Opportunities for a Green Recovery: Brazil

Brazil was heavily affected by the COVID-19 pandemic. With over 400,000 deaths as of mid-2021 and the greatest reduction in GDP in over 30 years, both the health and economy of the country were placed in an unprecedented situation.

Brazil’s recovery spending, as a proportion of GDP, has been one of the highest among Latin American countries. However, there has been minimal emphasis on green recovery spending. Brazil could take the opportunity offered by COVID-19 to invest more resources in green stimulus measures. Investments in green policies can both create jobs and deliver long term low emission pathways required for Brazil to meet the major challenges of the 21st century.

Three core areas have been identified as priorities for investment for generating jobs and transitioning towards a more sustainable future.

**Nature based solutions:** Reforestation would contribute to resilience by protecting communities against the impacts of climate change, while also creating carbon sinks that offset emissions and support biodiversity. Nature based solutions deliver quick local jobs, providing immediate returns to investment. In the short term, employment generation is estimated at 110-130 job years per million USD spent. In the longer term, expenditure on these is estimated to generate up to $1.6 GVA per $1 spent.

**Sustainable Agriculture:** Agriculture constitutes 30% of Brazil’s exports, yet the sector will be at the front end in facing changing climatic conditions, with alterations in temperature and rainfall expected to impact productivity over coming decades. Building climate resilience through agricultural programmes can both create rural jobs today and help support the economy tomorrow. In the short term, spending on agroforestry is projected to generate up to 100 job years per million USD, and longer-term economic returns are also expected to be larger – $1.4 GVA per $1 spent.

**Clean Energy:** Brazil’s energy sector already has low carbon-intensity, benefitting from abundant hydroelectric resources. But as the third largest source of emissions within the country, there is scope to go further. Investments in solar photovoltaic (PV) show particularly high job creation potential – in the short term, employment generation is estimated at 65 job years per million USD, compared to 30 job years from traditional energy. Investments in solar PV could additionally generate around 210 job years per million USD over the operational period, relative to 55 job years from traditional energy sources.

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1 This policy briefing was written in June 2021, using information and analysis up to this date.
Pre-pandemic Brazil

Before the pandemic hit, Brazil was positioning its economy to take off following a struggle to recover from the 2015-2016 recession. During 2017-19, Brazil’s GDP growth was low as the country experienced its slowest recovery on record. Unemployment peaked in early 2017 at 13.7 percent and was declining, at around 11 percent in late 2019. In 2019, the Government adopted a reform agenda including pension reforms, controls on government spending, measures to improve tax efficiency and measures to decentralise fiscal resources. These efforts, combined with the adoption of the constitutional expenditure ceiling in 2016 and reduction in state bank lending, improved Brazil’s fiscal outlook and caused a fall in the sovereign risk premium. During this time, core inflation was below target, which enabled the Central Bank (BCB) to cut the policy rate to a record low of 4.25 percent by early 2020. The historically low interest rate environment initiated a structural transformation of financial markets, resulting in a new class of retail investors and a deepening of capital markets.

Impact of COVID-19 on Brazil’s economy and society

Brazil was one of the hardest hit countries in the world by COVID-19 and suffered significant contraction of economic activity and job loss. Overall, economic activity contracted by 7 percent in the first half of 2020, the largest contraction in 30 years. The unemployment rate rose by about 2 percentage points to 13.8 percent, but around 11 million workers (over 10 percent of the workforce) left the labour force altogether. Almost 12 million jobs were lost between February and July, with the informal sector, low-income households and women being the worst hit. Brazil also suffered large capital outflows, but financial flows have since stabilised and international reserves have recovered to their end-of-2019 levels.

Policy responses during the pandemic

At 7.5 percent of GDP, Brazil’s recovery spending on COVID-19 has been among the highest of the Latin American countries. Brazil’s policies have focused primarily on improving the cash flow of businesses in addition to supporting households and strengthening the public sector. Short-term rescue policies make up the majority of Brazil’s stimulus measures, with only 7 out of the 74 policies allocated towards recovery and long-term transformation. Emphasis has been placed on short-term aid and supporting employment and households rather than the creation of new jobs or the long-term transformation of industries. For example, the Government of Brazil has spent USD 66 billion on payments to informal and unemployed workers; over USD 23 billion on income support for employees of SMEs or those with reduced salaries; and USD 24 billion on federal aid to local government.

Brazil’s green stimulus is equivalent to USD 500 million or just 0.4 percent of total stimulus funding, with 98 percent of funding being classified as ‘neutral’. Energy proved to be the greenest sector, with USD 230 million pledged to financing wind energy and USD 255 million put towards biofuel development. Additionally, Brazil’s federal government increased funding for energy efficiency programs and provided credit for the construction of two wind farm projects. Likewise, the Government issued new green bonds for sustainable infrastructure, which are expected to attract up to USD 34 billion by 2029. On the other hand, most of the stimulus funding to the mobility sector will have a high carbon footprint. For example, the Brazilian Government provided USD 680 million to bail out the airline industry, which has suffered as a result of COVID-19 pressures.

