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MEETING REPORT

Sustainable Agriculture: Strengthening Food Systems and Sustainable Practices in the Amazon

Session 3: Brazil-US Dialogue on Sustainability and Climate
Change

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Executive Summary

As major contributors to both greenhouse gas emissions and biodiversity loss, agricultural production and food systems broadly defined are also key elements for the constructive transformation of the climate change crisis. The Brazilian Forest Code establishes that 80 percent of the total area of each rural property must be maintained as a legal reserve¹. Therefore, nowhere is the need for sustainable solutions in this space more important than in the Amazon Basin, where the agricultural and cattle raising sectors are main drivers of forest conversion in the region. These drivers are expanded by illegal deforestation resulting from the land grabbing of public lands and their conversion into pastures. At the same time, the agricultural and livestock sectors are two of the largest local employers with an estimated 1.7 million workers, or 16 percent of the region's employed population.² Throughout the Brazil-U.S. Dialogue on Sustainability and Climate Change, the challenge of bringing resources at scale to promote inclusive and effective sustainable food systems was recognized. As additional resources become available, it will be critical that they reach local communities and build the capacity of their economic stakeholders. Nevertheless, the results achieved so far are insufficient to enable the transition from current models to sustainable systems that promote the improvement of income and quality of life of family producers and traditional populations of the Amazon. There is a substantial challenge in expanding the availability and assurance of continuous resource flows to this transition process. It will also be essential that the funds raised reach, in a priority and majority, to local communities and contribute to the empowerment and strengthening of their management capacity.

- 1. International investors and policymakers need to approach sustainable agriculture and food systems as part of an integrated solution for forest management that prioritizes delivering scalable and inclusive economic alternatives to the current primary drivers of deforestation.** Despite its abundance of natural resources, the Amazon sub-region ranks at the bottom of global and national human development

¹ Planalto Brasileiro. "Lei no. 12.652, de 25 de maio de 2012". Accessed on December 9th, 2021. http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/lei/112651.htm

² G. Gonzaga, F. Cavalcanti & F. Alfenas, "Dinamismo de emprego e renda na Amazônia Legal: agropecuária," *Amazônia 2030*, August 13, 2021, <https://amazonia2030.org.br/dinamismo-de-emprego-e-renda-na-amazonia-legal-agropecuaria/>.

indexes³, and long-term reductions in deforestation rates depend in no small measure on improving socio-economic baselines.

- 2. Local technical and managerial capacity-building to support the implementation of more sustainable and innovative agricultural, cattle raising, and forestry practices is critical. Key areas of focus must include education, technical training programs, extension services, and participatory research, as well as programs to facilitate information-sharing among farmers.** There is significant potential for the strengthening and amplifying of the Brazil-U.S. cooperation in this area, including cooperation between the Brazilian public agricultural research corporation Embrapa, the U.S. Department of Agriculture, the United States Agency for International Development (USAID), the Inter-American Development Bank (IADB), and the International Bank for Reconstruction and Development (IBRD).

- 3. Funders and policymakers need to address the limited funding streams available to small-scale entrepreneurs and farmers to change behaviors, including the simplification and facilitation of the access to rural credit and small business loans.** Potential reform of Brazil's rural credit program could become a channel for attracting private capital to finance sustainable agricultural practices, particularly if leading Brazilian financial institutions help coordinate capital flow and assist with small-scale lending risk mitigation.

³ ATLASBRASIL. "Como está o Desenvolvimento Humano no Brasil?" Accessed on December 9th, 2021. <http://www.atlasbrasil.org.br/>



Meeting Report

Food systems currently account for one third of all greenhouse gas emissions and are responsible for up to 80 percent of biodiversity loss, according to the United Nations.⁴ Yet food systems are also fundamental to human existence and employ more than 1 billion people around the world.⁵ As UN Secretary-General António Guterres noted in his opening statement at the UN Food Systems Summit in mid-September, the conundrum at hand is how “to feed a growing global population while protecting our planet.”⁶

