3. Mutirão Reflorestamento: reforestation collective action

Type: top-down (government initiative)

Region: southeast

State: Rio de Janeiro

Biome: Atlantic Rainforest

City of Rio de Janeiro

Population: 6 520 266 (2017 [73])

Area: 1 264.2 Km² [74]

Elevation: from 2 m to 1 024 m high at the Pedra Branca peak

Coordinates: 22.902778 S / 43.207500 W

MHDI: 0.799 (2010) [75]

Context

Rio de Janeiro is a coastal city that ranges from 2 m above sea level to forested massifs [76] that divide the city into zones: central, north, south and west. The highest peak is Pedra Branca (White Rock), at 1 024 m high. The city has significant forested areas that cover most of the massifs. The population living in slums in 2010 was 19 % of the inhabitants (last census) [77]. The informal occupation of steep slopes and flood-prone areas occur mainly because of the lack of social housing planning, and the laws that protect vulnerable areas where formal occupation cannot occur. The landscape has been highly altered during the urbanisation process, with massive dismount of hills and creation of land over wetlands, mangroves, the Guanabara Bay and along the coast of Copacabana. Most of the 267 rivers and creeks [78] have been canalised or buried underground. The city has suffered massive landslides and floods, and the coastal areas are prone to erosion caused by storm surges and rises in sea level.

73. https://agenciadenoticias.ibge.gov.br/agencia-sala-de-imprensa/2013-agencia-de-noticias/releases/16131-ibge-divulga-as-estimativas-populacionais-dos-municipios-para-2017
74. https://www.geografos.com.br/cidades-rio-de-janeiro/rio-de-janeiro.php
75. https://cidades.ibge.gov.br/brasil/rj/rio-de-janeiro/pesquisa/37/0?tipo=grafico
76. https://ceciliaherzog.files.wordpress.com/2011/01/sumc3a1rio-relatc3b3rio-vulnerabilidades-rmrj.pdf
77. https://www.brasil247.com/pt/247/brasil/31334/IBGE-Brasil-dobra-nasil %BAmero-de-moradores-de-favelas-em-20-anos.htm
78. https://oglobo.globo.com/rio/bairros/rios-cariocas-entre-esquecimento-o-futuro-15652879

Objectives

- Restore degraded landscapes through forest planting.
- Prevent sedimentation of the drainage system and the watercourses.
- Connect forested patches through ecological corridors to enable genetic flows.
- Enhance biodiversity in conservation units and ecosystem remnants.
- Regulate hydrologic processes and flows of the urban watersheds.
- Use mechanic soil stabilisation to reduce the risk of landslides.
- Prevent river banks and estuaries from eroding.
- Limit illegal occupation of vulnerable areas.
- Promote jobs in low-income areas, mostly in slums.
- Provide environmental education.
- Capture and store carbon.

Actions

Since 1986 the programme has reforested native ecosystems: Atlantic forest, mangroves, restinga (dry sandy ecosystem) and sand dunes along the beaches. Planting has been carried out by residents of low-income communities (mainly favelas — slums), who were educated and trained to participate in the long-term programme.

The programme developed five nurseries to produce native species. They were able to produce 90 000 seedlings per month. By 2016 the reforested area was 3 100 ha, with 9 million trees planted as part of 166 projects.

At the peak of the programme, more than a thousand jobs were created for communities' residents.

The city developed a monitoring tool named SIG Foresta that mapped the ecosystem fragments in 2010, 2014 and 2016, available online [79]. The city has 28 % of natural land-cover [80].

The programme is still ongoing, although the change in the government has slowed the process due restraints on financial resources.

Figure 42. Before and after: reforestation of Morro da Saudade.

79.   http://www.arcgis.com/apps/webappviewer/index.1fbae7d3418ab69ea88aea1c51b5&extent=593426.9615 %2C7427711.1316 %2C740021.7665 %2C7500168.668 %2C29183, accessed: 8.10.2018.
80.   http://prefeitura.rio/web/seconserma/exibeconteudo?id=7514548, accessed: 8.10.2018.

Stakeholder involvement

The programme was developed by the city of Rio de Janeiro and the Secretary of Environment, coordinated by the Environmental Restoration Department. Under the current administration, the Secretary of Environment has been downgraded to coordination status by Mayor's Act 43915/2017 [81]. The programme was implemented by hiring local residents in local low-income areas who benefited from the afforestation ecosystem services and obtained green jobs.

Implementation

The programme's implementation began in 1986 and has continued to the present day, with no interruptions, using municipal financial resources. During the 1990s when the programme focused on the Favela-Bairro (Slum-Neighbourhood), Mutirão Reflorestamento received more funds from the Inter-American Development Bank as compensation for the improvement of the slums' urbanisation and job creation.

Figure 43. Praia Vermelha seen from the Sugar Loaf Mountain.

Outcomes

- Restoration of ecosystems.
- Stabilisation of vulnerable slopes and sand dunes.
- Protection from erosion of lagoon banks.
- Relocation of residents from some vulnerable areas (this is a huge challenge because there is no continuity in the disaster reduction programmes).
- Creation of green jobs — nowadays about 500 people are being paid to manage afforested areas.

From 1987 to 2009 the Mutirão Reflorestamento programme achieved 1 800 ha of planting. By 2016, 3 046 ha had already been planted, through this programme and environmental compensation and fiscal incentives.
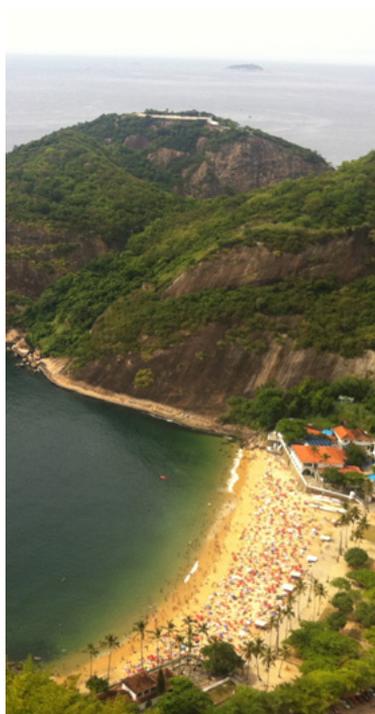
81. http://www.sinduscon-rio.com.br/n_agenda/d_011117/43915.pdf

Success factors

Continuity of the programme, participation by community residents and local job creation are the most noticeable success factors. The continuity of the programme is due to the public servants' engagement. Also, the partnership between the city and the communities was essential to the programme's success.

Awards received:
- selected by 'Megacities Project' (UN, 1990), published in Environmental innovation
- selected among '100 Brazilian experiences for the sustainable development and Agenda 21' (MMA, 1997);
- selected among the 20 best projects in the competition 'Public management and citizenship' (Fundação Getúlio Vargas/Ford Foundation, 1997);
- selected to be part of the 'world data bank of best practices and local leadership programme' (UNCHS-Habitat, 1998);
- CREA-RJ (Brazilian Council of Engineering and Architecture) Environment award (1998);
- Model Project Award by the Society for Ecological Restoration (SER, 1999);
- Honours Award in the Metropolis Award, 2002.

Limiting factors and risks

- Violence (insecurity, drug dealers and militia dominate in most areas).
- Lack of financial resources since 2016.
- Although recruitment is done in the local communities, it is difficult to get labour and to qualify and retain recruits because they don't receive the benefits of a formal job.
- In the northern hillsides, where the sun is stronger, there were more fires that impacted the plantings.

Contacts

Luiz Carlos Lourenço
Manager of Forest Management
Green Areas Coordination Department.