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Climate finance architecture in Brazil

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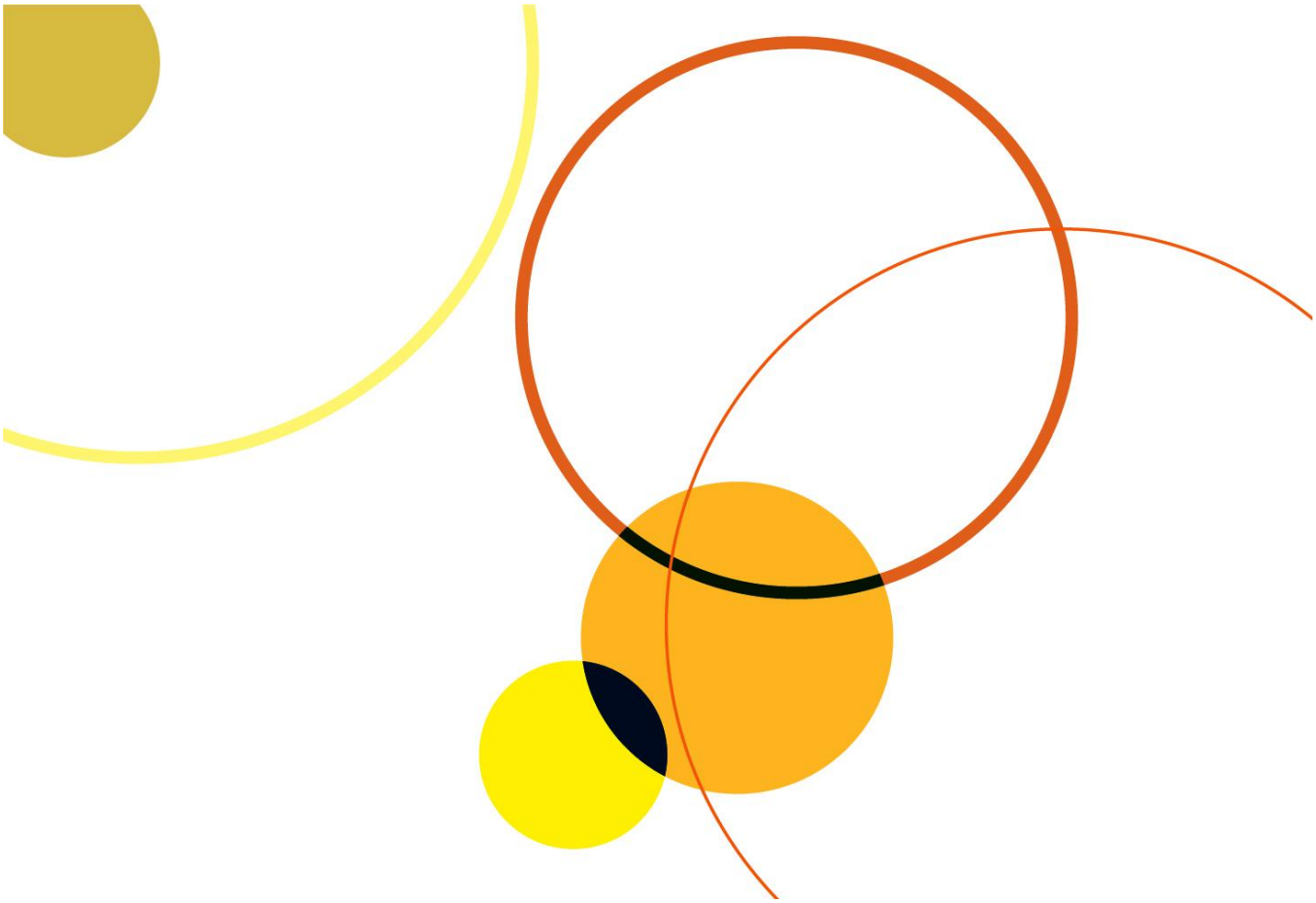
[1] Consortium comprises Harewelle International Limited, NR International, Practical Action Consulting, Cranfield University and AEA Energy and Environment



Brazil

A key element of Brazil's climate finance architecture is dedicated to reducing emissions from deforestation and degradation (REDD). In this regard, substantial progress has been made in recent years with deforestation rates in 2011 estimated to be almost 80 per cent lower than in 2004 (Coordenação-Geral de Observação da Terra, 2012). In addition, Brazil is also the second largest Non-Annex 1 destination for renewable energy investment, accounting for around 10 per cent of these flows in 2010. (Buchner, Falconer, Hervé-mignucci, Trabacchi, & Brinkman, 2011).