Perhaps nowhere is the challenge of developing sustainable food production systems more relevant than in the Amazon biome. Arguably, the food production system currently in place in much of the Amazon Basin is failing its residents and the global community alike. In fact, research has found that agriculture and cattle raising are the main causes of forest conversion in the Amazon, including illegal deforestation resulting from the logging of public lands and its conversion into pastures⁷. Non-sustainable agricultural practices—which result from a lack of knowledge, poor access to technology and modern equipment and perverse economic incentives—not only contribute to deforestation, but also can cause soil erosion and degradation of the soil and its contamination for inadequate use of pesticides. A compounding challenge is that much of agricultural, cattle raising, and forestry products in the Amazon—including “superfoods” like açai—is destined for export to national and foreign markets as raw material with low value aggregation. Somewhat counter-intuitively, this can make it more expensive for Amazon residents, especially those that have low incomes, to eat locally grown and produced foods because the *gourmetização* (transformation of local foods into gourmet goods) of Amazon products increases global demand and elevates their prices.⁸

⁴ Guterres, António. “Secretary-General’s Chair Summary and Statement of Action on the UN Food Systems Summit.” United Nations. United Nations, September 23, 2021. <https://www.un.org/en/food-systems-summit/news/making-food-systems-work-people-planet-and-prosperity>.

⁵ “Action Tracks.” United Nations. United Nations. Accessed October 4, 2021. <https://www.un.org/en/food-systems-summit/action-tracks>.

⁶ Guterres, António. “Secretary-General’s Chair Summary and Statement of Action on the UN Food Systems Summit.” United Nations. United Nations, September 23, 2021. <https://www.un.org/en/food-systems-summit/news/making-food-systems-work-people-planet-and-prosperity>.

⁷ Phillips, Dom, Andrew Wasley, and Alexandra Heal. “Revealed: Rampant Deforestation of Amazon Driven by Global Greed for Meat.” The Guardian. Guardian News and Media, July 2, 2019.

<https://www.theguardian.com/environment/2019/jul/02/revealed-amazon-deforestation-driven-global-greed-meat-brazil>; “Mechanized Agriculture.” WWF. Accessed October 4, 2021.

https://wwf.panda.org/discover/knowledge_hub/where_we_work/amazon/amazon_threats/mechanized_agriculture/.

⁸ Prusa, Anya. “Workshop Report: The Scientific, Social, and Economic Dimensions of Development in the Amazon.” Wilson Center, August 16, 2018. <https://www.wilsoncenter.org/publication/workshop-report-the-scientific-social-and-economic-dimensions-development-the-amazon>.

These problems have attainable solutions. Many experts have noted the significant potential for the sustainable use of Amazonian biodiversity, including aquaculture and agroforestry.⁹ However, a challenge mentioned in our Dialogue was that of how to deliver resources at scale, with the appropriate quality and regularity for its insertion in large agro-industrial chains, such as the food, pharmaceutical, cosmetics and bio inputs sectors. And this challenge is no less true when it comes to the development of more sustainable agricultural practices and food systems in the Amazon.¹⁰ Financing to support the transition to more sustainable and inclusive models of production will not be sufficient without extension services that work with local residents and socioeconomic stakeholders to promote the adoption of new practices through educational resources and training that can lead to soil improvement and even business plan development. Dialogue participants believe there is great potential for the collaboration between Brazil and the United States to make a difference in this area, assuming its leading role in building a path to inclusive and sustainable development in the Amazon.

At first glance, Brazil and the United States seem unlikely partners in the sustainability space as long-time competitors of agricultural exports, but this dynamic is changing as both countries face a similar threat from climate change. Agriculture and food systems are inherently vulnerable to shifting climate patterns and more extreme weather, from unexpected cold snaps to lengthy droughts. Moreover, Brazil and the United States have a long history of research and scientific collaboration. Most Embrapa researchers were trained in graduate master's and doctoral programs at universities in the United States. In addition, there are strong commercial ties from the many companies that do business in both countries. Combined with President Biden's commitment to addressing climate change, this foundation can create significant space for dialogue and partnership, from financing mechanisms to support and accelerate transition efforts, to technical cooperation in research and other areas.

On October 6, 2021, the Wilson Center, in partnership with Uma Concertação Pela Amazônia, hosted a discussion on sustainable agriculture and food systems in the Brazilian Amazon, within the lens of Brazil-U.S. cooperation.