Brazil has taken significant steps to deregulate land use in the Amazon to stimulate economic activity. This deregulation includes relaxing restrictions on logging, mining, and other development permits to boost growth in agriculture, forestry and industry. Although similar measures predate the COVID-19 pandemic, Brazil’s stimulus measures have been used to accelerate these developments. For example, a recent bill allowing illegal land occupants to make claims on land titles is intended to allow over 9.8
million hectares of currently unrecognised indigenous land to be opened up to the mining and timber industries. This lack of support for environmentally sound agriculture coupled with deregulation may pose threats to the livelihoods of communities. The impacts of these policies on nature and biodiversity are also particularly damaging.

**Total emissions from stimulus policies announced up until November 2020 were 43MtCO2e.** All of these emissions come from rescue policies which are due to occur over the next 5 years. The most significant policies in terms of absolute emissions are those which support the continuation of business-as-usual activities: namely, direct cash payments to informal and unemployed workers (29.2MtCO2e), and measures to support SMEs and other businesses (8.2MtCO2e). These policies do not aim to reduce environmental damage. Since income-generating activity in the Brazilian economy is carbon intensive, general measures to boost household income and support businesses consequently generate greenhouse gas (GHG) emissions.

Emissions were also driven by negative environmental policies in the agriculture and transport sectors, including land use regulation (discussed above) and unconditional bailouts to the airline industry. Some recent policy announcements have been more encouraging: for example, the creation of new financial mechanisms to issue USD 203 million in green bonds, and the approval of a National Energy Plan which targets 45 percent renewable energy by 2030. Nonetheless, Brazil’s policies overall have led it to have a negative score on the Greenness of Stimulus Index (GSI), with a score that places 18th out of 30 countries in the GSI. The GSI assess how effectively COVID-19 stimulus efforts in different countries promote sustainable growth and protect climate and biodiversity.

**Opportunities for green stimulus to catalyse future prosperity**

Three priority areas that are likely to stimulate economic growth in both the short and long-term, whilst advancing Brazil in its climate targets with a sustainable approach, are:

- **Sustainable Agriculture**: Agriculture is an important sector in Brazil, constituting over 30 percent of total exports, and Brazil is the world’s fourth largest exporter of agricultural products. Agricultural productivity has been growing over recent decades and the sector has also been a net job creator. However, changes in temperature and rainfall over the next decade will reduce the productivity of the sector, leading to reductions in crop yield and unsustainable growing practices.

  Policies which build climate resilience into agriculture can both support jobs today and enable Brazil to better adapt to changing climatic conditions. Implementing climate smart agriculture across value chains could include: investments in sustainable water management practices to support farmers who rely on the Amazon’s water cycles; implementation of sustainable land use practices (including silvopastoralism, a rotational grazing system); and investment in drought-resistant seed programmes. Moreover, nature based investments related to climate-smart agriculture, such as agroforestry, are expected to generate higher economic and employment returns relative to traditional water-related investments, both in the short and longer term. In the short term, capital expenditure in agroforestry is projected to generate up to 100 job years per million USD, compared to 30 job years from traditional water investment, and longer-term economic returns are also expected to be larger – $1.4 GVA per $1 from agroforestry, versus $1.2 from traditional water investments.

- **Nature based solutions**: Deforestation of the Amazon has continued to impact Brazil’s emissions profile. Investments in nature-based solutions to support reforestation will help to build resilience, protect communities against the inevitable impacts of climate change, and offset
emissions. Nature based interventions include restoration of habitats, agricultural interventions that sustainably boost productivity, and urban greening. These can be deployed quickly, creating low skill jobs, and can be one-off investments.

Key policy options for Brazil include reforestation and ecosystem restoration. Reforestation involves re-establishing natural forests, planting more native species, or increasing the density or extent of an existing forest. Well-managed, consultative, and participatory reforestation can enhance wildlife habitats, support biodiversity, protect water supplies, develop recreational opportunities, and work to address numerous issues associated with climate change, including through carbon sequestration. Ecosystem restoration – such as peatlands and wetland restoration – involves management measures that aim to restore the original form and function of peatland and wetland habitats to favourable conservation status, and is also a good policy option for Brazil. Habitat restoration can decrease the likelihood and severity of droughts by improving soil water retention, slowing water loss, and regulating water flow. Moreover, peatlands and wetlands are key to maintaining biodiversity in Brazil.

