

A New Cartography of International Cooperation: Emerging Powers in Sub-Saharan Africa – The Case of Biofuels Promotion by Brazil in Senegal

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Introduction

The relationship between energy and climate change is one of the most relevant discussions in the dawning of the twenty-first century. Traditional fossil fuels stand as one of the main causes responsible for the rising levels of greenhouse gas emissions in the atmosphere. Because of this, the introduction of alternative energy sources has become a top priority for many governments around the world. Among them, liquid biofuels were internationally supported as one of the few viable alternatives for fighting climate change in the short run.

In a context of an increasing global energy demand, a plethora of international cooperation initiatives are being fostered as a way to promote this energy alternative. Interestingly, as the dominance of the classical western powers in leading the debates and actions around development and cooperation is eroding, emerging powers have begun to play an increasingly significant role in redefining the architecture of international cooperation (IC). Through the provision of technical assistance and investment agreements, South-South cooperation (SSC) initiatives are becoming a tool by which emerging economies promote biofuel production in Africa.

Within this group, Brazil has not only become one of the global biofuel supporting countries but also a new donor of IC becoming a leading sector

player in Sub-Saharan Africa (SSA) after its extensive agricultural trajectory and its renowned expertise in the production and use of biofuels. As Lechini noted, 'supported by governmental and private actors, Brazilian diplomacy is having an impact on the regional and international stages, within a context in which SSC is presented as a strategy seeking to strengthen the capacities of developing countries' (Lechini 2011: 215). Nonetheless, recent studies (Richardson 2011; Franco et al. 2011; Ferreira de Lima 2012) identify that activities related to large-scale monoculture for the production of this alternative source of energy is turning to be one of the main causes of socio-environmental conflicts and disputes in Africa as it already happened elsewhere (Delgado Ramos et al 2013; Fulquet 2015). In this direction, biofuels become an arguable tool for Climate Change (CC) mitigation, currently under scrutiny also in SSA countries.

The study of how the new dynamics of South-South cooperation are affecting the political economy and sustainability of rural development and energy diversification in countries in Africa remains relatively unexplored. By taking the case study of the relationship between Brazil and Senegal, this chapter also proposes to problematise the progress and setbacks experienced by the biofuel sector in that African country, reflecting a dilemma of global reach: the absence of certainties around whether liquid biofuels constitute a sustainable energy alternative to cope with climate change. In order to do this, the chapter reviews some central concepts revolving around emerging powers, SSC and agrarian development. The analysis draws on interviews conducted both in Brazil and Senegal as a way to reflect the diverse interplay of actors, motivations, interests and tensions observed in the context of biofuel developments through international cooperation.

In light of that, our first section will introduce the contemporary phenomenon of the rise of emerging powers as new international cooperation donors through SSC actions. The subsequent section will provide a general panorama on recent developments regarding biofuel policies, actors and conflicts in SSA countries. Section 3, will be dedicated to the analysis of the broader opportunities and limits introduced by Brazilian international actors in the biofuel sector in Senegal as a case study. Finally, by assessing the interrelation between IC and sustainable development, this article concludes that biofuels introduce deep asymmetries and inequalities that reflect some sort of stratification between what Acharya (2014) calls the 'power South' and the 'poor South'.

Emerging Powers and South-South Cooperation

The understanding of recent trends in the development of liquid biofuels in SSA falls under a more general discussion on the reach and limits of a changing cartography of international cooperation worldwide. Since year 2000, there has been a redistribution or shift of economic and political capacities among states

in the international system. A wide range of conceptualisations like 'unstable multipolarity' (Humphrey & Messner 2006), 'multiregional global order' (Hurrell 2007), 'multi-multipolarity' (Nolte 2008), 'growing multipolarity' (Nederveen Pieterse 2008) or 'interpolarity' (Badie 2013) have been recently coined as a way to characterise this phenomenon. All these scholars agree on the fact that the re-ordering of the global political economy is associated with the capacities of a new set of players to directly or indirectly affect the nature and reach of global interactions.

Additionally, over the past decade, new transregional coalitions have emerged. The emerging powers groupings of India, Brazil and South Africa (IBSA) and those together with China and Russia (BRICS), are clear expressions of soft balancing strategies vis-à-vis the hard core of the G8, looking in this way to shape new paths for their international political positioning in global governance. This tendency is complemented by the new role that this rising countries are playing in international development cooperation. Countries like China and Brazil have in recent years become influential actors in the former closed circle of cooperation donors by means of implementing South-South cooperation initiatives with other developing countries.

