Creating local good green jobs in Rio de Janeiro

Executive summary

October 2022

By investing in climate actions, the city of Rio de Janeiro has an opportunity to solve social and economic issues of today, building a resilient economy of the future.

It has an opportunity to stimulate economic activity by creating good local jobs whilst having cleaner air, more green spaces, improved public transport and waste management systems, which will also bring benefits to the health of city residents, plus make the city more resilient to the impacts of extreme weather.

In addition, there is an opportunity to ensure that the employment driven by these investments in Rio de Janeiro helps to build a better and more resilient economy for everyone, and addresses historic inequalities, by ensuring that these jobs are accessible by everyone and in particular by those who need them most.

This summary outlines the opportunities for job creation in a broad range of industries that contribute to greening the economy and address climate change. For more information, refer to the full report[1].

Key findings of the research

- Ambitious climate action taken in this decade could create and support[2] more than **550,000** jobs in Rio de Janeiro and its supply chains by 2030, in the sectors of **buildings, public transport, clean energy and waste**.
- Actions like making homes and buildings more energy efficient and electric transportation are among those with the highest job creation potential.
- In addition, **interventions to make the city more resilient to the impacts of climate change** - such as investing in urban parks, water management and nature restoration - could create and support over **400,000 jobs**.
- It is estimated that 80% of these jobs do not require higher education, meaning that they could create employment opportunities for the citizens with lower education levels.
- It is crucial to **ensure that these actions create jobs that are accessible by all**, as research shows for example that women would make up less than a third of the green jobs workforce.
- **Significant investment is needed** from public and private sources to realise this opportunity to improve communities, create good sustainable jobs, lower energy bills and bring additional benefits for all.

1. 'Green jobs analysis and workforce equity assessment report for the city of Rio de Janeiro, Brazil', C40 Cities, 2022

2. The job creation potential of climate action implementation refers to both new green jobs that will be created and to existing jobs that will be transformed into green jobs through these measures.

"By 2030, Rio de Janeiro will create over 500,000 green jobs with initiatives that will mitigate greenhouse gas emissions and adapt Rio to be better prepared to handle the impacts of the climate crisis. The promotion of a greener city multiplies the possibilities of work and entrepreneurship, and also generates a better quality of life for the Cariocas."

— Mayor Eduardo Paes

Context

Unemployment is a pressing social and economic issue facing the city of Rio de Janeiro. Different demographic populations experience unemployment at different rates, where youth, followed by black and brown people and women, experience the highest rates of unemployment. Given the high rates of unemployment in Rio de Janeiro and how it impacts youth in particular, investments that contribute to job creation are needed.

Informal jobs also represent an important part of the city's workforce. In 2017, about **30% of the employment in the city of Rio de Janeiro was informal**, below the 41% average for Brazil, but showing that there is an opportunity to ensure more and more workers have access to formal jobs as the new economy away from fossil fuels develops.

Rio de Janeiro developed its climate action plan in 2021 with a vision of 40% of the jobs in the city to be green by 2030. It is estimated that in 2021, nearly 9% of the total formal jobs were green in Rio de Janeiro[3].

In October 2022, Mayor Eduardo Paes of Rio de Janeiro joined other fellow cities in the announcement that C40 cities will drive the creation of 50 million good, green jobs by 2030.

Benefits of climate action in Rio de Janeiro

The implementation of Rio's climate actions will drive significant job creation both from the delivery of the interventions in the city (direct jobs, e.g. infrastructure and installation), from the supply chains (indirect jobs) and derived from the increased income of workers (induced jobs).

1. Mitigation actions

Around **555,000** jobs could be created and supported by Rio's mitigation climate actions. Out of these, 42% (232,000 jobs) will happen locally in the city of Rio de Janeiro, and the remaining will happen across the city's supply chains in the rest of the country.

The retrofit of homes and buildings, along with **transport interventions** can generate the greatest share of jobs by 2030. In particular, around 30% of the jobs will be created through actions to retrofit houses and buildings to make them more energy efficient, therefore reducing the energy demand and people's energy bills. **Investment in rail infrastructure** could also contribute to approximately 25% of the jobs created.

These types of interventions are crucial, inclusive, fair and bold climate actions that can also help citizens with their energy bills and ensure everyone can access sustainable transport, whilst generating local jobs and reducing emissions.

