Submission by the Federative Republic of Brazil

Fifth Global Dialogue and Investment-focused Event of the Sharm el-Sheikh Mitigation Ambition and Implementation Work Programme

1. Context

Considering the decision -/CMA.6 (para. 8), the Federative Republic of Brazil hereby presents its suggestions for the Fifth Global Dialogue and Investment-focused Event of the Sharm el-Sheikh Mitigation Ambition and Implementation Work Programme (MWP), to be held on 19-20 May 2025, in Panama City, Panama.

The four Global Dialogues and investment-focused events held under the MWP have provided a valuable platform for the exchange of views, information, and ideas on mitigation strategies and actions, specifically on energy systems, transport, and cities. Brazil expresses its appreciation to the Secretariat for organizing these dialogues and producing the corresponding reports, as well as for the opportunity for debate. It is time now to transform these dialogues into concrete results in the speed and scale we need.

With the aim of gaining momentum for this implementation phase, Brazil proposes in this submission potential subtopics for discussion at the Fifth Global Dialogue: forest restoration, bioeconomy, integrated fire management, and the use of Digital Public Infrastructure (DPI) for forest-related actions. Drawing from national experience, Brazil also shares successful plans that can serve as a basis for discussions at event, noting the Arc of Amazon Restoration, the National Rural Environmental Registry (CAR), and the National Plan for Native Vegetation Recovery (PLANAVEG).

2. Forest

Forests function as carbon sinks, absorbing carbon and storing it in both tree biomass and soil. This process is crucial for offsetting greenhouse gas (GHG) emissions from human activities and mitigating climate change. At the same time, forests support biodiversity, stabilize ecosystems, and regulate local climates. Thus, their central role in environmental protection transforms forest-based climate actions into a powerful driver of positive outcomes, encompassing the fight against climate change, biodiversity conservation, and the promotion of sustainable development.

2.1 Forest restoration

In an effort to strengthen global recovery initiatives in areas impacted by deforestation and transform them into new fronts in the fight against climate change, Brazil emphasizes the importance of forest restoration. Brazil believes that selecting "forest restoration" as a subtopic for the Fifth Global Dialogue could provide greater political

momentum for international commitments on this issue and contribute to global mitigation efforts.

Forest restoration includes a plethora of initiatives for protecting and recovering forests, such as reforestation and afforestation, agroforestry practices, silvopastoral systems, plantation establishment, and the restoration of degraded forests. It is important to underline that, while forest restoration recovers carbon sinks, it also enhances the provision of ecosystem services such as biodiversity, food and water.

By rehabilitating the habitat of numerous flora and fauna species, the return and development of native species is made possible, improving the provision of timber and non-timber forest products, strengthening ecological connectivity, enhancing carbon sequestration, preventing soil erosion and improving freshwater supply.

In addition, an increase in forest areas and sustainable forest management could uphold a green recovery and transition to carbon-neutral economies. New production standards will demand more low-carbon materials, to the detriment of emission-intensive materials. Hence, carbon storage in long-lived forest products may substitute carbon-heavy products.

Large areas of degraded land may benefit from restoration involving trees. Of the 2.2 billion hectares of degraded land identified as potentially available for restoration worldwide, 1.5 billion hectares may be best suited for mosaic restoration combining forests and trees with agriculture. Aware of its potential, governments have committed to many international decisions and targets that address forest restoration.

These commitments include, for example, conserving forests, and halting and reversing deforestation and forest degradation, enshrined both in the 2023 outcome decision of the Global Stocktake (GST) of the Paris Agreement, and in the 2024 Ministerial Declaration of the 19th Session of the United Nations Forum on Forests (UNFF). Forest restoration is also included in the Sustainable Development Goals, the Convention on Biological Diversity, and the Bonn Challenge. In addition, the UN Strategic Plan for Forests 2017-2030 includes a target to increase forest area by 3% worldwide by 2030, signifying an increase of 120 million hectares, an area over twice the size of France. The world's decision-makers have renewed calls for the restoration of all ecosystems by 2030 with the launch in 2021 of the United Nations Decade on Ecosystem Restoration.