1.1 Overall framework

1.1.1 Division of responsibilities between federal, state and municipal governments with regards to climate change and the environment

The division of responsibility with regards to the environment (and consequently climate change) between the three layers of government in Brazil is not clear cut. All three layers are endowed with constitutional powers, and in 'some circumstances they all can wield and assert power over the same environmental matter' (Forum of Federations, 2010). A 2009 study by a Brazilian parliamentary body concludes similarly that the 'division of powers presents many advantages but also generates numerous conflicts and judicial disputes' (Chamber of Deputies' Permanent Commission on Environment and Sustainable Development, quoted in Forum of Federations 2010).[2]

1.1.2 Inter-Ministerial Committee on Climate Change (CIM, short for *Comitê Interministerial sobre Mudança do Clima*)

The Inter-Ministerial Committee on Climate Change was set up in November 2007[3], tasked with developing, implementing, monitoring and evaluation a National Plan on Climate Change. The committee has 17 members: 15 government ministries (including the Ministries of Finance, Foreign Affairs, Defence, Transport, Health, and Education) the office of the President (*Casa Civil*), and the Centre of Strategic Affairs of the Presidency (*Secretaria de Assuntos Estrategicos*). Its meetings are also attended by the Brazilian Forum on Climate Change (FBMC, after its Brazilian name *Fórum Brasileiro de Mudanças Climáticas*), a body bringing together both government and civil society representatives (Presidency of the Federal Republic of Brazil, 2007 and Ministério do Meio Ambiente 2012).

1.1.3 National Plan on Climate Change

The National Plan on Climate Change, drafted by CIM, was released in draft form in June 2008, in final form in December 2008, and adopted as a law in December 2009[4]. Its headline measure is a voluntary

[2] More detail about the governance structures of environmental legislation (and the implementation thereof) can be found at: http://www.forumfed.org/en/products/magazine/vol9_num1/V9N1_EN.pdf

[3] Decree No 6263 of 21.11.2007

[4] Law No 12.187 of 29.12.2009

commitment to a national greenhouse gas emission target: a reduction of between 36.1 to 38.9 per cent compared to projected emissions by 2020 (Robinson, 2010). It is structured around four main topics: mitigation and mitigation opportunities; impacts, vulnerability and adaptation; research and development; and education, training and information dissemination. Key specific targets include:

- eliminate net loss of forest coverage by 2015,
- increase energy efficiency savings to 106 TWh per annum (compared to counterfactual) in 2030 (electricity consumption in 2009 was 426 TWh, (International Energy Agency 2010)),
- increase ethanol transport fuel consumption by 11 per cent per annum for the next ten years ,
- increasing the share of (mainly sugar-cane based) Combined Heat and Power to 11.4 per cent of total electricity supply by 2030 (expected to correspond to approximately 136 TWh; current production from biomass, which is mostly sugarcane CHP, is 3.5 per cent of total electricity production, approximately 17 TWh, (Government of Brazil 2008)), and
- increase recycling of municipal solid waste by 20 per cent by 2015 (Government of Brazil, 2008).

In order to achieve the various targets, the plan provides for the preparation of 14 sectoral plans, which are to include targets, indicators and action recommendations for both mitigation and adaptation. Four plans have been completed so far: forestry in the Amazon; forestry in the Cerrado; energy; and agriculture. Ten plans should be finalised by the 16th of April 2012: steel, durable consumer goods, chemicals, pulp and paper, construction, mining, manufacturing, transport, health and health services, and fishing. (Ministério do Meio Ambiente, 2012a).