The foreign actions of many emerging countries in present times tend to increasingly incorporate South-South cooperative actions. Among the heterogeneous group of the so-called 'third world' countries, today's emerging economies stand out from the rest of the developing countries for their well-developed technical capacities. This internal advantage has been increasingly used internationally over the last few decades, promoting the exchange of technical knowledge and management with the goal of boosting institutional and human developmental capacities elsewhere (Pérez de Armiño 2000). In recent years, the volume of resources and the number of South-South partnerships and programmes have increased significantly, and technical cooperation has become a key component of IC initiatives propelled by emerging economies such as China, India and Brazil.

Taking this component into consideration, South-South cooperation has been defined¹ as the 'process by which two or more developing countries acquire individual or collective capacities through cooperative knowledge, capacity-building and technological know-how' (SEGIB 2008:16) in a wide array of policy areas such as public health, education, social development, agriculture, food security and energy, among others.

However SSC is a more comprehensive concept that includes other actions beyond technical cooperation among developing countries. In this direction, as the United Nations Trade and Development Conference observed, SSC refers to 'the processes, institutions and arrangements designed to promote political, economic and technical cooperation among developing countries in pursuit of common development goals' (UNCTAD 2010: 1).

Therefore, IC, as a complex component of foreign policy, can be better understood if organised around three different but interrelated dimensions. In the first place, it involves a political dimension that refers to a process of bilateral political dialogues for policy coordination led by governmental actors representing the cooperating countries. It does not necessary exclude other interest groups such as private sector and civil society representatives. In general terms the political dimension tends to be pushed forward by pre-existing ideas and interests with the goal of maximising certain political objectives.

In the second place, IC is also formed by a technical-scientific dimension, including all actions oriented towards the creation of stronger ties between the technical and scientific communities from both cooperating parties. This is mainly done by fostering technical collaboration between State bureaucracies, private sector representatives and cooperation between scientific institutions. It usually involves actions associated with information exchanges through technical meetings, capacity building programmes or joint research actions.

Finally, an economic dimension can also be identified. In this sense, economic cooperation seeks to foster the incremental interdependence between the collaborating parties in terms of trade and investments with the goal of diversifying exchanges of goods and services. It could lead to progressive and reciprocal trade liberalisation by implementing preferential tariff agreements between the partners.

Actions developed at a South-South level are generally supported by bilateral cooperation framework agreements, through which the core of capacity-building, knowledge and technology transfers is complemented by investments instead of direct monetary transfers (Hochstetler 2012).

Despite being guided by the principles of respect for national sovereignty, national ownership and independence, equality, non-conditionality and non-intervention in domestic affairs, it would be naïve to state that SSC is totally emptied of the strategic national interests of donor countries. As Smith stated, when comparing historical and contemporary SSC, the 'once strong sense of solidarity and unified purpose seems to have given way to more pragmatic and self-interested considerations among states in the Global South' (Smith 2014: 2). Therefore, it is important to note that SSC is also, in many cases, tied to the accomplishment of national security, trade, investments and even international recognition goals of these new donors (Sanahuja 2010; Ayllón Pino & Costa Leite 2010; Sidiropoulos 2012).

Commentators and observers in the field of international political economy agree that emerging economies have projected themselves beyond their national borders as a way to obtain new sources of natural resources that support and sustain their own domestic economic growth. When taking a closer look at the strategies developed by the BRICS in Africa, a recent report by the United Nations

Economic Commission for Africa recognises that 'key features of BRICS aid to Africa (particularly China, and to some extent India and Brazil) is [the] use of official flows to promote trade and investment' (UNECA 2013: 17). The report also highlights that even if there are differences among the actions developed by the BRICS in Africa (China's engagement in Africa being primarily state-driven with a strong focus on loans vs Brazil's emphasis on technical cooperation), trade and investments by BRICS in the continent seem to be locking Africa into a specialisation in primary commodities.

In this sense, Africa as well as other resource-abundant regions in the Global South, is becoming part of a new extractivist dynamic pushed by the contemporary international success of the 'commodification of nature' now also fostered by the actions developed by emerging economies. To a certain degree, a correlation between IC initiatives at a South-South level and a new extractivist orientation promoted by emerging economies countries could then be drawn.

The concept of extractivism refers to those economic activities based on the extraction of large volumes of natural resources with the goal of being exported without any or hardly any local processing (Gudynas 2010; Acosta 2011). Usually associated with mining or hydrocarbon-related activities, extractivism also includes other sectors such as the agrarian, forestry and fishery. Twenty-first century extractivist practices have called the attention of scholars giving origin to the concept of '*neo-extractivism*'. Although thought for a South American context, this term introduced by Gudynas (2009), can be transposed to Africa shedding light over recent developments revolving around natural resource-based economic activities in that continent.