Achieving these goals is challenging. Many forest restoration efforts struggle to scale up and often face difficult trade-offs between quality and quantity. Understanding and addressing the obstacles to forest restoration is fundamental.

At the same time, Brazil highlights that developing countries face significant financial, technical, technological, and capacity constraints that risk undermining the implementation of restoration interventions. Restoration projects often pose high upfront investment costs and annual maintenance costs as government agencies,

companies and stakeholders must address the risks associated with land opportunity costs, tree planting costs, land tenure, forest protection, and stakeholder engagement.

The scalability of restoration interventions further depends on the availability of and access to technology. Forest restoration requires substantial investments in seed banks, genomic research and nurseries —which help countries identify species suitable for specific biomes and ecosystems and maintain their genetic diversity; capacity building and training to support adequate seed dispersal and restoration techniques; soil restoration technologies; remote sensing for site assessment, among others.

2.2 Bioeconomy

Bioeconomy is one of the most promising tools for both combating climate change and promoting sustainable development, because of the intertwined nature of its economic, social and environmental dimensions. In parallel, given that it is based on biological resources, bioeconomy demands special attention and protection, for it is particularly vulnerable to the effects of climate change.

The sustainable use of biological resources through traditional and scientific knowledge constitutes the groundwork of bioeconomy. It is therefore a knowledge-based development model that embraces, at the same time, very new technologies, such as bio-based nanomaterials, and ancient knowledge, such as the traditional use and management of biodiversity. It is, moreover, a powerful tool for promoting sustainability in all countries, regardless of the biodiversity present in their territories.

Bioeconomy encompasses diverse economic activities, including, but not limited to, agriculture, fisheries, aquaculture, food, energy, biotechnology, healthcare, forestry, timber and non-timber forest products, and bio-based industries. Forests, including planted forests, are therefore an important source for the bioeconomy, providing timber, fruits, and genetic data. Thus, while acting as carbon sinks, sustainably managed forests, including planted ones, support sustainable industries, creating sustainable jobs, and promoting rural development.

The development of bioeconomic activities is an effective way of creating incentives to conserve native forests, as these activities provide a livelihood for millions of people who depend on forests for their subsistence. In many cases, Indigenous Peoples and local communities are most successful the groups in protecting forests, as they hold the traditional knowledge that enables the sustainable economic utilization of the forest.

Bioeconomy also provides a new perspective through which to think about waste. At its core, bioeconomy is a departure from the traditional linear economy, which relies heavily on finite fossil fuels and raw materials, often leading to environmental degradation and exacerbating social inequalities. By tapping into biological resources and optimizing

their use, the bioeconomy minimizes waste and reduces the strain on non-renewable resources.

Instead of discarding organic waste, the bioeconomy sees it as a valuable resource. Through processes like composting, anaerobic digestion, and cogeneration, waste can be transformed into bioenergy and nutrient-rich fertilizers, simultaneously addressing waste management issues and producing renewable energy. In this way, the bioeconomy contributes to more sustainable consumption and production patterns as well as to climate change mitigation.

Circular economy approaches are another way of breaking with the linear logic of the traditional economy and contributing to more sustainable consumption and production patterns. It is indeed possible to develop circular economy and bioeconomy strategies that are coherent and interrelated, thus generating positive synergies in the climate, environmental, social and economic fields. In this context, it is important to ensure an approach that considers the social dimension of sustainable development, for example by valuing the role of waste pickers.

In conclusion, the broad scope of bioeconomy makes it a climate-friendly productive paradigm that can be implemented by countries at all levels of development, whether megadiverse or not, and by economic activities of all sizes. This wideness in scope and truly global nature of bioeconomy, as demonstrated by its notable presence in the forest and waste sectors, indicates that it can be an appropriate topic for discussions in a cooperative spirit, in keeping with the non-prescriptive, non-punitive, facilitative, and respectful of national sovereignty and national circumstances nature that characterizes the MWP.

2.3 Integrated fire management

Brazil proposes integrated fire management as a key subtopic of the fifth global dialogue under the MWP, because of its strategic potential. Fire is a widely used land management tool for various socioecological purposes, but uncontrolled fires – wildfires – can have significant negative impacts at the local, national and global levels, especially regarding carbon-dioxide emissions.