1.2 Arrangements using public resources

1.2.1 Brazil National Fund on Climate Change

The Brazil National Fund on Climate Change (FNMC, short for *Fundo Nacional sobre Mudança do Clima*) was established in 2010 to finance mitigation and adaptation projects. It provides both grants and loans and is structured into six programmatic areas: transport, renewable energy, desertification, energy efficiency, energy from waste, and biomass charcoal.

The FNMC receives its funding from three sources: first, it can receive funding from general federal tax revenue (unclear whether it does at the moment); second, it receives up to 60 per cent of the revenue from a special tax on the profits made in the petroleum production chain; third, it is eligible to receive international public funds (Flynn, 2011). The budget for 2011 came to BRL 238 million (USD 143 million, INR 6720 million)[5] (Government of Brazil, 2011a).

These resources are split between two main branches of the FNMC: BRL 204 million (USD 122 million; INR 5760 million) were allocated to the loan-making part of the fund, managed by the Brazilian Development Bank (BNDES, short for *Banco Nacional de Desenvolvimento Economico*). The remaining BRL 34 million (USD 20 million; INR 960 million) were allocated to the grant-making part of the fund, administered by the Ministry of the Environment (MMA, short for *Ministério do Meio Ambiente*). Within the loan-making branch, BRL 100 million (USD 60 million; INR 2820 million) have been earmarked for the

[5] These, and all other exchange rates in the report, converted using 2011 average market exchange rates.

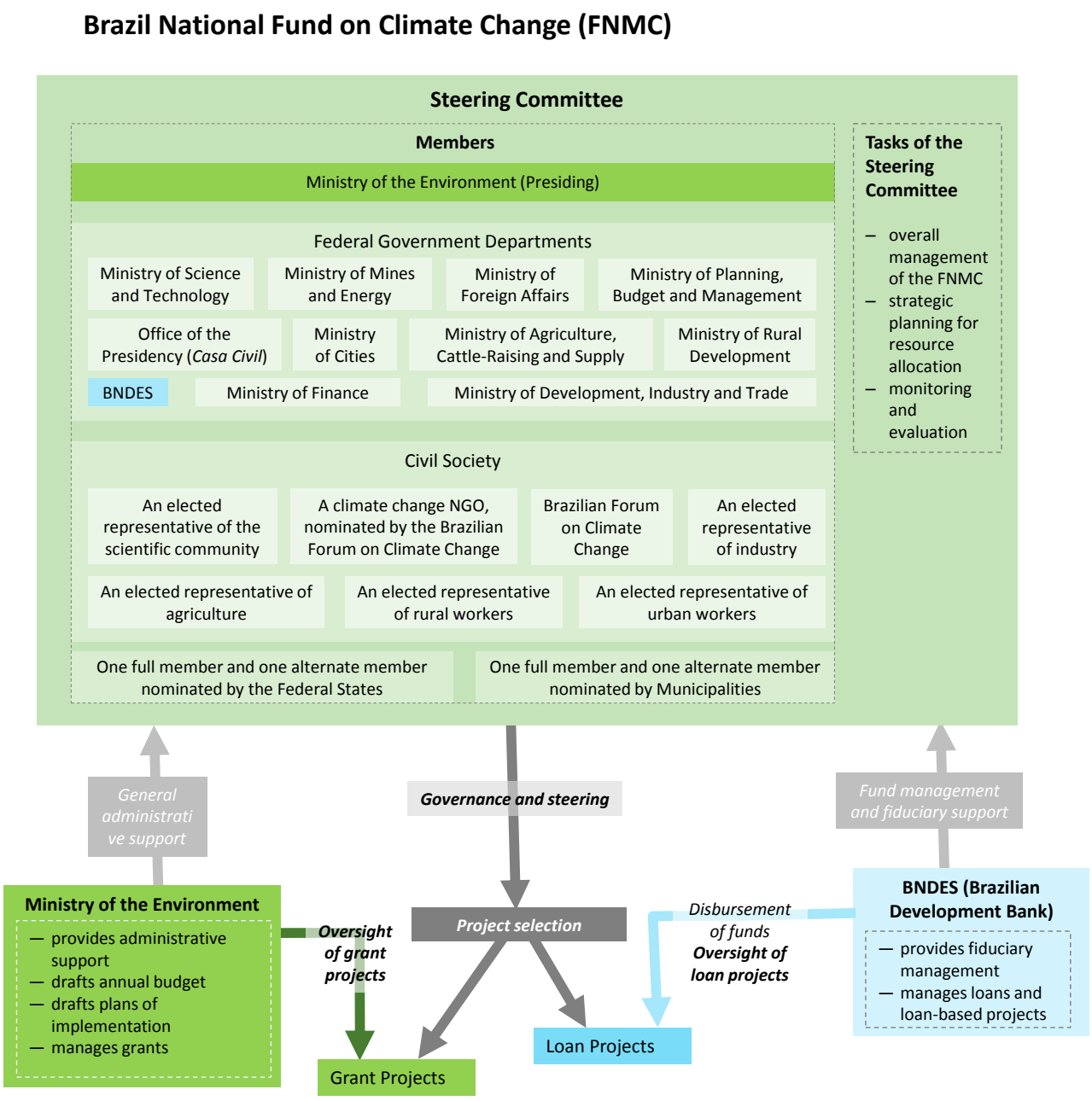
energy from waste programmatic area, while the same amount allocated across the remaining five areas according to demand. Support from the loan-making branch can take a variety of different forms, including both direct (with loans and other financial instruments issued by BNDES) and indirect (with funds channelled through accredited financial institutions) loans (BNDES 2012 and Government of Brazil 2011b).[6]