Within SSA, neo-extractivism in the agricultural sector can be summarised in the hazard introduced by large-scale agriculture, partly responsible for deepening the problematic phenomenon of *land grabbing*. This concept has been widely used in the fields of agrarian studies and political ecology and it generally characterises a process of appropriation of large sections of land by foreign capital (Taylor & Bending 2009; Merlet 2010; Sauer & Pereira Leite 2012) or by local landlords as pointed out by Borras et al (2012) for the case of Latin America. According to a World Bank report (2011), the 2007-2008 period of high and volatile prices on food products led to a new wave land demand with approximately 56 million hectares destined to new large-scale farmland deals announced between 2008 and 2009. More than 70 per cent of the world's demand for land corresponds to Africa, particularly in countries like Ethiopia, Mozambique and Sudan where millions of hectares of land have been transferred to investors.

Several global developments such as the international food crisis, CC and the growing demand for biofuels are among the main triggers of land grabbing by transnational companies. Even if in SSA countries the biofuel sector is at an incipient degree of development, there is a close nexus between land and energy investments. Large international land acquisition deals with the objective of

growing energy crops have become one of the main forms of investments in the agrarian sector. This sudden race by international investors for closing up land deals in many countries in SSA, is naturally leading to numerous land conflicts (UNECA 2012) since land is a central asset in supporting the livelihoods of local populations but also one of the main sources for national development.

Contemporary Liquid Biofuel Developments in Sub-Saharan Africa

From the SSA countries' governmental perspective, there are three main drivers for promoting biofuels in the region: (1) The possibility of energy self-sufficiency in countries very much dependent on oil imports with potentials for economic, social and environmental benefits; (2) The chance of enhancing national savings in foreign currency through biofuel exports; (3) The opportunity for job creation and rural development (Von Maltitz et al 2008; Amigun et al 2011).

Most countries in SSA are characterised by poor institutional capacities. In many cases, the absence of well-designed biofuel legal and sustainability frameworks is the main impediment for achieving the objectives around which biofuels have been promoted in SSA (Duvenage et al 2012). Recent studies (Jumbe et al 2013; UNECA 2008) highlight an almost generalised absence of governmental policy instruments oriented to support and promote the development of biofuels in several countries within the region. Additionally, weak ties between domestic elites and the State make societies in these countries more exposed to the business interests of transnational corporation (Duvenage et al 2012).

Consequently, this shortcoming has been identified as an opportunity by external actors. Foreign investors, including the European Union, USA and Japan, are driving most SSA biofuel projects (Mshandete 2011; Amigun et al 2011). Despite the dominant presence of government and private sector biofuel actors from the Global North in SSA, it is worth highlighting the growing relevance of emerging actors as resource-seeking investors. As we will later see, SSC stands as a very functional 'letter of introduction' for achieving that goal.

A recent study that reviews liquid biofuel strategies in 13 SSA countries reveals that jatropha, sugarcane, canola and sweet sorghum are among the most common feedstock used in SSA for the production of either biodiesel or bioethanol (PISCES 2011). *Jatropha Curcas* was introduced as one of the most promising feedstock for biodiesel production in countries like Senegal, Mali, Burkina Faso, Benin, Mozambique and Zimbabwe which had already developed task forces for the promotion of this crop. However, it is important to highlight that while some countries have propelled the production of jatropha for biodiesel, South Africa has placed this crop on a list of invasive species (Amigun et al 2011).

Vermuelen et al. (2011) point out that many governments have created investment promotion agencies oriented towards targeting foreign direct investments and facilitating land access to transnational companies in the agricultural sector

for producing biofuel feedstock. This is taking place in a complex context of competition between protecting customary land rights and ensuring land for large-scale agricultural investors. The ‘investment imperative’ is the prioritised position by several governments in Africa, being high (and not marginal) value land the most commonly subjected to international acquisition deals.

Additionally, there is a consensus among experts that biofuel developments in Africa should have a strong rural development component rather than a large-scale corporation/commercial focus (Giovanetti et al 2012; Jumbe et al 2013). However, the vast majority of the biofuel developments happen to be dominated by agro-industrial projects characterised by the acquisition of large portions of land for growing, processing and distributing bioenergy feedstock with actually very little local community involvement.