⁹ Prusa, Anya. "Workshop Report: The Scientific, Social, and Economic Dimensions of Development in the Amazon." Wilson Center, August 16, 2018. <https://www.wilsoncenter.org/publication/workshop-report-the-scientific-social-and-economic-dimensions-development-the-amazon>.

¹⁰ "The Road to COP-26: Session 1 of the Brazil-U.S. Dialogue on Sustainability and Climate Change," The Wilson Center, August 2021. <https://www.wilsoncenter.org/publication/workshop-report-the-scientific-social-and-economic-dimensions-development-the-amazon>.



This conversation was part of a larger initiative: The Brazil-U.S. Dialogue on Sustainability and Climate Change. The Dialogue convenes a diverse group of U.S. and Brazilian stakeholders—scientists, business leaders, civil society, and former government officials—for an open, bilateral debate on what is possible and what will be effective in terms of low-carbon development and environmental conservation in Brazil, and how the United States can partner in this effort.

Over the course of the October 6 session, three major policy recommendations emerged as critical to bolstering bilateral cooperation and supporting Brazilian efforts to protect biodiversity and reduce carbon emissions driven by land use.

- 1. International investors and policymakers need to approach sustainable agriculture and food systems as part of an integrated solution for forest management that prioritizes delivering scalable and inclusive economic alternatives to the current primary drivers of deforestation.**

In the first meeting report resulting from this Dialogue, we noted that “forest conservation must go hand-in-hand with opportunities for ethical, sustainable livelihoods in order to address many of the root causes of Amazon deforestation.”¹¹ The transition towards nature-positive food systems in the Amazon is essential to this effort. As officials at the UN Food Systems Summit noted earlier this year, the development of sustainable and inclusive food systems is necessary for achieving the UN Sustainable Development Goals, as well as the Paris Agreement’s climate targets.¹² However, the sustainable development potential of the Amazon Basin remains predominantly untouched and underutilized.

Despite arguably boasting the largest reservoir of natural resources in the world, the Amazon sub-region also ranks at the bottom of global human development indexes. Put simply, little of the wealth the Amazon currently generates is directed to support its local communities. Without the technical and managerial capacity to turn biodiversity into income-generating revenue streams, many residents turn instead to activities for immediate gains that degrade the forest and harm the region’s collective economic future over the long run.

Any solution to deforestation in the Amazon must address this paradox, linking inclusive economic well-being to local populations, who are the guardians of this formidable reserve

¹¹ “The Road to COP-26: Session 1 of the Brazil-U.S. Dialogue on Sustainability and Climate Change,” The Wilson Center, August 2021. <https://www.wilsoncenter.org/publication/workshop-report-the-scientific-social-and-economic-dimensions-development-the-amazon>.

¹² Dann Okoth, “UN summit calls for climate-friendly food systems,” *SciDev.Net*, September 24, 2021. <https://www.scidev.net/global/news/un-summit-calls-for-climate-friendly-food-systems/>.

of natural resources, to ensure the long-term sustainability of the forest. Part of the answer lies in the use of a vast collection of existing knowledge and technologies. Traditional communities, including indigenous groups, have a wealth of knowledge about how to extract economic value from the land in a sustainable way, which was accumulated over more than 12,000 years of Amazon biome management. An increasing number of organizations like Embrapa and the Inter-American Development Bank, as well as researchers, companies, and civil society organizations are working to develop food systems that reconcile economic development with the conservation of the forest¹³ that contribute to the inclusive wellbeing of the local population without contributing to environmental degradation. From the intensification of sustainable production among small-scale farmers and former degraded pastureland restoration to greater traceability in product supply chains, there is significant knowledge and technical capacity that could be leveraged to address this problem.

However, this technical and scientific knowledge must also be accompanied by a broader commitment from policymakers and investors to link conservation with development with productive insertion and improvement of human development indicators in the Amazon, to adequately address and eliminate the root causes of deforestation in the region.