The Fund's strategy is decided by a steering committee, composed of representatives from the Brazilian government, the BNDES, federal states, municipalities, NGOs, industry, agriculture, urban workers, agricultural workers, the scientific community, and the Brazilian Forum on Climate Change. The committee is chaired by the Executive Secretary of the Ministry of the Environment. Fiduciary management is undertaken by the BNDES. Project management is split between the Ministry of the Environment (for grants) and the BNDES (for loans) (Ministério do Meio Ambiente, 2012b).

The 2011 budget focussed on mitigation in general, and on the agricultural, energy and steel sectors in particular (Government of Brazil, 2011a).

[6] Details of the forms of support available from the BNDES branch of the FNMCC are available here: http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Apoio_Financeiro/Produtos/

Figure 1. **Governance structure of the Brazil National Fund on Climate Change**



Source: Vivid Economics

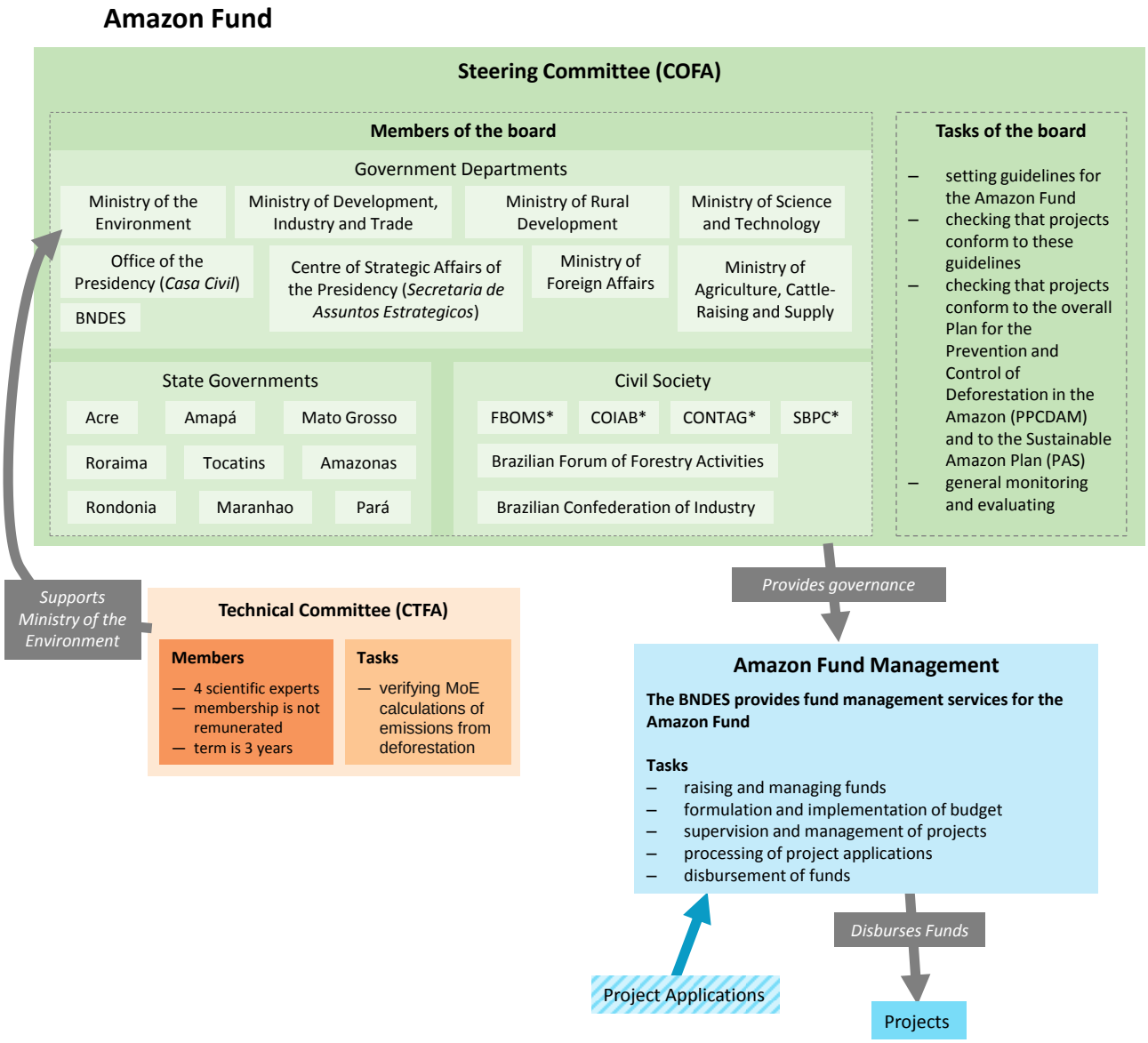
1.2.2 Amazon Fund

The Amazon Fund (*Fundo Amazônia*) was proposed in August 2008 and became operational in March 2009. Its objectives are to raise funds for the preservation of the Amazon rainforest. It makes grants (non-reimbursable investments) towards efforts to prevent, monitor, and combat deforestation, as well as towards preservation and sustainable forest use projects. Up to 20 per cent of its resources may be granted to projects in other Brazilian biomes outside the Amazonas and in tropical biomes outside Brazil (Fundo Amazônia, 2012a).