In the particular case of Senegal, the rush for biofuel production brought along a series of conflicts around the occupation of land that translated into strong confrontations between international investors and local communities. According to several governmental officials, foreign investors would directly enter into negotiations with the rural committees and purchase huge portions of land (between 10 and 20 thousand hectares) to develop energy crop projects. Initially these investors settled down in the northern part of Senegal causing a series of conflicts, which led many investors to move to the Luga region where new conflict with the rural communities arose.

Biofuel projects are already underway in several SSA countries, such as Angola, Benin, Ghana, Mozambique, Kenya, Mali, Malawi, Nigeria, Mozambique, Senegal, South Africa, Tanzania, Zambia and Zimbabwe even when this development is not necessarily enhancing the livelihoods of local populations and fail to be implemented in an environmentally sound fashion (Diaz-Chavez et al 2010; Richardson 2011; Hunsberger 2011; Duvenage et al. 2012).

In parallel at global level, the promise of liquid biofuels as key a driver for rural development, energy security and CC combating by introducing a source of energy able to reduce emissions, has begun to fade. Recently, a set of ever-evolving debates concerning global and regional issues such as food security, land use change, deforestation, land concentration and other relevant environmental and social impacts are raising doubts on the need to support biofuel policies at the governmental level in some SSA like Senegal.

Why the Sugarcane Tastes so Good: Analysing the Presence of Brazilian Biofuel-related Actors in Senegal

As mentioned before, this article seeks to explore the nexus between IC actions developed by Brazil as an emerging country and sustainable biofuel production in SSA countries by focusing on Senegal as a case study. Despite the strong technical component found in SSC, South-South initiatives fostered by Brazil in SSA

countries for the development of biofuels are not strictly restricted to knowledge transfer and research but also include a trade and investment component. For this reason, we reckon that assessing the political, technical and economic dimensions of IC is necessary for understanding Brazil's role in Senegal. By focusing on all these dimensions, we will be able to provide a full image of the international involvement of Brazilian actors in the development of biofuels in Senegal.

This section's analysis draws on interviews with key informants in Brazil and Senegal, including representatives of the Brazilian Ministry of International Relations (*Itamaraty*), the Brazilian Enterprise for Agricultural Research (*EMBRAPA Agroenergia*), the Senegal's Ministry of Energy, the National Agency of Renewable Energies, the Senegalese Institute for Agricultural Research (ISRA) and the Agency for the Promotion of Investments of Senegal (APIX).

As one of the major challenges of this work was how to obtain official statistics, press reports on investments and production released by the Brazilian national media were used when necessary to support the arguments. Finally, the strengthening of Brazilian ties with Senegal is the result of actions developed not only by governmental actors and organs, but also by decentralised semi-public and private actors that have acted under distinct logics and following different objectives and priorities. With the objective of reflecting Brazil's new IC actions for biofuel development in SSA countries, we have focused in the following section on a set of public, semi-public and private actors that have played a key role in promoting biofuel-related cooperation actions, research, policies and investments.

The Ethanol Diplomacy: A Look at the Political Dimension of Brazilian SSC with Senegal

Bilateral political relations between the governments of Brazil and Senegal were the outcome of Brazil's more general ambition to projecting itself as global promoter of developmental cooperation, following its international commitments² to support less developed countries in the Global South. By 1972, Brazil had signed a General Technical Cooperation Agreement with Senegal, which aimed to foster cooperation in agriculture.³

It is worth highlighting that the search of a political alliance between Brazil and Africa became significantly more intense and fluid after the arrival in 2003 of former president Luiz Inácio 'Lula' da Silva. Since then SSC has crystalised into one of the central axis of Brazil's foreign action, with cooperation with Africa involving over 170 institutions among federal government organs (IPEA/ABC 2013) as well as other Brazilian private institutions (non-governmental organisations, foundations and corporations) that act on a wide array of areas, including education, health, urban and rural development, agriculture, environment, energy, among others.

In this new context of Brazil-Africa cooperation, despite Brazil's evident geographical and climatic advantages over Senegal, the assumption of shared agro-

climatic conditions was an element retrieved in the political discourse for engaging in actions with this and other SSA countries. Agriculture is a key component in the economic development strategy of Senegal, therefore, the Brazilian government presented itself as a rich source of experience and knowledge that could be applied to Senegal contributing in this way with the African country in the achievement of Millennium Development Goals.