2. Local technical and managerial capacity-building to support the implementation of more sustainable and innovative agricultural, cattle raising, and forestry practices is critical. Key areas of focus must include education, technical training programs, extension services, and participatory research, as well as programs to facilitate information-sharing among farmers

Agriculture has long been a sector that has combined wisdom passed down through the generations with science and new technology. However, facilitating the adoption of more sustainable practices requires not only financing (addressed in the next section), but also capacity-building through education, extension services, and participatory research to build a network of knowledge-sharing and a culture of innovation among small-scale Amazonian farmers. Meeting participants agreed that there is substantial space for Brazil-U.S. cooperation in this area, including cooperation between Embrapa, the research arm of the

¹³ According to the United Nations, nature-positive food systems are “characterized by a regenerative, non-depleting and nondestructive use of natural resources. It is based on stewardship of the environment and biodiversity as the foundation of critical ecosystem services, including carbon sequestration and soil, water, and climate regulation.” See: “Action Tracks.” United Nations, accessed October 4, 2021. <https://www.un.org/en/food-systems-summit/action-tracks>.



Brazilian Ministry of Agriculture, and the U.S. Department of Agriculture; as well as with USAID, IADB and the IBRD.

One of the main challenges to transform agricultural value chains in the Amazon is the lack of technical capacity and local management. Embrapa develops solutions for innovation in partnership with producers, establishes Technological Reference Units and offers training services for extension technicians (multiplier agents) of technical assistance and rural extension institutions. Embrapa also provides face-to-face and online training for technicians and producers. In a region as vast and difficult to navigate as the Amazon, online learning could prove a valuable tool. However, the region has the lowest rates of connectivity in Brazil, which makes communication itself a significant barrier. Although 80 percent of farmers have access to radio and/or television, a much smaller percentage have access to cellphones—and even fewer have access to smartphones. In some ways, this is a relatively straightforward barrier to overcome. Embrapa, for example, runs targeted information campaigns over radio and television, and increasingly over cellphones. In the next decade, the government plans to build out broadband and 5G infrastructure in the Amazon region, which will both facilitate the exchange of information and support farmers' ability to adopt technologies that depend on internet connectivity and access to data. The key is for policymakers and investors alike to consider communication strategy as part of the initial design process for any capacity-building project or training program to better meet farmers where they are.

However, increasing access to technical extension services and training programs is only part of the knowledge-sharing challenge; participants also agreed that funders and policymakers must create more opportunities for farmers to learn from each other. The speakers noted that there is a limited tradition of cooperation and entrepreneurship among farming communities in the Amazon region because traditional settlement patterns have led to social and cultural differences that limit information transfer between communities and even between long-time residents and newcomers in the same area. Moreover, horizontal learning opportunities are often more effective at encouraging technological uptake due to practical observation than top-down vertical programs. Frequently, seeing another farmer prospering through the application of new, sustainable technologies is the best encouragement to change one's own practices. The potential of these networks is vast and can be leveraged more effectively through, for example, the creation of reference farms (promoting technological adoption "by example or by envy," as one participant noted). Another promising area is on-farm participatory research, where small-scale farmers can work with researchers in the field in a two-way exchange of information not only to define the priority problems, but also which solutions should be researched.

Although educational institutions were only briefly touched on in the discussion, there was a strong emphasis throughout on the need for stronger research and development programs that incorporate local knowledge and graduate new generations of researchers. The need to redefine the focus on secondary education in rural schools and small municipalities was also addressed. Participants noted the need to give priority to high schools with technical training. This would give greater priority to professions that meet local demands and allow young people to enter the local labor market faster. Indeed, at a past Wilson Center event, Executive Secretary of Science, Technology, and Innovation of the State of Amazonas Tatiana Schor noted that the Amazon region's universities play a significant role in disseminating knowledge through students who bring what they have learned about sustainability back to their families and their communities across the Basin. She proposed creating programs designed to stimulate exchanges between students and researchers, both Brazilian and international, such as the creation of an Amazonian Fulbright-type program.¹⁴

3. Funders and policymakers need to address the limited funding streams available to small-scale entrepreneurs and farmers to change behaviors, including the simplification and facilitation of the access to rural credit and small business loans.

The transition from a traditional agricultural system with low productivity and negative profitability when all production factors are considered, to a more innovative and regenerative system in the tropics requires funding. There is an ongoing technological revolution in agriculture that offers farmers precision systems in soil management, nutrients, pest and disease control and agricultural production management that can boost production and expand carbon storage in soils. However, the initialization costs associated with this transition are high. Small-scale farmers rarely have the capacity to absorb the costs of deploying these new technologies. Carbon markets can play an important role in the adoption and amplification of current sustainable agricultural systems going forward, including through initiatives like the LEAF Coalition, but the credits are neither substantial enough nor fast enough to fund the transition itself.

