

Brazilian Climate Policy since 2005: Continuity, Change and Prospective

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Abstract

In the five-year period 2005-09, Brazil has dramatically reduced carbon emissions by around 25% and at the same time has kept a stable economic growth rate of 3.5% annually. This combination of economic growth and emissions reduction is unique in the world. The driver was a dramatic reduction in deforestation in the Amazonian forest and the Cerrado Savannah. This shift empowered the sustainability social forces in Brazil to the point that the national Congress passed (December 2009) a very progressive law internalising carbon constraints and promoting the transition to a low-carbon economy. The transformation in Brazil's carbon emissions profile and climate policy has increased the potentialities of convergence between the European Union and Brazil.

The first part of this paper examines the assumption on which this paper is based, mainly that the trajectory of carbon emissions and climate/energy policies of the G20 powers is much more important than the United Nations multilateral negotiations for assessing the possibility of global transition to a low-carbon economy. The second part analyses Brazil's position in the global carbon cycle and public policies since 2005, including the progressive shift in 2009 and the contradictory dynamic in 2010-12. The final part analyses the potential for a transition to a low-carbon economy in Brazil and the impact in global climate governance.



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1. The trajectory of emissions of the major powers

According to most scientific evidence, a solid transition to a low-carbon economy assumes three principal dimensions: the continuous reduction of carbon emissions in developed countries; an accelerated decrease in the emissions growth curve – and the establishment of a stabilising year – for emerging mid-income countries before 2020; and, an accelerated decrease in the carbon intensity of GDP globally. In the case of rich countries, there should be an accelerated decrease in the *per capita* emissions, and in the cases of mid-income countries, an accelerated reduction in the carbon intensity of GDP and a light and continued fall in *per capita* emissions. Poor countries would still be allowed space to increase their *per capita* emissions (Stern, 2009; Viola et al., 2013).

Emissions of GHGs grew by 3% during the first decade of the 21st century.¹ Including also figures on deforestation and agriculture of diverse sources for some countries, the leading emitters in 2010 were: China, responsible for 25% of the global total (and a 5% annual growth over the last decade), the US with 17% of total emissions (and 0.8% annual growth), the European Union (27 countries) at 12% of the total (growing at 0.4% annually), India with 8% of the total (growing at 6% per year), Russia with 5% of the total (and annual growth of 4%), Indonesia with 4.5% of the total (growing by 5% per year), and Brazil at 4% of the total (4% annual growth until 2004, which drastically reduced between 2005 and 2009).

The G20 countries are responsible for over 80% of global emissions and constitute three critical groups of super, great and medium powers (Viola, Franchini & Ribeiro, 2012). The G20 forum has itself since 2008 become crucial in terms of the potential for building up much needed global governance, both in economics and climate. The peak attempt for developing global climate governance in the G20 framework was at the London Summit in April 2009. The initiative had the support of Germany, France, United States, Japan, South Korea, Mexico and the European Union. The then newly started Obama administration was at the peak of its commitment to climate change mitigation, consistent with its electoral campaign platform. But there was strong opposition from China, India, Russia, Brazil, South Africa, Argentina, Indonesia and Saudi Arabia. After the COP15 failure in December 2009 at Copenhagen, the subsequent summits of the G20 showed stagnation in developing global governance both in economic and climate policies. Nevertheless, it remains the most

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¹ According to data from The Netherlands Environmental Assessment Agency (<http://www.pbl.nl/en/>).

important arena for building up global governance in these fields. The G20 meeting in Los Cabos in June 2012 approved a soft declaration in favour of a gradual elimination of subsidies for fossil fuels.²

The three super powers – the United States, the European Union and China – share three highly relevant characteristics:

- First and most essential, each one is responsible for a high proportion of global carbon emissions (at least 12%) and of global GDP.
- Secondly, they possess important technological and human capital for decarbonising the economy.
- Finally, they have veto power over any global international accord that could be effective.

The three super powers stand for a half of global GDP and 54% of global carbon emissions. The European Union is isolated in its defence of an effective global architecture for a rapid transition to a low-carbon economy. The US and China resist a global agreement on a transition to low-carbon.