Along Lula's second mandate, and during the visit of Senegal's former president Abdoulaye Wade to Brazil in May 2007, a specific bilateral bioenergy agreement was signed between the two countries as a way for Brazil to foster the production of energy crops in that African country⁴. Senegal's high dependency on imported fossil fuels was the main driver that led that government to sign that agreement as Brazil's experience in the sector motivated the birth of a biofuel policy in Senegal during that same year. According to a representative of Senegal's Renewable Energy National Agency, 'soon after that trip to Brazil, the former president decided to encourage local development of biofuels (...). Later that year, a Brazilian delegation came to Senegal to determine the potential in terms of land, climate, rainfall regime and temperature for the development of energy crops. This visit conducted by the Brazilian Ministry of External Relations decided that Senegal gathered the necessary conditions for the development of biofuels'⁵.

The goal in this African country is that biofuels are to be used as 'a partial or total substitute for fossil fuels' in the transport sector. Additionally, the government of Senegal highlighted that biofuels projects 'contributing to the reduction of greenhouse gas emissions, could be object of certification under the Clean Development Mechanism'⁶.

The gesture to legally institutionalise the political cooperation with Senegal in the biofuel sector, in correlation with a wave of similar agreements through SSA, can be understood as a tool aimed to reinforce Brazil's 'Ethanol Diplomacy'. The Ministry of External Relations, took the lead in translating the political agreements negotiated by Lula's 'Ethanol Diplomacy' into concrete technical cooperation actions by launching in 2009 the 'Structured Support Programme to other Developing Countries in the area of Renewable Energies' (*Pró-Renova*). This programme, domiciled in the Division for New and Renewable Energy of *Itamaraty*, opened up the way to implementing technical-scientific cooperation actions related to the development of biofuel production feasibility studies in 24 different African countries (Government of Brazil 2011).

A Biofuels Model for Africa: The Technical-Scientific Dimension of Brazilian SSC

Around 2007, the international donor community spread the promise that *jatropha curcas* was the ideal energy crop for many countries in SSA. Following the assumption that this miracle crop does not demand major quantities of water to

grow, being therefore able to grow in semi-arid areas where precipitations are scarce, the Senegalese government selected jatropha as the source for producing biodiesel for the transport sector.

The plan launched in 2008 promoted the use of jatropha on a small scale involving the rural communities. The goal was for each community to develop 1.000 hectares of this crop. ISRA (Senegalese Institute for Agricultural Research) was the technical partner in charge of developing and distributing the plant to all communities free of costs. Following this plan, and as there are about 360 organised rural communities in Senegal, the government expected to develop 360,000 hectares of jatropha in a period of 4 years (2008-2012). However as previous experience with this plant was inexistent, the plan failed. According to one of the interviewees, 'despite everything that was once said about this miraculous plant, it proved to be a failure from the moment that plantations started evolving'.

This failure is not an isolated fact. Other countries in West Africa that promoted jatropha such as Mali, Benin and Burkina Faso shared similar problem where the experience showed that even if the plant is able to grow in marginal or degraded land, the yields are too low. Consequently, in Senegal, the installed jatropha crushing plants that settled down in the *Gossace* region did not have enough grains in order to produce the necessary oil for producing biodiesel; hence production had to stop.

This example illustrates what several scholars have observed in the field: in order to tackle the potential of biofuels in SSA countries and ensure that international interest do not contradict national objectives associated with their introduction, there is an urgent need to build capacities, technical skills in the agrarian and industrial phases and to develop biofuels along clear legislative and regulatory frameworks (Jumbe et al 2009; Amigun et al. 2011; Jumbe et al. 2013).

These needs were quickly identified as an opportunity by the Brazilian government. In the frame of its bilateral cooperation arrangement with the Republic of Senegal, a set of Brazilian governmental and non-governmental technical-scientific organisations became intensively involved in trainings, capacity building and biofuels development associated research in Senegal as well as in several other SSA countries.

The governmental body in Brazil responsible for articulating the position of their ministries and other national institutions and providing the necessary technical support to implement its international cooperation agreements is the Brazilian Cooperation Agency (ABC). According to the last official report on Brazilian-provided technical cooperation (COBRADI 2013), Africa was the second largest recipient of Brazilian technical cooperation (39.4 %) after Latin America and the Caribbean (53.3 %). Among the most demanded areas of technical cooperation by Africa, agriculture takes the largest percentage of the developed actions by ABC in the continent (ABC 2011).

