from soybeans originating from Amazonian deforested areas. An appropriate agreement was subsequently made between producers, soyabean-purchasing companies, NGOs and social movements. "This is how the Soy Moratorium came about… but regardless of the dramatic fall in deforestation levels, soybean production has continued to grow sharply".

Alice Amorim, Program Coordinator for the Climate and Society Institute (ICS), said "My message is hopefully to inspire… although the scenario is difficult and dramatic, there are a lot of good things happening out there. I want to relate two Brazilian stories that occurred recently, and continue to occur". ICS aims to foster and capture resources by connecting people, knowledge and funds. Our interest is to engage stakeholders outside of the climate bubble and to introduce this agenda in a city context.

Ilan Cuperstein, an advisor to C40 Cities, spoke about the actions undertaken by this NGO. The C40 Network was created in 2005. He went on to say that currently 70% of global emissions originate from urban centers, although theses occupy a mere 2% of the world's territory. Although part of the problem, urban centers also represent part of the solution, given that they are the central cores for innovation and institutions involved with important climate-related subjects such as sustainability. Statistics reveal that 98% of the cities in the C40 network claim that they are already experiencing the impacts of climate change. Therefore the solutions also depend on action by the cities. The organization has 96 participating cities around the world. The C40's 16 thematic networks act as a catalyst for newer, improved, faster actions on climate change by helping cities learn from one another.

According to **Joaquim Belo**, president of the National Council of Extractive Populations (CNS), the common use conservation units implemented to date by the National Institute of Colonization and Agrarian Reform (INCRA) do not involve forest peoples. "The use of common use conservation units was mainly a matter of survival". The Extractivist Reserve model arose from the need to regard forest peoples from a different angle, and to ensure that these peoples continue to earn their livelihoods in accordance with their own cultures. As a result, common use conservation units currently occupy 13% of the Amazonian territory. However, many areas (such as those in the watersheds) have not yet been designated as common use conservation units.

Carlos Rittl, Executive Secretary of the Climate Observatory, presented a brief summary of the work of the Observatory. This organization proposes a level of commitment to the Brazil NDC of a maximum below the 2°C limit, amounting to 1 billion tons of emissions by 2030. He emphasized that to reach the 2030 target, the 2ºC target should also be firmly adhered to. He recalled that, although the goal stipulated by Brazil is more ambitious than that agreed by many countries, "we can and must do more … it is important to involve society in discussions on climate change to ensure that implementation of the commitment can be achieved through agreement by all and is not restricted to the government". The NDC is an opportunity to build a more sustainable development pathway. It must represent the country as a whole…as a collaborative decision by government and all of Brazilian society. The challenge is to transform the NDC into a long-term development-based agenda and to ensure that the guidelines on climate policies are aligned with fiscal, economic, energy, and forestry policies, and so on.

WWF's Global Climate Policy Manager **Fernanda Carvalho**, said the Talanoa Dialogue was proposed by Fiji at a time when countries were being called upon to demonstrate compliance with the Paris Agreement. The Dialogue involves mutual respect. The forest theme had been treated in a national and international context, and Brazil has great results to report internationally (e.g. reduced deforestation, expansion of the number of Conservation Units, etc.). Carvalho also pointed out that the CAR electronic data collection process was a great tool but not yet mandatory. "Quicker progress is needed in renewable energy and urban transport".

According to **Alfredo Sirkis**, Executive Coordinator of the Brazilian Climate Change Forum (FBMC), said that the "modest" goal of the Paris Accord may not be achieved. "Mitigation actions should not only involve "decarbonizing" but should also make sense from an economic point of view."

Where do we want to go?

Paulo Adario said that he had traveled far to secure his objectives. In order to attract people's attention to companies buying soya bean from deforested areas in the Amazon, he admitted that: "I dressed up as a chicken and chained myself to the door of McDonalds in Berlin".