As of January 2012, the Amazon Fund had received a total of just over BRL 100 million (USD 60 million, INR 2820 million). Around 86 per cent of this was contributed by the government of Norway, with a further 7 per cent coming from the German government and Petrobras respectively. The Norwegian government has committed a total of approximately BRL 800 million (USD 480 million, INR 22600 million (including that already disbursed) up until December 2015 which will be disbursed depending on results. In particular funds will be paid out depending on the difference between observed emissions from deforestation (as measured in the previous year) and a reference level (Ministry of the Environment Norway, 2012). The German government has similarly committed approximately BRL 50 million (USD 30 million; INR 1400 million), also to be disbursed depending on demand up until 2015 (Fundo Amazônia, 2012b).

The Fund is overseen by a steering committee (COFA, short for *Comitê Orientador do Fundo Amazônia*) and managed by the Brazilian Development Bank (BNDES). The steering committee is responsible for setting overall strategy and for monitoring results. Its members are drawn from the federal government, the BNDES, and, notably, federal states with territory in the Amazon biome, as well as civil society (Fundo Amazônia, 2012c). BNDES is responsible for contracting and implementing the financing for approved projects. There is also a technical committee (CTFA, short for *Comitê Técnico do Fundo Amazônia*), responsible for verifying emissions from deforestation.