Climate change exacerbates wildfire risk through increased drought, high air temperatures, low relative humidity, dry lightning and strong winds. As the increasing effects of climate change and land-use change make wildfires more frequent and intense, it is estimated that we could witness a global increase in the occurrence of extreme fires of up to 14 per cent by 2030, 30 per cent by 2050 and 50 per cent by the end of this century.

An increase in the frequency and intensity of wildfires, itself largely a consequence of climate change, can accelerate positive feedback loops in the carbon cycle, presenting a challenge for global climate-change mitigation efforts. For instance, satellite observations indicate that, in 2023, fires emitted more than double the estimated carbon-dioxide emissions by European Union due to the burning of fossil fuels in that year. Globally, over 370 million hectares of land burn every year, releasing over 1.8 billion tons of greenhouse gases.

This is why integrated fire management has become a strategic mitigation mechanism, including elements related to risk mitigation and prevention, fire suppression, and post-disaster recovery plans. Countries are spending vast resources on emergency response efforts to fight fires when they strike and have increasingly been calling for support from the international fire community to reduce the impacts and build their capacity to address wildfires before they start.

2.4 Digital Public Infrastructure (DPI)

Digital Public Infrastructures (DPI) are foundational digital systems that enable the delivery of essential services to citizens. They include shared digital platforms, protocols, and frameworks and integrate elements such as digital identity systems, payment platforms, and data exchange protocols. These subsystems work together to create digital ecosystems that facilitate interactions between citizens, governmental bodies and businesses.

Digital platforms can be used to promote sustainable practices, to facilitate the adoption of decentralized renewable energy systems and to share evidence-based information about climate change. Data exchange protocols can enable the sharing of environmental data, allowing for better monitoring of emissions and tracking of progress towards climate goals. Moreover, digital payment systems can facilitate the distribution of climate-related subsidies and incentives. By leveraging the power of DPI, governments can accelerate the transition to a low-carbon and climate-resilient future.

Brazil has successful experiences and creative solutions involving DPI for forest protection and restoration, specifically through the national Rural Environment Registry (CAR). This program will be presented in detail later, in the form of a case study and best practices.

Brazil is also convinced that including the topic of DPI in the discussion on forest protection and restoration presents an opportunity to reflect on the barriers that developing economies face in deploying, leveraging, and maintaining such solutions.

3. Opportunities, best practice and solutions

3.1 The Arc of the Amazon Restauration

Brazil is convinced that forests are essential to achieving the goals of the UNFCCC and its Paris Agreement. Aware of the climate urgency, Brazil aims to recover degraded forests, transforming the deforestation corridor across the northern, eastern, and southern parts of the Amazon, known as "Arc of Deforestation", into the "Arc of Restoration".

The "Arc of Restoration" initiative was developed by Brazil's National Bank for Economic and Social Development (BNDES), in partnership with the Ministry of Environment and Climate Change (MMA) and launched at 28th United Nations Climate Change Conference (COP28). Brazil's goal is to rehabilitee 24 million hectares of forest by 2050, restoring the most affected parts of the Amazonian region.

Moreover, the Arc of Restoration aims not only to address deforestation, but also to promote sustainable development, protecting the environment and upholding the income and social rights of local populations. The reforestation plan focuses on protected areas, Indigenous lands, local community territories, permanent protected areas as defined by Brazil's Forestry Code, productive restoration, undesignated public lands, and family farms.

The project is structured in two phases. The first phase, which has already begun and is expected to be completed by 2030, focuses on restoring priority areas, starting with less complex and lower-cost regions, covering a total of 6 million hectares. The estimated investment required for this phase is USD 10 billion. The second phase, running from 2030 to 2050, aims to restore 18 million hectares, with an estimated investment of around USD 30 billion.

The 1st Public Call was launched in 2023 and prioritizes protected areas, with 16 projects to be supported. This initiative will be implemented by three managing partners (the Brazilian Institute of Municipal Administration, the Brazilian Foundation for Sustainable Development, and Conservation International), with BNDES and MMA forming the selection committee. The 2nd Public Call will support 27 additional projects, with an investment of around USD 26 million. In total, the plan aims to impact 945 settlements, 182,000 families, and 210 municipalities.