Alice Amorim said that the ICS intends to promote a fairer, more prosperous development model and a low carbon economy. Two ICS projects were of particular note:

- Decarbonization of Public Transportation in São Paulo: the municipality was aiming to achieve a progressive reduction of 10% of fossil fuels in the public transport sector by 2018 "using renewable non-fossil fuels for all the buses in the municipality". The Institute intended to press for achievement of this goal by endorsing a realistic policy that could be implemented on the basis of credibility, technical expertise, ambition, penalties for non-compliance, legal certainty/ predictability and social participation. What was actually achieved was a 50% reduction over 10 years, zero emissions over 20 years and the publishing of targets in official tendering notices. This was only possible due to intense social and media mobilization, resilience, political support, coalition building and sharing technical knowledge in different areas;

- Faith in the climate: spokespeople, however dedicated and technically competent, are failing to sufficiently mobilize people, and get across the climate change message to the wider population. We need to find other influencers for this task. Although this problem differs from the above mentioned (public transport) the solutions for achieving the results (i.e. how to get there?) are the same.

Ian Cuperstein, advisor to the NGO C40 Cities, mentioned the recent C40 report on the growing impacts of climate change in urban areas, especially in large urban agglomerations in the southern hemisphere . "We need to take immediate, urgent action because the people who will suffer most from the impacts of climate change are also those who currently need support and action". Mayors of megacities, including innovative cities (those that do not fit the UN's description of a mega-city but which nevertheless demonstrate ambition and innovation regarding climate policies) have come together to find solutions. "There are various interesting and successful examples from cities around the world that have joined forces at the municipal level and exchange information to learn from each other and achieve better results". Convinced that cities can play a key role in tackling climate change, the C40 thematic networks seek to address a range of related topics such as energy and, buildings, transportation and urban planning, food, water and waste, and air quality.

According to **Joaquim Belo** , river basin areas are important sources of water for forest dwellers but are extremely vulnerable due to intensive formal and informal (garimpo) mining activities. "Challenges include overcoming the failure of public policies and government bodies to engage with the needs of these peoples".

How do we get there?

Geodínio stressed the importance of the settlement community partnerships with various institutions (IBAMA, INCRA, the Sergipe State Environment Administration of Environment (ADEMA), the Piauí State Water Resources Secretariat (SEMAR), the MMA, UNDP, and the Global Environment Facility (GEF) to promote more sustainable agricultural production, regarded as vital for improving the communities´ quality of life. A number of actions are being taken to reduce the vulnerability to climate change: environmental education (e.g. reducing chemical inputs in agriculture), use of cisterns, eco-stoves, reforestation, better sustainable management, dams construction in areas with heavy silting. Deiziane added that the actions were already producing results such as the appearance of new springs. "Environmental education projects are important for retaining young people in agriculture and farming in a more sustainable way". The projects were essential for ensuring the use of more sustainable methods in the settlements and encouraging greater interaction between settlers, especially among the young. The use of

ecological stoves and cisterns saved money and guaranteed water security. The projects also helped to expose settlers to a healthier diet.

Alice Amorim said "We have a very urban agenda in Brazil. Although most greenhouse gas emissions in Brazil come from deforestation, we need to turn our attention more to the situation in the cities, focusing primarily on civil society, academic organizations and the business sector". Ian Cuperstein added: "Access to finance is crucial for cities. The system as a whole is still highly focused on the states, which negotiate and access finance from international development banks. At the Global Climate Action Summit in San Francisco around a month ago, 72 cities of the C40 Network committed to carbon reduction. Other cities indicated that they would seek collaboration with other partners. Many intend to introduce fleets of electric-powered buses by 2030". In the opinion of C40, achievement of 2030 targets requires decarbonization of the transport network, optimization of energy efficiency in buildings, improved "next generation" mobility, land use and waste management.

Joaquim Belo again highlighted the failure of governments and public policies to engage with the needs of this population. There was, he said, a particular need to introduce development policies, especially public policies to retain young people in forest activities. He went on to call attention to the populations security fears and the permanent threat presented by illegal logging activities.

Alfredo Sirkis said that the Forum advised decision-makers to prioritize funding actions which take into account market mechanisms and tax. CDM was an important market mechanism. The exercise carried out by the Getúlio Vargas Foundation (FGV) and the Business Climate Platform (EPC) might serve as an example: the companies on the EPCl negotiate the sale and purchase of carbon credits in line with the cap-and-trade system, declaring their greenhouse gas emissions data pursuant to the Brazilian GHG Protocol Program. Sirkis also mentioned the possibility of using loan guarantee funds to raise finance for decarbonisation projects.