When technical cooperation involves agriculture-related capacity building and knowledge transfer actions, ABC is supported by the technical-scientific know-how of the Brazilian Enterprise for Agricultural Research (EMBRAPA). This state-owned company created in 1973 as part of the Ministry of Agriculture, was responsible for the productive revolution that transformed the Brazilian *Cerrado* biome into the new core of soybean and sugarcane production. This process is associated with the introduction of genetic innovations for obtaining high yields under tropical climatic conditions (EMBRAPA 2013). Since then, EMBRAPA has been able to become one of the main globally recognised public research centres specialised in tropical agriculture and bioenergy. This advantage has eased the internationalisation strategy of the company, leading to its opening representation offices in Panama and Venezuela (Latin America) and Ghana (Africa). From the Accra office in Ghana, EMBRAPA coordinates over 51 agriculture-related projects in Africa (IPEA/BM 2011).

Taking advantage of multilateral bioenergy cooperation platforms, such as Global Bioenergy Partnership (GBEP), the Brazilian Ministry of External Relations co-organised with EMBRAPA and the Food and Agriculture Organization (FAO) the 'Bioenergy Week' in Brasília in early 2013. Through capacity building trainings, examples of success in Brazil's bioenergy sector were diffused to a large delegation of SSA representatives from ECOWAS (Ghana, Senegal, Gambia, Guinea-Bissau, Mali, Niger, Togo, Ivory Coast, Cape Verde) and Mozambique.

Another relevant non-governmental actor is *Fundação Getúlio Vargas*. Through its unit *Projetos (FGV Projetos)* it played a key role in providing technical-scientific expertise in the frame of the *Pró-Ronova's* actions developed by the Brazilian government in SSA countries. FGV Projetos is the unit for technical consultancy of *Fundação Getúlio Vargas*, a prestigious Brazilian private higher education institution/ think tank designed to promote Brazil's economic and social development.⁷ The unit has been involved in several bilateral and trilateral cooperation initiatives promoted by Brazil, developing technical feasibility studies for the production of biofuels in SSA.

FGV Projetos is currently carrying out the Project 'Biofuels Production- FGV Foundation' a study for the agricultural potential of six SSA countries located in the tropical belt.⁸ Senegal was one of the first SSA countries to integrate the group of beneficiaries of Brazilian technical cooperation in the biofuel sector. As the government of Senegal was looking to develop a biofuel policy and regulatory framework, a trilateral cooperation arrangement between Brazil, the United States and Senegal allowed the technical intervention of *FGV Projetos*. The Brazilian research centre was responsible for carrying out an economic-financial-technical biofuel feasibility study in 2010 with the technical support of *ISRA* at the request of *Itamaraty* who financed the project. The study 'reinforces the feasibility of introducing biofuels into the Senegal energy matrix and the capacity to at-

tract private investments (...) Africa, in turn, is emerging as a promising large-scale biofuel producer, considering the existence of large areas of arable land, the tropical climate and available man power' (FGV *Projetos* 2010:4). According to the cited document, an agricultural zoning technical study was developed for determining the feedstock with the highest potential for biofuels: sugarcane, soy, cotton and sunflower were indicated as the recommended feedstock for producing bioethanol or biodiesel. Consequently, three projects were recommended in the country: (1) A 3,000-hectare project for sugarcane bioethanol in the Tambacounda department; (2) A 2,500-hectare soy and sunflower biodiesel project in the Zighunchor region; and (3) A 3,600-hectare project for the Kaolack region (FGV *Projetos* 2010). Government representatives interviewed on these projects highlighted that in the frame of this initiative, rural communities had agreed with the national government to provide 3,000 hectares for a sugarcane pilot project, as the echo of molasses sugarcane bioethanol has become much stronger after the jatropha experience.

By December 2010, a Biofuel Law⁹ was enacted by the president of the Republic. However the law requires a decree of application in order to set a price structure, a mandatory blend, etc. Nonetheless, after a change of president in the country, the decree has been awaiting parliamentary approval since 2012. As this decree would also serve as a guarantee for international investors to rely on basic game rules in the sector in Senegal, interviewees highlighted how the Brazilian government has been very active at lobbying through their local embassy and holding interviews with Senegal's Prime Minister for the decree's final approval.

The Economic Dimension of Brazilian SSC

Investments in infrastructural sector has also been identified as yet another precondition for the development of a biofuel industry in SSA as a way for these countries to further grasp the benefits of the growing international biofuel markets. Even if in terms of economic cooperation Brazil rarely provides concessional loans – emphasising instead scientific-technical cooperation and technological transfers (UNECA 2013), the Brazilian state does subsidise both its state and privately-owned companies acting in SSA.