232,000 jobs

could be created and supported in the City of **Rio de Janeiro**

3. Estimated from RAIS (Relatório Anual de Informações Sociais) database using ILO methodology (https://www.ilo.org/brasilia/publicacoes/WCMS_229625/lang--pt/index.htm)

National jobs supported by mitigation interventions by 2030

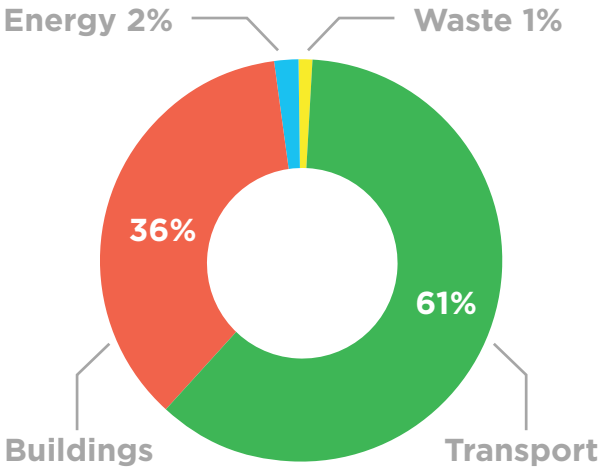
Intervention	National jobs	Share of total national jobs
Wholehouse retrofits	160,398	29%
Electric Commuter Rail	134,331	24%
Electric cars	80,781	15%
Gasoline/ethanol cars	59,836	11%
BRT	25,816	5%
Diesel/ethanol buses	24,950	4%
Efficient lighting (buildings)	18,775	3%
Electric buses	15,217	3%
Solar water heaters	7,533	1%
Onshore wind	7,521	1%
Advanced Recycling	6,398	1%
Residential PV	4,741	1%
Cycle infrastructure	4,006	1%
Solar PV	2,315	0%
Biogas Plant	888	0%
EV infrastructure	755	0%
Composting plant	529	0%
Efficient street lighting	349	0%
Commercial heatpumps	14	0%
Total jobs	555,153	100%

City-level jobs supported by mitigation interventions by 2030

Intervention	City-level jobs	Share of total city-level jobs
Wholehouse retrofits	71,085	30.6%
Electric Commuter Rail	60,229	25.9%
Electric cars	25,570	11.0%
Gasoline/ethanol cars	24,197	10.4%
BRT	13,787	5.9%
Diesel/ethanol buses	9,344	4.0%
Efficient lighting (buildings)	7,074	3.0%
Electric buses	5,141	2.2%
Solar water heaters	3,452	1.5%
Onshore wind	2,793	1.2%
Advanced Recycling	2,626	1.1%
Residential PV	2,449	1.1%
Cycle infrastructure	2,433	1.0%
Solar PV	1,002	0.4%
Biogas Plant	466	0.2%
EV infrastructure	387	0.2%
Composting plant	294	0.1%
Efficient street lighting	126	0.1%
Commercial heatpumps	6	0.0%
Total jobs	232,461	100%

Source(s): C40 and Cambridge Econometrics calculations based on estimated expenditure on selected climate interventions in Rio de Janeiro out to 2030, in line with the city CAP

Profile of job creation potential for climate mitigation interventions for the city of Rio, by sector



Intervention cluster	City-level jobs
Transport	141,089
Buildings	84,192
Energy	3,794
Waste	3,386
Total jobs	**232,461**

Investment needed for a green and fair transition

For the mitigation actions, the capital investment (CAPEX) needed for the construction phase, from private and public sources, is estimated at about R$391 billion ($76 billion), or over R$78 billion ($15 billion) per year for the next five years[4].

It is to be noted that, normally, similar significant investments may be required under a carbon-intensive or polluting scenario, but it would not produce the same benefits across all parts of people's lives nor bring savings in the long term in terms of health impacts and reduced energy demand. This is why it is critical to move current private and public investments from polluting industries and projects into low-carbon ones.

For context, it is estimated that the economic loss of drought events in Brazil in 2021 alone were over 4.3 billion USD; and other extreme weather events in 2021 accounted for an additional 1.8 billion USD[5].

2. Adaptation actions

An additional 443,000 jobs could be created and supported in the city of Rio de Janeiro by 2030 from climate adaptation actions, and about 239,000 of these jobs will happen locally in the city. These actions are critical to ensure that the city is more resilient to the increasing impacts of extreme weather events. Out of the interventions analysed, the adaptation interventions with the highest job creation potential are urban parks and Sustainable Drainage Systems (SuDS).