Indigenous peoples

Where are we?

The Articulation of the Indigenous Peoples of Brazil (APIB) is the national coordinating organization of the indigenous movement in Brazil. Its purpose is to:

- strengthen unity among indigenous peoples by enhancing contact between the country's indigenous organizations in the different regions;
- amalgamate the struggles of indigenous peoples, support their claims and demands, and uphold the indigenous movement´s political agenda;
- mobilize the country's indigenous peoples and organizations against threats and attacks on indigenous rights.
- APIB was created by the 2005 Free Land Camp (ATL), the annual national mobilization that has taken place since 2004 aimed at bringing Indian rights to the forefront, and for pressuring the Brazilian government to respond to the demands and claims of the country's indigenous peoples.
- Goals

- To mobilize public protests by indigenous groups and ensure permanent interaction between Indigenous Movement activists at national and regional levels ;

- Formulate and implement a Training Program for indigenous leaders and organizations ;

- Evaluate and engage with the preparation and implementation of targeted Public Policies to benefit indigenous peoples, in different areas of interest: health, education, land, environment, legislation, sustainability, human rights, participation and social control;

- Develop an Information and Communication Program to explain the reality of indigenous rights to the State, national and international public opinion and to members of the indigenous movement itself;

- Forge and strengthen alliances with the international indigenous movement and other social movements, and build partnerships with solidarity networks and institutions focused on social causes, especially those relevant to indigenous peoples;

- Ensure that the implementation of the APIB Action Plan is supported by an appropriate institutional and organizational infrastructure, including the necessary political and technical staff.

The National Policy for the Territorial and Environmental Management of Indigenous Lands (PNGATI) seeks to ensure and promote the protection, recovery, conservation and sustainable use of natural resources in indigenous lands and territories. The policy also guarantees the integrity of indigenous property and seeks to improve the quality of life and afford full conditions for the physical and cultural reproduction of current and future generations of indigenous peoples, respecting their socio-cultural autonomy in accordance with current legislation.

According to **Alberto Terena** of the Terena Council, and Executive Coordinator of APIB, “every indigenous person has a history of overcoming obstacles and seeking better quality of life. It would appear that nowadays it is more difficult to visit neighboring peoples because roads, fences and so on are obstacles to our habits and customs”. The Terena Council is responsible for encouraging discussion of indigenous issues, such as the need for improvements in the villages and in the urban setting of the Terena of Mato Grosso do Sul. He went on to say that the remaining indigenous lands are degraded, without springs or trees, while better land is taken over by the private sector. Deforestation takes place even in preservation areas.

Sonia Guajajara from APIB complained that “Nobody ever gave one centimeter of land to us. We will always protest to get this right (to our land) respected “.

Sinéia do Vale, Environmental Manager of the Indigenous Council of Roraima, emphasized that indigenous peoples were important for maintaining the forest. He added that indigenous peoples were already suffering the impact of climate change which affected their customs and traditions.

Ethnic group representative **MT** added that combining traditional and academic knowledge can help defend the rights of indigenous peoples who “work in and care for the environment in which we live”. It is vital to “convert words into actions!” Community activists, settlers and riverine dwellers, together with the Rede Juruena Vivo, have experienced the benefits of the solidarity economy (e.g. from beekeeping activities) and have succeeded in generating income without degrading the environment. Young people are important defenders of indigenous rights.

The representative of the Curator Council of the Xingu Seed Network Association, **Oreme Ikpeng**, explained that the Association is a network devoted to exchanging and acquiring the seeds of trees and other plants native to the Xingu, Araguaia and Teles Pires regions. Over the last 10 years more than 5,000 hectares of degraded areas in the Xingu and Araguaia River basin and other regions of the Cerrado and Amazon have been recovered in this way. For example, 196 tons of seeds of more than 220 native species were used to help recover areas around the headwaters of the Xingu. The seeds, collected mainly by indigenous women, have generated an income of R$ 4.2 million for 600 collectors, transferred directly to the communities. The collecting groups also include family farmers and nursery workers of indigenous stock. Planting involves predominantly the use of the *muvuca* technique which involves planting several species of forest and agricultural seeds together.