The Brazilian National Bank for Economic and Social Development (BNDES) was created in 1952, thus becoming the main financing institution of the federal government. It has been playing an active role in supporting external trade and the internationalisation of Brazilian companies.¹⁰ The strategy to internationally foster Brazilian 'national champions' started early in the 2000 decade with the fusion with and/or acquisition of large companies in sectors such as energy, mining and food in several Latin American countries.¹¹ Owing to the successful experience in Latin America, in 2008 BNDES created its International Department responsible for the international actions carried out by the bank. This initiative was complemented by

the inauguration of regional offices for Latin America (Montevideo) and in 2009 in Europe (London). More recently, in late 2013, a new representation office for Africa was opened in Johannesburg (South Africa).

In the search of expanding Brazil's economic presence beyond South Africa and the Portuguese-speaking countries of the continent, a number of official visits to SSA countries have been organised since 2009 by the Ministry of Development, Industry and External Trade (MDIC) with special focus on Western Africa. One of the countries the former minister visited personally was Senegal; and he did this to promote bilateral trade and Brazilian investments in this country.

In relation to the latter, the decision of President Dilma Rousseff to cancel or renegotiate up to US\$ 900 million of the debts of several African countries to Brazil in 2013 is also part of that plan of expanding the frontiers of Brazilian investments to other emerging African markets. Until recently, Brazilian banks, such as BNDES, were not able to finance investment and trade to those countries due to the existence of debts with the Brazilian government. Therefore, during Lula's government, Brazilian economic cooperation through BNDES in SSA was restricted to countries such as Angola, Mozambique and South Africa where BNDES has been financing the export of Brazilian capital goods since 2007 (Government of Brazil 2010; Motta Veiga 2013). With this recent decision by the current Brazilian President, Dilma Rousseff, 12 new SSA countries including Senegal will be benefitting from new investments. In this sense, the Brazilian Ministry of Agrarian Development and the government of Senegal have agreed on a credit line for the purchase of Brazilian agrarian machinery and equipment.

This expansion of Brazilian capital to Senegal and other SSA countries over the last few years can be understood as the latest phase of internationalisation of Brazilian companies promoted by BNDES. In some countries such as Angola and Mozambique, the bank also participates in promoting investments for actors directly involved in the biofuels productive chain. Owing to the success of this experience, *Itamaraty* and BNDES formalised their collaboration by signing in 2011 a cooperation agreement for promoting biofuels in other developing countries with strong focus in SSA.¹²

These elements provide a hint of the Brazilian government's interest in developing an ethanol market in Western Africa. However, in the Senegalese context in which the absence of an approved decree is a barrier to implementing the biofuel national law, Brazilian official investments in the biofuel sector are automatically placed on hold. According to an official of Senegal's Ministry of Energy, financing for the development of sugarcane-based ethanol are ready to be implemented through the trilateral cooperation agenda between Senegal, Brazil and the USA. A Memorandum of Understanding between these countries is already signed for developing a project of 20 thousand hectares to produce about 60,000 million litres of ethanol, but the investments are still awaiting the biofuel normative framework approval of Senegal.

Meanwhile, the developments observed in the sector in Senegal are hardly part of a comprehensive public policy. According to some of the interviewees, the main goal of companies investing in the sector is not necessarily to supply the local market but rather to export oil and biofuels to external markets. In this wise, even when the law establishes that external biofuel producers in the country must leave at least 50 per cent of their production for consumption in the local market, as the law is not yet applicable, the external privately-owned companies already operating in the country tend to invest either in the agricultural phase exporting the produced raw materials or invest in the industrial phase with the objective of exporting the entire production overseas.

Concluding Remarks: Limits and Shortcomings of the Brazilian Model of Liquid Biofuel Expansion through International Cooperation

Through the case study of biofuels developments in Senegal, we have been able to explore and depict the behaviour of Brazil as an emerging donor country in SSA. The analysis of the three dimensions presents in Brazil's IC strategy, has allowed us to see that Brazil has the political ambition, technical-scientific know-how and the necessary economic capacity for developing new biofuel agro-industrial projects in Senegal as well as in other SSA countries. It has become the first South American country to play an active role in IC outside its own region. The number of technical assistance initiatives and the volume of resources provided by the State, in association with other non-state agents, also reveals an original element in the new path the country is forging as an international emerging actor.

Nonetheless, we observed that behind the mission of South-South solidarity, there is an evident political goal in Brazil's international biofuel cooperation initiatives: the transformation of ethanol into a global commodity. The larger the number of countries involved in the production of ethanol, the more chances Brazil has in succeeding in the achievement of such geopolitical objective. Therefore, the analysed developments regarding the Brazilian presence in Senegal reveal a complete correspondence with the announced objective of Brazilian *Plano Nacional de Agroenergia* to lead the creation of an international ethanol market. In that direction the unfolded 'Ethanol Diplomacy' during former president's Lula mandates, oriented towards facilitating the transfer of technical and scientific know how, has been a key tool for achieving that foreign policy goal.