¹⁴ Brazil Institute and Environmental Change and Security Program, "Seeing the Forest and the Trees: Climate Ambition and Development in the Brazilian Amazon", April 15, 2021, <https://www.wilsoncenter.org/event/seeing-forest-and-trees-climate-ambition-and-development-brazilian-amazon>



Additional channels for financing will therefore be required in the short- to medium-term. And as discussed during prior sessions of the Brazil-U.S. Dialogue, there is currently a significant gap between what local farmers and food system entrepreneurs need and what they are able to access in terms of funding. This disconnect—which reflects a lack of access more than a lack of interested capital—is a question both of infrastructure and perceived risk. The main lending entities in the region are cooperatives and development banks. Traditional lenders classify small-scale farmers and other local entrepreneurs as high-risk, and charge prohibitively high interest rates accordingly (as much as 60 percent in some cases). In turn, this lack of financing constrains the growth of sustainable enterprises and limits capacity to invest in the technologies and labor required to scale. The question of scalability is particularly important not only due to the need for systems-level change to address the threat of global warming, but also because sustainable activities need to compete with profits being made from illicit activities to be financially viable for entrepreneurs, farmers, and their communities. Another important issue is the need to adapt rural credit lines to the grace period needed for new sustainable production systems. There is also a need for rural credit lines that classify the recovery activities of agricultural areas and degraded pastures in the investment category and not with the cost, since the resources are intended for investments in the recovery of the productive capacity of the soil. The economy ultimately must work both for small-scale farmers, local entrepreneurs, investment banks, and equity funds providing the capital.

There are private sector entities working to address the funding gap for start-ups within the sustainable food value chain. Impact investment funds and management companies such as Kaeté Investimentos and Mirova Natural Capital provide a bridge between local enterprises and international investors who want to contribute to sustainable development in the Amazon, but have limited knowledge of how to assess Amazonian projects and business plans. These types of funds can play an important catalytic role in providing sustainable start-ups with the capital they need to grow. However, such funds tend to be relatively narrow in scope and focused on projects capable of generating a return—even if the investment term is longer than traditional. As a result, impact funds—similar to carbon markets—are unlikely to change the food system at the scale and pace required to meet the climate challenge.

Instead, participants agreed that public-private partnerships are the best strategy for mobilizing capital to fund an agricultural transition while also addressing the “last-mile” challenge of ensuring financing is actually directed to local stakeholders in the Amazon. Several participants stressed the importance of revitalizing Brazil’s rural credit program in particular. Access to rural credit is one of the biggest challenges for certain biodiversity value

chains such as cocoa as the fragmentation, decentralization and complexity of the rural credit system makes it difficult for small producers to navigate. Research suggests that improvements to Brazil's rural credit policy—focused on modernization and sustainability—could significantly expand sustainable practices, particularly among small-scale farmers, allowing for intensification and higher productivity without further deforestation.¹⁵ Going forward, there is potential for a reformed rural credit program to become a channel for attracting private capital to finance sustainable agricultural practices, particularly with Brazilian financial institutions such as Banco Nacional de Desenvolvimento Econômico e Social (BNDES; National Bank for Economic and Social Development) and the Central Bank (which currently manages the Rural Credit National System) helping to coordinate the flows of capital and mitigate the risks otherwise associated with small-scale farmer lending.

¹⁵ Priscila Souza, Stela Herschmann, Juliano Assunção, “Rural Credit Policy in Brazil: Agriculture, Environmental Protection, and Economic Development”, Climate Policy Initiative, December 2020, <https://www.climatepolicyinitiative.org/wp-content/uploads/2020/12/REL-Rural-Credit-Policy-in-Brazil.pdf>



About the Brazil-U.S. Dialogue on Sustainability and Climate Change

The Brazil-U.S. Dialogue is a multi-year initiative to foster stronger society-to-society collaboration between Brazil and the United States on Amazon deforestation and sustainable development. This includes the creation of a neutral forum for constructive dialogue that brings together many sectors of society and the facilitation of a discussion focused on what is possible and what will be effective in terms of low-carbon development and conservation in Brazil.




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