Figure 2. **Governance structure of the Amazon Fund**



* *FBOMS – Brazilian Forum of NGOs and Social Movements for the Environment and Development*
COIAB - The Coordination of Indigenous Organization in the Brazilian Amazon
CONTAG - The Brazilian Confederation of Agricultural Workers
SBPC - The Brazilian Association for the Advancement of Science

Source: *Vivid Economics*

1.2.3 Public funds for adaptation

Adaptation policy is not yet well developed in Brazil. While there are some pilot adaptation projects, mostly funded from international donor funds, there is no national adaptation finance framework. Pilot projects include *Adapta Sertão*, a social-enterprise effort to assist farmers in Brazil's dry north-eastern region (co-funded by CDKN, CDKN 2012), as well as a number of smaller adaptation efforts funded by the German Federal Environmental Agency (Umweltbundesamt, 2009).

1.2.4 Ecological VAT – an example of a successful centre-periphery policy

Notwithstanding the institutional overlap between the three layers of government in Brazil (described in section 1.1.1 above), there is a successful policy that operates across two layers of government: the distribution of VAT revenues according to ecological criteria (abbreviated as ecological VAT, or ICMS-Ecológico). In Brazil, VAT revenues accrue to federal states, who distribute 25 per cent of their total VAT revenues back to municipal/county governments. Three-quarters of this 25 per cent are distributed according to value added generated by each county, i.e. the states have no discretion about this part. However, states do have discretion about the allocation of the remaining quarter. States are allowed to use larger VAT allocations to incentivise certain activities by municipalities/counties. Multiple states have started to use environmental criteria to decide how to allocate this discretionary quarter (Paraná in 1992, Minas Gerais and Sao Paulo in 1996, Rondonia in 1997) (Grieg-Gran, 2000).

Though the criteria are primarily associated with ecosystem conservation (Veiga, Levy, & Calmon, 2006), this policy instrument could in the future be used to support climate change mitigation or adaptation. In a 2006 assessment, the instrument is described as having 'mobilized significant internal funding for conservation' (Veiga et al., 2006). Furthermore it is highlighted as a case 'not only of good co-ordination between fiscal and environmental policies but also of a vertical co-ordination between two tiers of government in a federal republic' (Forum of Federations, 2010).

1.3 Arrangements aimed at encouraging private sector investment

1.3.1 Tenders for renewable electricity generation capacity

Brazil's national energy regulator ANEEL (short for *Agência Nacional de Energia Elétrica*) holds public tenders to allocate concessions for new capacity. These reverse-auctions[7] are for delivery of power one, three, or five years after the signing of contracts (A-1, A-3, and A-5 tenders respectively) (Barroso, 2011). Up until 2009, tenders were single-technology. In 2010 tenders were split into renewables and fossils, with different renewable technologies competing amongst each other. From 2011, tenders cover all technologies (except for particular tenders limited to large-scale hydro), allowing for competition between fossil fuel and renewable technologies. The 2011 A-3 tender resulted in a total contracted capacity of 2745 MW, of which 1068MW (39 per cent) were wind power, 198MW (7 per cent) biomass, 450MW (16 per cent) hydro, and 1030MW (38 per cent) natural gas (Empresa de Pesquisa Energetica, 2011a); the A-5 tender resulted in a total contracted capacity of 1212MW, of which 977MW (81 per cent) were wind power, 100MW (8 per cent) biomass, and 135MW (11 per cent) hydro (Empresa de Pesquisa Energetica, 2011b).

1.3.2 PROINFA

PROINFA is the national programme for the promotion of alternative energy sources in Brazil. It is structured into 2 phases, with the first phase aiming to deliver 3300MW capacity of renewable energy (defined as wind, biomass CHP, and micro-hydropower), and the second phase aiming to increase renewable energy to 10 per cent of total annual energy consumption. The first phase, involving state subsidies financed

[7] In a reverse auction, instead of buyers competing for a good or service by bidding the price up, sellers compete to provide a good or service to a customer (frequently governments) by bidding the price down (the winning bid tends to be the one with the lowest price, though this depends on the extent to which non-price criteria are considered).

via utility bill surcharges, was completed in 2005. The time frame for achieving the 10 per cent target of the second phase is 20 years (IEA, 2012).