The modernisation and opening of the Brazilian economy, as well as the analysed SSC initiatives, has propelled an international geographic expansion of the nationally consolidated biotechnological revolution in the agrarian sector. When looking at other SSA countries such as Angola and Mozambique, the size and nature of the transnationalised investments seem to indicate that the process led by the international expansion of Brazilian companies in the biofuel sector, could lead to a reproduction of a model of large-scale agribusiness in SSA countries.

Several of the key actors interviewed in Senegal highlighted the need to anticipate the risks associated with the diffusion of a large-scale agro-industrial productive model associated with sugarcane. Although successful and efficient for countries with a strong agroindustry like Brazil, the introduction of this model in countries where family agriculture is by far the dominant reality could have disastrous effects. Therefore, the gathered evidence shows that biofuels as a tool for dealing with CC seem to be introducing deep asymmetries and inequalities between more powerful and less privileged actors and sector also at a South-South level.

In countries such as Senegal, characterised by weak state structures and underdeveloped regulatory mechanisms, the main question arising is whether an emerging actor like Brazil will be able to keep the balance between using and adapting its expertise, knowledge, public and private funds for the provision of a public good or for supporting particular sectoral interests in the production of biofuels. Against the backdrop of its political economy, the socio-environmental sustainability of this development has recently become a global topic of debate, especially after the ratification of the EU Renewable Energy Directive in 2009.

We highlighted how the promotion of liquid biofuels as a source of energy in Africa is showing severe impacts such as the degradation of fragile ecosystem, the displacement of rural workers and populations and diversion of the agrarian production. These risks are responsible for a deep and generalised discredit in biofuel policies at a global level, which results in two different but interrelated outcomes. On the one hand, in the particular case of Senegal, this factor appears as one of the main causes behind the current paralysis in the implementation of the national biofuel policy. On the other, that same global discontent with the evolution of liquid biofuel developments also challenges the 'Ethanol Diplomacy' model that the Brazilian government has been offering to its SSA partners.

Notes

1. The concept was first defined in the Accra Agenda for Action on Aid Effectiveness in 2008 as a sort of cooperation that involves developing countries in the search of improving development conditions in Third World countries on the basis of principles such as non-interference in internal matters, equality among partners, respect for sovereignty, cultural diversity, identity and local content (AAA 2008, section 19e). The Accra Declaration was oriented towards deepening the Paris agenda which emerged in 2005 with the Paris Declaration on Aid Effectiveness. This declaration proposed joint efforts by the international community in order to achieve the targets set in the Millennium Declaration (2000).
2. We refer to the 'Buenos Aires Action Plan' adopted during the United Nations Conference on Technical Cooperation among Developing Countries in 1978.
3. 'Basic Technical Cooperation Agreement between the government of the Federal Republic of Brazil and the government of the Republic of Senegal' available in: http://dai-mre.serpro.gov.br/atos-internacionais/bilaterais/1972/b_115/at_download/arquivo (accessed May 2014)

4. 'Ajuste Complementar ao Acordo de Cooperação Técnica entre Brasil e Senegal para a implementação do projeto Formação de Recursos Humanos e Transferência de Tecnologia para Apoio ao Programa Nacional de Biocombustíveis no Senegal'
5. Statement retrieved during fieldwork in Senegal (June 2014).
6. Articles 5 and 21. *Loi d'Orientation de la Filière de Biocarburants*. Law N° 2010-22. Government of Senegal, 15th December 2010.
7. For more information visit: fgvprojetos.fgv.br
8. Guinea, Guinea-Bissau, Liberia, Mozambique, Senegal and Zambia.
9. *Loi d'Orientation de la Filière de Biocarburants*. Law N° 2010-22. December 15th 2010.
10. For further information on BNDES international insertion strategy see the bank's *Exportação e inserção internacional* section in its official website: www.bndes.gov.br (accessed March 2014)
11. For further analysis and more complete discussion on the role of BNDES in the internationalization of Brazilian companies in Latin America, see Perrotta et al. (2011).
12. 'Celebração de Acordo de Cooperação entre o Itamaraty e o BNDES para Promoção de Biocombustíveis em Países em Desenvolvimento' Brasília 17 de fevereiro de 2011 in Brazilian Ministry of External Relations' official website: www.itamaraty.gov.br (accessed April 2014).

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