Five major countries (India, Russia, Japan, South Korea and Brazil) are important players in addition to the climate super powers. India is growing very fast in terms of its share of the total and likely will surpass the European Union and the United States at some point in the present decade. Japan already has one of the less-intensive carbon economies and has a strong human and technological capacity for the transition to a low-carbon economy. Russia is the most difficult country: it has a very intensive carbon economy and high per capita emissions and a significant part of its elites and population believes that climate change could be beneficial. Brazil has the least carbon-intensive energy matrix of the relevant countries and will be the focus of this article. South Korea is the more reform-minded of the great powers since 2008, as is reflected in its public policies and its strong human and technological capacity for decarbonising the economy.

The recent performance of the middle powers in terms of trajectory of emissions and climate/energy policies allows us to classify them into two groups: conservatives (Canada, Indonesia, Argentina, Turkey and Saudi Arabia) and progressives (Mexico, Australia and South Africa). Canada is conservative because of the strong power of the oil-rich province of Alberta in the complex federal arrangement, and Australia was definitively conservative until 2007, but it began to enter the progressive camp in September 2011 when it approved a carbon tax.

The failure of the Copenhagen Conference to reach a binding agreement increased the questioning of the United Nations' multilateral negotiations framework. It is very difficult to conduct consistent negotiations among 170 countries (this count considers the 27 European Union countries as one) when around 140 of them do not play a significant role in the production of the problem nor its potential solution, although most of them are the more vulnerable to climate change. There is an increasing perception among analysts and decision-makers in the most important countries that in the near future the prevailing approach will be bottom-up and that the most important reference already exist in the form of the commitments submitted by all the important countries to the Copenhagen Accord at the beginning of 2010. The precarious agreement reached at the 17th COP in Durban 2011 didn't change the situation in any significant way.

² For an extended development of that argument and the problematic aspect of the whole first part, see Viola et al., 2013.

The formation of a successful de-carbonisation alliance in the world depends on positive changes in the stance of the United States and an acceleration in the new Chinese energy policy initiated in 2008. Positive changes in each one of the super powers will likely affect the others and will re-energise the European commitment. Once these changes in the US and China are achieved, a coalition of the US, the EU, Japan, China, Brazil, South Korea, Mexico, Australia and South Africa could put pressure on Russia, India, Canada, Turkey, Argentina, Saudi Arabia and Indonesia to accelerate decarbonising measures in their respective economies. The extensive negotiations of this process would take place in multiple arenas: bilaterally, mainly US-China, China-EU and US-EU, but also Brazil-US, Brazil-EU, etc...; trilaterally (US, China, EU); and, multilaterally, the G20 – where South Korea, Mexico, Australia and Brazil could play an active reformist role vis-à-vis India, Russia and conservative middle powers. After a consistent agreement would be reached in the G20, the capacity of persuasion over all United Nations countries will likely be very strong and a formal multilateral agreement could be signed.

2. Brazil in the global carbon cycle and public policies since 2005

Brazil is a key country in the world in terms of the carbon cycle and natural and environmental resources because it possesses:

- the most important carbon stock in forests in the world,
- the largest stock of biodiversity in the world,
- the largest reserve of agricultural land and the most competitive agribusiness in the world,
- the third largest stock of fresh water in the world, after Russia and Canada,
- the most efficient and second largest – after the US – production of ethanol in the world (Goldemberg, 2007) and
- the largest reserve of hydropower in the world that could be easily used because it has a globally competitive industry in the field.

According to the Second National Emissions Inventory Communication (SNEIC),³ in 2005 Brazil generated around 2.2 billion tonnes of CO₂e – methane and nitrous oxide. In 2005 Brazil accounted for around 5% of global carbon emissions. In 2005 Brazil was the fifth-largest emitter in the world after the US, China, the European Union and India. In terms of per capita emissions Brazil produced in 2005 approximately 11.5 tonnes CO₂e, which was 60% that of the Americans, 20% more than the European Union, twice the Chinese and seven times the Indians. In 2005, the carbon intensity of the Brazilian economy was around 1.7 tonnes of carbon per \$1,000 of GDP, higher than the US and the EU, but lower than China and India.⁴

Between 2005 and 2009, however, Brazil broke the trend and was able to reduce GHG emissions by approximately 25% – the largest reduction ever recorded. This dramatic decrease was caused by a remarkable fall in Amazonian deforestation: from an annual average of almost 21,000 km² in 2000-04 to 6,200 km² in 2009-11 (Brazil, 2010b). Deforestation reduction in the Amazon was a product of the following drivers:

³ Brazil (2010a).