443,000

jobs could be supported and created in the city of Rio de Janeiro from climate adaptation actions by 2030,

About 239,000

of these jobs could happen **locally in the city**.

4. This assumes that the construction phase, when capital investment is made, will happen over the next 5 years.
5. 2021 Weather, Climate and Catastrophe Insight report, AON

National jobs supported by the adaptation interventions by 2030

Intervention	National jobs	Share of total national jobs
Urban Parks	162,177	37%
Green SuDS	145,840	33%
Blue SuDS	63,694	14%
Living walls	39,296	9%
Wastewater reuse	9,180	2%
Mangrove Restoration	9,164	2%
Green roofs	4,805	1%
White roofs	3,529	1%
Grey flood barriers	2,937	1%
Water efficiency	2,301	1%
Street trees	541	0%
Total jobs	**443,463**	**100%**

City-level jobs supported by the adaptation interventions by 2030

Intervention	City-level jobs	Share of total city-level jobs
Urban Parks	90,932	38.0%
Green SuDS	82,128	34.3%
Blue SuDS	26,907	11.3%
Living walls	21,954	9.2%
Wastewater reuse	3,846	1.6%
Mangrove Restoration	5,419	2.3%
Green roofs	2,926	1.2%
White roofs	1,919	0.8%
Grey flood barriers	1,664	0.7%
Water efficiency	1,151	0.5%
Street trees	301	0.1%
Total jobs	**239,148**	**100%**

Source(s): C40 and Cambridge Econometrics calculations based on estimated expenditure on selected climate interventions in Rio de Janeiro by 2030.

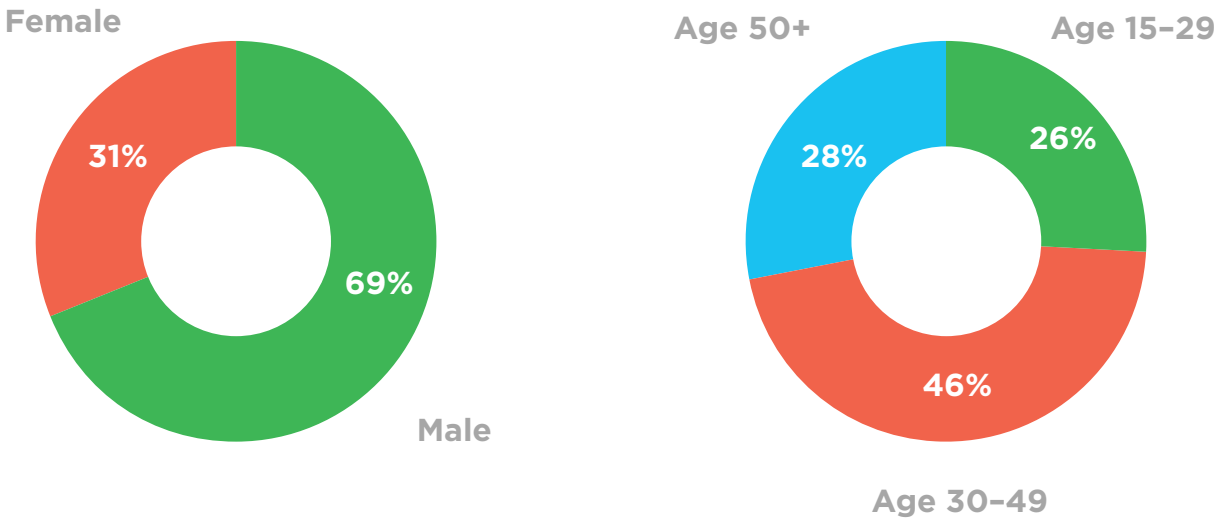
3. Who will get these jobs?

- **Green jobs are for everyone.** An assessment of green jobs in Rio de Janeiro estimates that about 80% of green jobs between 2008 and 2017 did not require more than a high school diploma. Less than 1% required a postgraduate degree. Figures in 2021 show that 78,2% of the green jobs will not require more than a high school diploma, and 0,5% required a postgraduate diploma[6]. Therefore, the jobs created from the implementation of these actions could be accessible also by the sectors of the population that have lower education levels.