1.3.3 Energy efficiency investment requirement

The Brazilian energy regulator (ANEEL) obliges electricity distribution companies to invest at least 0.5 per cent of net operational revenue into activities aimed at reducing the inefficient use of energy. Utility investments in 2005/06 totalled USD 130 million, falling to USD 80 million in 2006/07 (Carbon Disclosure Project, 2009).

1.4 Overview of Brazil's domestic climate finance arrangements

Table 1. **Arrangements for public funding for low carbon investment in Brazil**

Instrument	Sources of funding	Institutional structure/governance	Implementation agencies	Financial instruments	Resource allocation (sector as well as adaptation/ mitigation split)
Brazil National Fund on Climate Change (FNMC)	– General federal tax revenue – Up to 60 per cent of a special tax on profits made in the petroleum production chain – International public money – Budget in 2011: BRL 238	– Strategic management undertaken by steering committee with large membership – Fiduciary management by BNDES	– BNDES for loan-making programme – Ministry of the Environment for grant-making programme	– Loans – Grants	– 2011 budget focussed on agriculture, energy and steel – In general, six programmatic areas: transport, renewable energy, desertification, energy efficiency, energy from waste, and biomass charcoal
Amazon Fund	– Donations from Norway (BRL 86m), Germany (BRL 7m) and Petrobras (BRL 7m) – Further commitments (not yet disbursed) from Norway (BRL 714m) and Germany (BRL 43m), to be disbursed no later than December 2015 according to demand	– Strategic management undertaken by steering committee (COFA) with membership drawn from federal government, BNDES, federal states, and civil society – Fiduciary management by BNDES – Deforestation emissions measured by technical committee (CTFA)	– BNDES	– Grants	– Projects aimed at the prevention, monitoring and combating of deforestation – At least 80 per cent of total resources deployed in the Amazon biome – Up to 20 per cent can be deployed elsewhere in Brazil, or in tropical biomes outside Brazil
IMCS-E (ecological VAT)	– Discretionary part of the VAT transfer from federal states to local counties/municipalities – Federal states transfer 25 per cent of their VAT revenues to local government – Of this, states have discretion over a quarter (6.25 per cent of total VAT revenues)	– Federal states set criteria according to which they choose to distribute the discretionary portion of VAT revenues – Criteria include expenditure on protected areas or on environmental services, success in the protection of water supply sources, or sanitation and treatment of waste and sewage	– Federal states – Municipal/county governments	– Grants (VAT revenue transfers)	– Ecosystem preservation and management – Provision of environmental services

Note: *This overview does not necessarily give an exhaustive account of all instruments*

Source: *Vivid Economics*

Table 2. **Arrangements for private funding for low carbon investment in Brazil**

Instrument	Policy description	Forms of capital	Which parts of the private sector are involved?
Tenders for renewable electricity generation capacity	– Reverse-auctions for the delivery of power generation capacity – Formerly, tenders used to be single-technology, giving renewable technologies a guaranteed market share – As of 2011, tenders are open to all technologies; notably, renewable sources won a majority of tenders in the 2011 tenders	– Private investment capital	– Energy generators
PROINFA	– A two-stage renewable energy support policy – Stage one delivered 3300MW of renewable capacity using subsidies financed through utility bill surcharges – Stage two aims to bring non-hydro renewables to 10 per cent of total electricity generation in the next 20 years	– Private investment capital supplemented by state subsidies	– Energy generators
Energy efficiency investment requirement	– Electricity distributors are required to invest at least 0.5 per cent of net operational revenue into energy efficiency measures	– Private investment capital	– Energy distribution utilities

Note: *This overview does not necessarily give an exhaustive account of all instruments*

Source: *Vivid Economics*

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