⁴ In considering carbon intensity, current exchange rate dollars were used in this paper and not purchasing power parity, but the author recognizes that there would be good reasons to argue in favour of the latter.

- i) Strong commitment to reducing deforestation by the Ministry of the Environment, headed by the Senator from Acre state Marina Silva, dating from the start of the Lula administration (January 2003). After almost two years of procrastination by the President - with deforestation increasing during 2003 and 2004 - the Minister was powerful enough to impose a shift in Amazonian policy. Since 2005 until 2009, deforestation reduction in the Amazon was at the core of the federal government's programme. Since 2010 the federal government no longer aims to reduce deforestation, but rather to avoid a new increase.
- ii) Dramatic increase in law enforcement by the federal government once the Presidency of the country ordered the Federal Police and other federal agencies to increase cooperation with the Minister of Environment in stopping illegal deforestation. In 1997, Brazil passed a law strongly limiting deforestation to 20% of the private property in the Amazonian region. No capitalist country in the world has seen such severe interference in private property as Brazil in the Amazon. But the resistance to the law had been very strong until 2005, with unwillingness of the federal government to enforce the law and strong opposition from most state governments.
- iii) Strengthening of the scientific and technological capabilities of the Institute of Space Research (INPE) in charge of satellite monitoring of deforestation. INPE became a major global player in assessing deforestation and regional climate modelling.
- iv) Formation of multi-stakeholders coalitions against exportation and domestic consumption of soy and beef coming from deforested areas. These coalitions were composed of international, national and local entities, some corporations, the scientific community, some universities and some local governments.
- v) Increased impact of NGOs and the scientific community on the media - and consequently on the federal government - through different reports and campaigns showing the irrationality of deforestation.
- vi) Creation of new national parks and other conservation units that introduced new constraints into areas where deforestation was advancing.

Since 2007 the capacity of the state to control illegal deforestation in large areas has increased so dramatically that a significant part of the remaining deforestation has been reduced to small areas that are more difficult to detect by satellite. It is important to highlight that this process was carried out without any negative impact on economic growth (Moutinho, 2009). The deforestation reductions also changed the carbon intensity of the Brazilian economy: it fell in the Amazonian states and grew in the rest of the country.

In spite of the relatively improved situation of Brazil in the modern global economy compared to the previous decade and the progress made in emissions reduction at national level, its GHG trajectory has deteriorated in some relevant economic sectors in recent years. Brazil is the only important economy in the world in which there was an increase in carbon intensity if deforestation is not taken into account (UNEP, 2009). In the period 1994-2007, there was a 50% rise in emissions derived from production and consumption of energy out of a GDP growth of 38%. Three factors explain this trajectory: a large expansion of diesel consumption - used mostly by trucks - resulting in a dramatic increase in traffic congestion in large cities and key roads; the increase in the proportion of electric power coming from fossil fuels - from 11% to 15%; and, a strong increase in oil refining (Abranches & Viola, 2009).

Brazilian emissions are set to continue to grow at a rate of around 2% a year, in light of the significant decline in the rate of deforestation that had taken place in the period 2005-2012.

Emissions from the other relevant sectors of the economy will certainly rise because the annual rate of GDP growth is estimated at around 3% for the period 2013-16.

In the international United Nations negotiations, Brazil has so far assumed a general alliance with emerging countries with an energy matrix heavily dependent on fossil fuels (China, India and South Africa). The advantages of the energy matrix were always subordinated to the disadvantages of Amazonian deforestation in the formation of Brazil's position (Viola, 2004). However at the 12th COP in Nairobi, December 2006, Brazil started to change its historical position, proposing the creation of a global fund for slowing down deforestation.