6. Estimated from RAIS (Relatório Anual de Informações Sociais) database using ILO methodology (https://www.ilo.org/brasilia/publicacoes/WCMS_229625/lang--pt/index.htm)

- **Green jobs will employ young people and will be fairly distributed among racial groups, but more needs to be done to ensure women can also access them equitably.** About half of the jobs would be held by people aged 30-49, and will be fairly distributed among racial groups compared to the demographic distribution of these groups in the city's workforce. However, it is estimated that **women would occupy only approximately 31% of these jobs**. This is partially because many of these jobs will happen in occupations related to construction and manufacturing, which have been historically male-dominated. This shows that more needs to be done to ensure an equitable distribution of these jobs in the city and truly guarantee a fair transition away from polluting industries.
- **It is also important to ensure that migrants and informal workers can also benefit from these job opportunities.** As many jobs will be created in the construction sector, where informal work is common and it tends to have low wages with high youth representation, it is key to ensure that policies are put in place to address these issues.

Expected distribution of Green jobs in Rio de Janeiro out to 2030, by gender and age



Source(s): C40 and Cambridge Econometrics

4. Key recommendations

Start with the interventions with the greatest job creation potential, like building retrofits, transport or adaptation, and ensure that its implementation is fair, addresses existing inequalities, and creates good green jobs (with decent pay and working conditions).

- Big city programmes like Reviver Centro that have an immense green job creation potential present a key opportunity to address existing inequalities, such as the low representation of women in the construction sector, or informality. For this, its implementation must be accompanied by workforce policies and mechanisms like specific hiring targets, and education and training programmes that ensure that women, young workers and other groups are equally represented in these good jobs.
- Specifically with the buildings sector, ensure that the **green codes and regulations** extend their benefits beyond retrofit-related jobs, and apply to any new building and built stock in the city, impacting other green jobs such as those related to efficient lighting, solar water heaters, solar PV, green/white roofs and water efficiency systems.

Create job programmes in partnership with workforce development or training/ apprenticeship organisations that recruit and train people, including economically disadvantaged community members, to carry out mitigation and adaptation-related work and provide them with career pathways.

Example: see **Austin's** Civilian Conservation Corps, or **Rio's Programadores Cariocas program**, which followed these principles for technology and computer programming.

Develop a fair plan of action that involves all stakeholders in the transition to a green economy.

The implementation of climate action plans will be more effective and supported by citizens if a wide variety of stakeholders are engaged, including unions, youth and women organisations, informal workers, unemployed people and workers who are or may be negatively impacted by the phase-out of fossil fuel industries, and develop plans based on their perspectives and needs. This can be achieved by setting up participatory governance mechanisms, such as Task Forces or Advisory Groups (see example from **Los Angeles Just Transition strategy**), to engage a wide set of stakeholders.

- Analyse the job creation potential of existing and planned public infrastructure projects and collaborate with workforce development organisations to match job seekers and necessary skills to the new jobs

Analyse the skills gap and prepare the workforce for future demand.

The city could create a forum between local authorities, local skills partners and communities to quantify the skills that will be in demand for the new occupations, and co-develop skills training and apprenticeships. *For example, what will be the demand for electricians and other retrofit-related occupations, and what's the existing workforce in these occupations? Can training programmes be developed to fill the skill gaps identified?*

Introduce policy/regulatory changes to incentivise the public and private sector to support equitable access to jobs.

- Set contract standards for public procurement to hire locally wherever possible and work with companies using sustainable practices, providing decent pay and working conditions, and offering employment pathways to disadvantaged groups.
- Consider introduction of tax incentives for businesses adopting greener and fair practices and supporting reskilling of workers and gender, race and youth equitable access to jobs.

Support safe and decent conditions for informal workers.[7]

- Integrate or regularise informal economies into municipal systems through mechanisms such as legal recognition, providing access to municipal processes, and improving job quality and social protection schemes.

Raise citizen awareness regarding these projects.

Developing awareness raising materials and/or public campaigns that show the clear benefits that urban climate action has for everyone (good jobs, clean air, public transport, clean energy, health impacts...) is critical to gain citizens support towards these projects and to increase the understanding that green jobs are good for people, not only for the planet. This awareness raising should also include the critical role that informal workers play, specially in specific sectors (i.e. waste).

7. More guidance and examples on supporting informal workers can be found here: https://www.c40knowledgehub.org/s/article/How-to-support-informal-workers-and-economies-in-a-just-transition

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