Such green investments are expected to generate significantly higher economic returns than traditional nature-type expenditure. Investments in reforestation and peatland restoration show particularly high job creation potential – in the short term, employment generation is estimated at 110-130 job years per million USD, compared to 30 job years from traditional water investments. Similarly, longer term economic returns appear higher across all green nature-based investment opportunities, but particularly from parks, mangrove restoration and reforestation – expenditure on these is estimated to generate up to $1.6 GVA per $1, relative to $1.2 from traditional nature-type expenditure.

As with previous opportunities, these estimates do not include potential transformational impacts from sustainable nature-based investments and additional job creation during operational periods. Operational job generation from green investments is again projected to be substantially higher relative to traditional nature investments – for instance, reforestation could additionally generate 60 job years per million USD over the operational period relative to 16 job years from traditional investments. However, the Brazilian Government would need to provide continued support for delivering nature-based programs for this opportunity to be realised.

**Clean Energy:** Brazil’s recently announced plans to increase investment in coal are worrying, especially given that Brazil’s energy sector is in fact one of the least carbon-intensive in the world. Renewables currently meet almost 45 percent of primary energy demand. Brazil could achieve positive environmental and economic outcomes by further decarbonizing its energy sector.xx

On the one hand, large hydropower plants account for around 80 percent of domestic electricity generation, but continued expansion of hydropower is increasingly constrained by the remoteness and environmental sensitivity of a large part of the remaining resource. As such, reliance on other clean energy sources for power generation is growing.xxi On the other hand, the energy sector is still the third largest GHG emitter in Brazil –after forestry and agriculture-, accounting for more than 450 MtCO$_2$/year, and hence showing substantial mitigation potential.xx

Market trends for renewable power generation have been positive in Brazil, but recent events – such as postponement of electricity generation auctions and falling energy demand during COVID-19 crisis – may harm the competitiveness of solar and wind companies, often much smaller than fossil fuel competitors. Policy developments during Brazil’s COVID-19 recovery may
ultimately limit the options for long-term deep decarbonisation of the economy by locking Brazil into a carbon-intensive energy infrastructure. A clear cause for concern is Brazil’s energy infrastructure planning, which continues to incorporate fossil fuels, including coal and gas. As such, unless additional policies and related investment are put in place, emissions in the energy sector will resume a rising trend as Brazil’s economy recovers from the impacts of COVID-19, locking the country into a more carbon intensive energy system and leaving much of its considerable potential for renewable power generation untapped.

Moreover, clean energy investments are expected to generate significantly higher socioeconomic returns than traditional energy expenditure, both in the short and long term. As shown in Figure 1, investments in solar PV show particularly high job creation potential – in the short term, employment generation is estimated at 65 job years per million USD, compared to 30 job years from traditional energy. Similarly, longer term economic returns appear higher across all clean energy opportunities, but particularly from solar PV and onshore wind – expenditure on these is estimated to generate up to $1.45 GVA per $1, relative to $1.2 from traditional energy. Moreover, these estimates do not include potential transformational impacts from renewable energy investments and additional job creation during operational periods. Such transformational impacts include a potential productivity improvement across the wider economy due to higher energy generation, and a greater shift from fossil fuels to green energy (with associated employment and other economic benefits) in the future, as the benefits of green energy become evident. Investments in solar PV could additionally generate around 210 job years per million USD over the operational period, relative to 55 job years from traditional energy.

Figure 1: Potential Job and GVA impacts of green policies compared to traditional stimulus spending
Notes: Job year and Gross Value Added (GVA) impacts of green spending policies compared to traditional spending in Brazil. The chart displays impacts per USD of capital expenditure, and includes direct, indirect and induced spending, within a two year horizon and over the full construction period (when this is longer than two years). Additional impacts will be felt through the operational phase of projects, however these depend on continued funding or a market for the technology. Traditional investments include improvements to the road network, housing development, water treatment facilities, and coal energy generation. Modelling is based on current sector dynamics, using the I3M input-output model.

Source: Vivid Economics

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3 Ibid

4 Ibid

5 Smith School of Enterprise and the Environment (2020) Global Recovery Observatory. Available from: [https://recovery.smithschool.ox.ac.uk/tracking/](https://recovery.smithschool.ox.ac.uk/tracking/)

6 Ibid

7 Ibid


12 Vivid Economics/Finance for Biodiversity Initiative (2021) Greenness of Stimulus Index - July 2021. Available from: [https://a1be08a4-d8fb-4c22-9e4a-2bf4c8e41d.filesusr.com/ugd/643e85_f712aba98f0b4786b54c455fc9207575.pdf](https://a1be08a4-d8fb-4c22-9e4a-2bf4c8e41d.filesusr.com/ugd/643e85_f712aba98f0b4786b54c455fc9207575.pdf)