Brazil's role in the global politics of climate change mitigation and adaptation lagged behind its potential until 2009 because of two major driving forces. First, entrenched traditional ideas and attitudes about the short-term use of natural resources had remained strong throughout the whole society and prevailed in the frontier society. Second, a traditional conception of national sovereignty that is poorly adapted to the challenges of the global information society has remained very strong among most decision-makers, particularly within the military and the foreign service. This approach has undermined most efforts at achieving the necessary convergence between the Brazilian national interest and the universal interest in relation to deforestation in the Amazon.

Following and intensifying the previous trend, in 2009 there was a strong increase in public attention on the climate agenda: media coverage, public events, scientific conferences, mobilisation by NGOs and corporate meetings (Viola, 2010). More and more the traditional Brazilian government position was under siege in the Brazilian society, with two major claims to changing course: assuming goals for emissions in 2020 and supporting REDD+ (Reduction of Emissions from Deforestation and Degradation).

In this line, governments from Amazon states – under the leadership of Amazon and Mato Grosso – created the Amazon Forum in July 2009 and pushed for a change in the Brazilian international position in relation to forests. They wanted Brazil to accept the inclusion of REDD+ into the CDM or any other market mechanism. Also, three corporate coalitions launched documents in September 2009 asking the political authorities to modify the Brazilian climate standing – both domestically and internationally (Viola, 2010).

In October 2009 the Minister of the Environment Minc increased his pressure in order to change the Brazilian position in COP15. Finally, after overcoming heavy resistance from Foreign Affairs and Science and Technology, the new position was announced both by Minister Carlos Minc and Minister Dilma Rousseff – the latter of whom was already designated a future presidential candidate.

The Brazilian commitment announced 13 November 2009 has the following characteristics (Viola & Machado Filho, 2011):

- i) It is voluntary, meaning that Brazil decided to go beyond its obligations according to the Climate Convention and the Kyoto Protocol.
- ii) It refers to the carbon emissions growth curve in relation to a Business As Usual (BAU) scenario and it is not an obligatory target in reference to a baseline year, unlike those commitments adopted by the EU, Japan, South Korea, Switzerland and Norway.
- iii) Brazil commits itself to reduce GHG emissions between 36% and 39% having as a baseline the year 2005 and having as future reference the projected emissions for the year 2020 within a BAU scenario. This scenario assumes that in 2020 Brazilian emissions will grow up to 2.7 billion tonnes of CO₂e. The voluntary commitment will reduce the emissions to 1.8 billion tonnes, which implies a reduction of 36% to 39%.

having 2005 as a baseline and approximately the same amount of emissions as the year 2009.

Parallel to the movements in the executive power sphere, the Federal Congress also began to deliver measures regarding climate issues. In October 2009, the House of Representatives passed the climate change bill, after significant efforts were made by the trans-party environmental bloc. Under the influence of the new pro-climate public atmosphere, the Senate debated and approved the bill in December 2009. The same process that framed the sanction of the federal law also resulted in the creation of the Climate Change National Fund (CCNF- law 12,114), conceived as an instrument to assure the necessary financial support for mitigation and adaptation projects.

In order to correctly evaluate the growing climate awareness in Brazilian society, it is important to highlight that in the first round of the presidential elections - 3 October 2010 - the Green's Party candidate Marina Silva came in third place with 19% of the total valid vote, excluding abstentions and null votes. Moreover, a recent (December 2012) survey by the prestigious DataFolha Institute showed Marina Silva with 18% of vote intentions, second - after the President Dilma Rousseff - in the race for president in the election of 2014.

The Brazilian stance in the COPs of Cancun, Durban and Doha mostly showed continuity with the past. Brazil kept the BASIC (Brazil, South Africa, India and China) alliance as its priority, and its main goal is to ensure the continuation of the Kyoto Protocol beyond 2012 with commitments of emissions reduction coming only from Annex 1 countries and no commitments from non-annex 1 countries at least until 2020. However, within the BASIC alliance, Brazil has been pushing in favour of some kind of commitments from non-annex 1 countries starting in 2020. The individual positions of the four BASIC countries showed regularity in the three last COPs and could be ordered from more progressive to more conservative in the following way: Brazil, South Africa, China and India.