The network intends to supply appropriate seeds in the quantities and of the quality demanded by the market, to create a platform for the exchange and marketing of seeds, and thus to generate income for family farmers and indigenous communities, as well as to serve as a channel of communication and exchange between seed collectors, nursery workers, NGOs, rural landowners and others interested in gathering knowledge about the forest, the savanna and the various cultures existing there. The network basically seeks to create spaces for dialogue based on visits, workshops, meetings, regional get-togethers, and periodic publications disseminating information about work in progress. The aim is to encourage discussion about the localization, flowering and fruiting seasons of the various species, and of the collection, processing, storage, germination, dormancy of seeds, as well as to provide opportunities to explain planting techniques and plantation development. The main challenge is to encourage people to stand on their own two feet rather than continuing to rely on this project.

The Bacaeri and Morovi

The representative of Bakiri and Morovi ethnic groups (also representing SINC) was enthusiastic about activities such as ecoturism and ethnoecological tourism to generate income and address climate change. “If climate change is a global problem, we will globalize our environmental importance”, by creating a communication strategy to publicize and externalize the positive efforts of indigenous peoples to maintain standing forests.

The Tempé of Pará

According to the **representative of the Tempé group** in the State of Pará, 70% of their land is degraded and the indigenous population is engaged in a constant struggle to restore the area and achieve land demarcation, e.g. the removal after 40 years of a fazenda occupying indigenous territory. This and other achievements were partly due to PENGAT support, but help is still needed to reinforce and implement such efforts.

Where do we want to go?

For **Alberto Terena** and **Sinéia do Vale**, indigenous peoples must seek and fight for their rights. In Alberto’s words “Let’s defend every centimeter of our land “..

How do we get there?

Alberto Terena spoke of the need to preserve the forest, rivers and springs. Serious policies are important for understanding the differences and special characteristics of the forest peoples.

Sonia Guajajara added that in order to implement the NDC it is necessary to demarcate indigenous lands, implement PNEGATI and highlight the need to bring all the indigenous claims to international attention. There is a particular need to create comprehensive joint strategies to emphasize the important role played by indigenous lands and peoples and to show how they both contribute to mitigating climate change.

In **Sinéia do Vale´s** words, "First we need to focus on our land and guarantee the right to land belonging to the indigenous peoples who have had their rights constantly violated... It is necessary to listen to the people, to know what they want and what they need, so that appropriate policies can be formulated". In this respect demarcation is very important: "Strength through information!"

The **Tempé representative** reiterated that 70% of Tempé land is degraded. The struggle to restore the area and pressure for territorial demarcation continues. He recalled that an area where a dam had been constructed had been recovered after a struggle lasting 40 years. While this achievement was partly due to PENGATI (supported by an NGO) there was still a need to take land recovery policies forward. The Tempé people were suffering the consequences of climate change: disturbed rainfall cycle, reduced supply of fish, and so on.