3.2 National Rural Environment Registry (CAR)

In the context of climate-related policies, DPI can play an essential role in enabling effective implementation, scaling-up solutions and monitoring, including policies of forest conservation, preservation, and restoration. Digital identity systems can improve land tenure security, reducing illegal deforestation, while data protocols facilitate the sharing of geospatial data, enabling real-time monitoring of forest cover and biodiversity. Furthermore, digital platforms can be used to engage local communities in conservation initiatives, promoting transparency and accountability. By providing a robust digital

infrastructure, DPI can support more effective and efficient forest management, contributing to climate change mitigation and biodiversity preservation.

Leveraging its robust DPI, Brazil developed the National Rural Environmental Registry (CAR), with a focus on environmental management and monitoring land use. In practice, CAR is an electronic public registry, mandatory for all rural properties and designed to integrate environmental data from these properties, creating a comprehensive database. CAR collects data on the property's boundaries, areas of permanent preservation (APPs), legal reserves (RLs), and areas of restricted use.

Using a geospatial database, the system gathers various layers of environmental information, such as satellite imagery, land cover maps, and hydrological data. This integration enables authorities to monitor land use, identify areas of illegal deforestation, and enforce compliance with the requirements of Brazil's Forest Code's for maintaining and restoring native vegetation.

Thus, by detailed mapping of deforestation, CAR enables the enforcement of environmental regulations, and the planning of sustainable land use practices. Furthermore, the CAR facilitates the implementation of Environmental Regularization Programs (PRAs), which guide landowners in restoring illegally deforested areas, thus serving as a vital tool for promoting environmental compliance and sustainable land management across Brazil.

In the context of this year’s focus of the global dialogues of the MWP on land use and, more specifically, on forests, Brazil shares its experience with CAR and DPI. Exploring this experience could facilitate a solutions-oriented discussion around tools that could effectively support countries in advancing their environmental and climate goals.

The dialogues on the proposed topic could be framed around the following questions: *which DPIs have been successfully deployed, especially in developing countries, and have delivered concrete results in terms of mitigation forestry? To what extent has CAR been instrumental to the implementation of the Brazilian Forest Code? What are the challenges to expand its scope? How can DPIs such as the CAR be scaled up globally to support countries in curbing deforestation and land degradation? How can finance flows, technology transfer and capacity-building be facilitated towards that end? What are the enabling conditions (regulations, digital infrastructure, data availability, financing, technological capabilities) necessary for developing countries to make use of DPI for climate purposes?*

3.3 National Plan on Native Vegetation Recovery (PLANAVEG)

From Brazil’s perspective, bioeconomy can play a crucial role in minimizing and offsetting the costs associated with restoration projects. The development, promotion and commercial production of forest timber and non-timber forest products could help

countries map opportunities to generate revenue from the sustainable exploitation of native plants in productive, restored forests and make forest restoration more financially feasible in the long run.

Based on this approach, Brazil's National Plan on Native Vegetation Recovery (PLANAVEG) aims at restoring 12 million hectares of degraded areas. At the same time, PLANAVEG is an essential tool to promote the development of economic opportunities that benefit Indigenous Peoples, traditional communities ("quilombolas"), local populations, and family farmers.

As its main goal, PLANAVEG strives to foster productive social inclusion and improve quality of life by creating and diversifying jobs and income, with a focus on adding value to socio-biodiversity products and services. It is estimated that more than 250,000 rural jobs could be created along different entry points of restoration value chains with the complete implementation of PLANAVEG.

Nonetheless, its effective implementation will require substantial predictable and adequate sources of funding. As various financial instruments have emerged to support restoration efforts, it is crucial to improve transparency and monitoring of financial flows, thereby enhancing the understanding of how biodiversity-specific and climate-specific financial flows are measured.

Finally, restoration programs and actions must be tailored to the specific context to align with diverse national and local development needs, while identifying the most appropriate restoration techniques for each area and ecosystem. Restoration interventions that prioritize certain environmental benefits, such as climate regulation, at the expense of social and economic benefits fail to engage and empower forest-dependent communities, undermining their long-term sustainability.