During the Durban COP, Brazil attempted to bridge the differences among the major players - mostly behind the scenes - trying to diminish the distance between the position of the European Union and the other BASIC countries, particularly trying to persuade China and India of the need to be more flexible and also, trying to make the American position more flexible. At the Doha COP, Brazil was extremely engaged - and convergent with the EU - in getting some continuity of the Kyoto Protocol. In spite of the moderately positive diplomatic statements about the Doha agreement by representatives of most countries, the opinion of this author and researchers linked to its network is that the meeting was a failure.

3. Global climate governance and the transition to a low-carbon economy

The adoption of commitments for emissions reductions by Brazil in November 2009 launched a debate inside the government about how to position itself in the Copenhagen COP 15. The conservatives wanted to keep the strong alliance with China and India. The reformists wanted to distance the country from those that have adopted goals much less ambitious than has Brazil. The conservatives prevailed during the conference, since Brazil stated that the type of ambitious commitment that was adopted should not apply as a parameter to other emerging countries.

Indeed, during 2011-12, a conservative coalition in Congress approved a reform of the Forest Code, which gave a partial amnesty to farmers that deforested beyond the legal permit until 2008. Many analysts fear that the new Forest Code could increase deforestation in the Amazon. Even if this does not happen, for sure it will increase deforestation in the Cerrado Savannah, the key agriculture frontier of Brazil.

However, there are some positive prospects for Brazilian agriculture. Sectors of the government are trying to disseminate the idea of a low-carbon agri-business, where gains in productivity do not mean more GHG emissions. This discourse is based on the agricultural potential of degraded lands, a more technological use of the land already exploited and the progressive expansion of the 'no-till' system (Cerri, 2010). Agriculture has historically been an area of clash between Brazil and the protectionist policies of the European Union and this is likely to continue in the area of low-carbon agriculture.

In the area of energy, the pace and scale of pre-salt oil exploration is a source of uncertainty in the sector. Initially, there was some risk that the pre-salt would put some constraints on Brazil's foreign policy in relation to the transition to a low-carbon economy (Lucena, 2009). In fact, there has already been a preview of this effect, with the moderation of the ethanol diplomacy since late 2007. In relation to potential consequences of pre-salt over the country's carbon emissions, the prospects are not good either, since the expansion of refinement and the petrochemical industry is already on course. The key to overcoming this emissions expansion is to use carbon capture and storage in the extraction/refinement of oil and in the petrochemical industry. Five years after the announcement of the pre-salt discoveries there is clear delay in the exploration and some doubts about its future: a nationalist trend has limited the participation of foreign companies and Petrobras has been badly managed in the last years and is strapped for cash to make the huge investments needed. Moreover, the shale gas and tight oil⁵ revolution in the US and other recently discovered reserves elsewhere in the world have diminished the attractiveness of the Brazilian pre-salt.

The future expansion of ethanol production in Brazil is tied in part to the commoditisation of the good in the international market, in a way similar to oil. However, if Brazil tries again to consolidate the ethanol policy, it has to guarantee that the production of bio-fuels won't be done through deforestation. This is easy with ethanol but a little more complex in the case of bio-diesel because its main raw material is soy, which could retake the penetration in the Amazon as happened before 2005. Despite the arguments by some European leadership that the ethanol production in the Centre-West and Southwest has pushed the soy and cattle ranching frontier further into the Amazon, the dramatic decline in the region's deforestation rate in recent years shows the capability of Brazil to transform sugar ethanol into a sustainable global commodity. An important challenge for ethanol is how fast the more backward sugar-cane cultivating regions will move from labour intensive - primitive labour conditions - to mechanisation. The certification of ethanol production could be done in a way that constrains the backward part of the ethanol sector. Due to the high acceptance of ethanol policies in Brazilian society, these measures could have strong support. However, in the last two years there has been a dramatic stagnation in the production of ethanol due to several factors: the government signalling its priority for oil exploration, a freeze on gas and diesel prices that undermined the competitiveness of ethanol and the lack of development of new infrastructure for ethanol transportation (ethanol pipelines).

The construction of new thermoelectric power plants based on oil or coal seems to be over for now, although there would be an increase in natural gas thermoelectric plants in the whole country and particularly in the Amazon because of the exploration of significant gas reserves in the centre-west Brazilian Amazon, relatively close to the city of Manaus - the most important city in the world located in the middle of a tropical forest with around 2 million inhabitants and a huge industrial sector. On the other hand, hydropower is back.