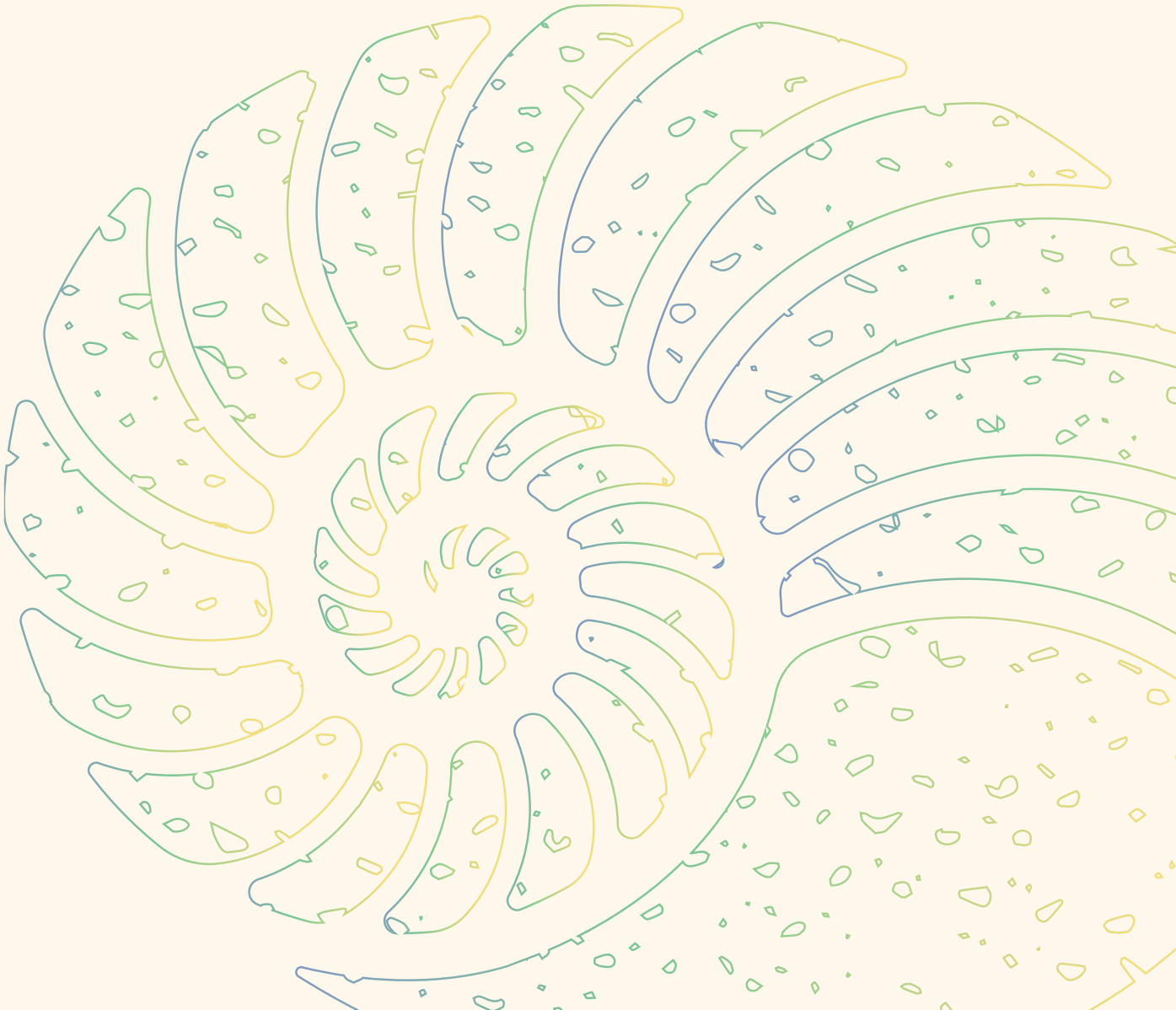
Points for consideration

Many of the questions raised during the Talanoas held in Brazil apply to all sectors of society and different sectors of the economy:

- Lack of governance in the climate change area reflects and engenders various other institutional problems such as the failure to incorporate questions linked to climate change in the development and planning agenda..
- Research investment in all sectors.
- Risk reduction and monitoring investment.
- Need to maintain a comprehensive view of natural resources management due to the total interdependence of natural renewable resources.
- Engagement of society is extremely important for inducing a high level of mobilization to ensure that agreed goals are met.
- Need to define means for implementing public policies so that agreed goals are met.
- Use of command and control tools and economic instruments to achieve an inclusive and low carbon society.
- Need for carbon pricing to penalize emitters and reward non-emitters provides a way of prioritizing sustainable development and assessing carbon exposure. The carbon footprint and dependence on fossil fuels are already variables being analyzed by investors. These variables can assist the transition process of industrial plants, given the prospect of reduced investment costs.
- Financing instruments are essential for incorporating the climate question into a national

development project.

- The Clean Development Mechanism (CDM) is an example of how to implement the mechanisms provided for in the Paris Agreement for transforming projects into programs and plans.
- The importance of generating compliance by society, not just government, to bring about changes in consumption patterns.
- Need to review the country's climate governance and improve the alignment of sectoral plans.
- Given the need for external financing to achieve and broaden the targets, new financial mechanisms are needed in addition to those provided for in the UNFCCC.
- Risk management in the economic sphere.
- Creation of public policies based on economic instruments.
- The need to combine the ILPF and degraded pasture recovery technologies into a single goal for the agricultural sector, and thus avoid double counting (ILPF is the best way to recover degraded pastures).



TALANOA BRAZIL DIALOGUES

Suport

On behalf of

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

of the Federal Republic of Germany

Implemented by:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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