⁵ Tight oil (also known as light tight oil, abbreviated LTO) is a petroleum play that consists of light crude oil contained in petroleum-bearing formations of relatively low porosity and permeability (shales).

Today, less than 10% of the total hydropower production comes from the Amazon, but the expansion of this activity will be concentrated in this region and should be done with high efficiency with respect to the conversion of forests. The plans and the already ongoing construction for two large hydropower plants on the Madeira River, in the border area with Bolivia, are environmentally friendly for the first time in Amazonian history. It remains to be seen how deep the shift will be in the final outcome. A third large dam in Belo Monte (in the state of Para), whose construction was initiated in 2011, has given rise to strong controversies.

For the Brazilian mindset, hydropower is fully equal to wind and solar as a renewable energy. The fact that the European Union has an approach with some restrictions on hydropower is an area of dispute between both entities. A change to a more friendly approach to hydropower from the European Union would be a major factor of convergence.

There is no planning at present for future deployment in solar photovoltaic power, despite its huge potential, and there is a strong lobby among the decision-makers and infrastructure building corporations in favour of hydropower (cheaper) that blocks any advance (Marcovitch et al., 2010). Strong subsidies would be needed for photovoltaic and this is an area where the scientific community could have a key role, but it would be difficult to implement. In the case of wind power, on the contrary, a favourable trend has begun to take shape since 2009 (Dutra & Szklo, 2008).

In the critical area of transportation – both cargo and public for passengers – the climate law and Brazil's submission to the Copenhagen Accord have been negligent. Especially if we consider the terrible performance the sector has had in the last two decades. Among some crucial options to reverse this situation are the following: upgrade the road network and hubs, replace old vehicles, expand the railroads, integrate road and railroads, introduce the hybrid electric car and improve conventional ones and establish fast bus systems following the example of the city of Curitiba (McKynsey, 2009). Some European systems of public transportation, in the Netherlands, Denmark and Germany for example, are an inspiration and point of reference for Brazilian reformist forces. This is an area of significant potentialities for more cooperation between both entities.

The transportation sector has remarkable and highly visible co-benefits between climate and quality of life, since the poor transportation infrastructure is crucial in degrading the everyday life of most urban residents (traffic congestion, pollution, much time lost in commuting). Besides this, transportation – together with public security – poses the greatest bottlenecks for successfully organising the two sports mega-events: the 2014 Football World Cup and the 2016 Rio Olympic Games. However, the enormous amount of investment needed and the prospect of positive results (and political gains) materialising only in the mid-term, conspires against a more rational management of the situation. The lobby of the automotive sector has also been an obstacle to the transition to a less carbon-intensive and less road-based paradigm. In 2010, for instance, within the Lula da Silva administration, pro status-quo interests were able to stop a project that encouraged the use of electric cars. Although with very limited chance of success, a political strategy focused on those co-benefits could be used to advance mitigation policies in the area (Viola & Franchini, 2011).

Despite their limited impact in reducing carbon emissions, improvements in basic sanitation and waste disposal – including the construction of power plants fed by methane – are areas offering high co-benefits and other big improvements, because they encounter low resistance. Another policy that could be easy to implement would be promoting a culture and organisation development of civil defence, an area where Brazil is very poor and in which recent extreme climate events (flooding, droughts, severe storms) have raised

awareness about the risks of climate change. The partnership with the military is very important since they have good capabilities in this area.

4. Conclusions

Summarising the prospects regarding the past and the future GHG emissions reduction trajectory and policies in Brazil, one can say the following:

First, the best mitigation opportunities in the country can be found in deforestation control – and the occupation of degraded lands – and in the energy sector – improving the efficiency and the progress of ethanol. The transportation sector, however, shows a pessimistic scenario, where the consumption of diesel oil grows expressively.

Second, up to now, the advances made by Brazil in reducing GHG emissions have been located in low resistance sectors. As already reported, a big part of that mitigation effort came as a result of deforestation control, a sector that is irrelevant in terms of economic growth. Because of this situation, the Brazilian government never had to invest heavily in strategies to reduce the political cost of mitigation actions.

Third – but profoundly related with the previous point – in order to advance with mitigation options in more resistant areas, it would be necessary to build up more robust climate coalitions than have existed in the past. A clear example of this situation is the poor state of the transportation system.

Brazil's role in the global politics of climate change mitigation and adaptation has lagged behind its potentiality so far, because of two major factors: entrenched traditional ideas and attitudes about short-term use of natural resources and a traditional conception of national sovereignty that is poorly adapted to the challenges of the global economy, particularly among military officers and diplomats. There has been some progress, but very modest until very recently.

The presence of Marina Silva, as the Green Party presidential candidate, introduced the transition to a low-carbon economy as a topic in the electoral campaign and her performance in the first round of the election almost assures that the issue will remain on the public agenda for the next years

The National Congress passed a climate change law that establishes a voluntary emissions reduction target and in that way partially internalised the issue into the country's legal structure. The Ministry of Environment progressively raised its profile during 2009 and finally defeated the powerful conservative sector of the federal government when the new plan of reduction targets was announced.

There are of course, many doubts regarding the future implementation of the Brazilian commitment, but this new legislation and the targets assumed by the country in the context of the Copenhagen Accord are fundamental steps in relation to the future trajectory of the foreign, economic, energy, agricultural, forest and climate policies.

There are two new big questions from 2013 to the near future. The first one is how big will be the implementation gap of the new climate policy. The second one is for how long will Brazil maintain the recently created imbalance between the domestic climate policy with reduction targets and the alliance with the more conservative emerging powers like China, Russia and India. Given the interests and relative power of different economic sectors and the dynamics of the public opinion, it is probable that this imbalance will not last long, and the Brazilian position will tend to converge with the more advanced EU, Japan and South Korea.

Areas of potential cooperation between the EU and Brazil

For this and other reasons, the potential is high for more convergence and cooperation between Brazil and the EU. A lot will depend on the skills of European diplomacy and the behaviour of the progressive European corporations and on the advance of reformist socio-economic forces inside Brazil. In particular, the areas of potential cooperation between the European Union and Brazil may be the following:⁶

- *Biofuel.* Elimination of barriers for international trade and promoting joint technological development in second-generation ethanol. Starting negotiations of a Free Trade Area in biofuels between the EU and Mercosur.
- *Hydropower.* The EU might move to a more friendly approach to the development of hydropower.
- *REDD+.* The EU is promoting reduction of deforestation in Brazil, which should contribute specifically to the Amazonian Fund (Norway already contributing); and, Brazil and the EU should work together on REDD+ in Latin America, Africa and Asia.
- *Solar and Wind Power.* The EU (particularly Denmark, Germany and Portugal) and Brazil can promote direct investment in Brazil, with joint technological development.
- *Carbon Capture and Storage (CCS).* Joint technological development, strengthening the role of Norway, the Statoil Corporation and the EU in Brazil. Increasing interdependence of services in the oil and gas industries will strengthen environmental protection.
- *Systemic Energy Efficiency.* Joint technological development and transferring of managerial and organisational capabilities from the EU to Brazil.
- *Smart Grids.* Promoting technology transfer from EU to Brazil and joint technological development.
- *Nuclear energy.* Increasing cooperation between the European Union (particularly France) and Brazil in technological development, safety and non-proliferation.
- *Public transportation and urban mobility.* Brazil can learn from some countries of the EU (particularly the Netherlands, Germany and Denmark) on how to make a dramatic shift in urban mobility and promote the development of public transportation, including trains, metro and boats. The EU supports the recent initiative of the Brazilian government to promote a major development in railway systems. Increased European investment in Brazil mass transportation, joint technological development and transferring of managerial and organisational capabilities.
- *Systematic consultation and convergence in the UN multilateral negotiations and the G20.* Brazil as a bridge between the European Union and BASIC/BRICS on global climate governance.

⁶ These potentialities are based on the author's assessment according to players and opinions that are relevant in Brazilian society, but they have not prevailed in government so far. None of the potentialities is likely to materialise in the near future, at least not before the EU overcomes the more critical phase of the economic crisis and Brazil chooses a new president and Congress in 2014.

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