PRAIA, CAPE VERDE
5-6 DECEMBER 2011

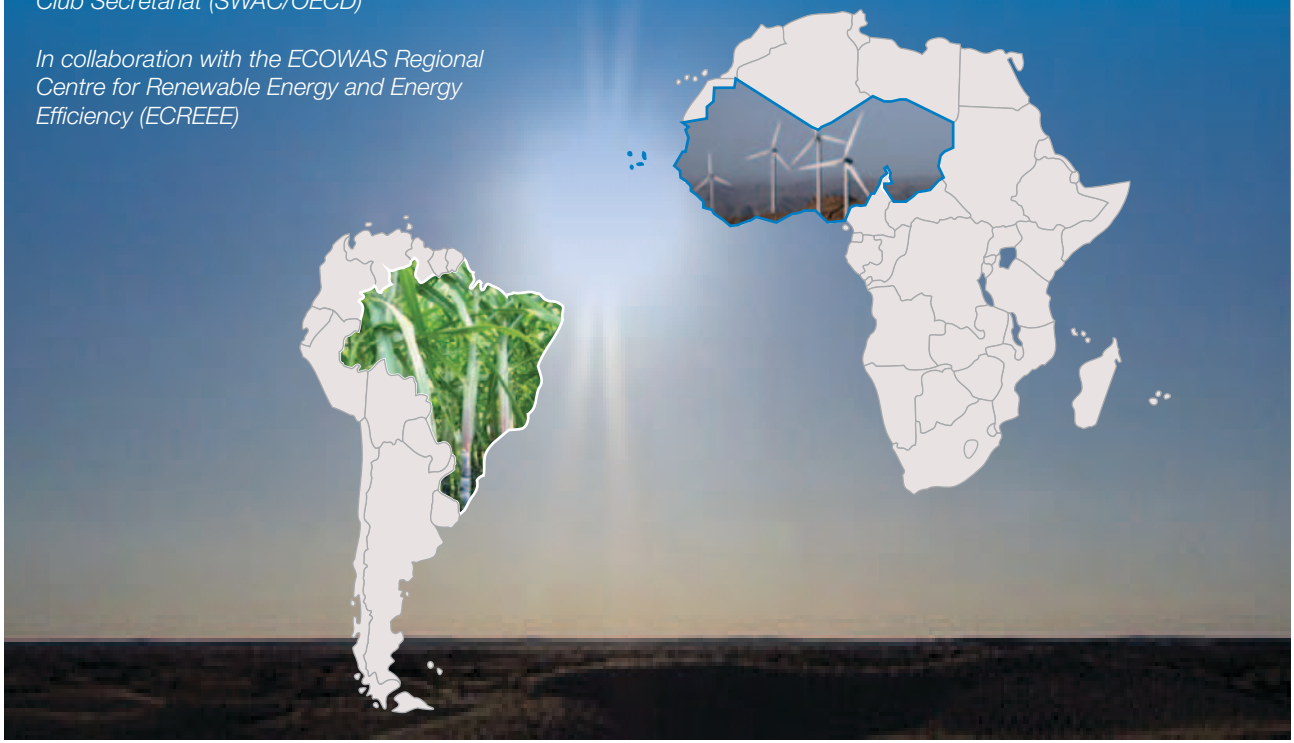
SAHEL AND WEST AFRICA Club Secretariat | OECD

CLUB FORUM

WEST AFRICA AND BRAZIL: ADDRESSING RENEWABLE ENERGY CHALLENGES

Organised by the Sahel and West Africa Club Secretariat (SWAC/OECD)

In collaboration with the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE)



CONTENTS

About this Forum 3
Agenda 6
Africa and its Emerging Partners 9
West Africa's Energy Challenges 13
Case Studies 15
Speakers & Facilitators 21
Participants 31

ABOUT THIS FORUM

The Sahel and West Africa Club's Forum brings together SWAC Members and all stakeholders – public and private sectors, civil society representatives, development partners and the media – to discuss a priority development issue for Sahelian and West African countries. Pooling together their experiences, ideas and perspectives, it serves as a platform for participants from West Africa and other regions to identify potential areas for consensus-based regional action.

This year's Forum, hosted by the government of Cape Verde, is dedicated to renewable energy challenges within the context of South-South co-operation, in particular with Brazil. The 2011 Forum will also follow-up on the July 2010 ECOWAS-Brazil Summit, where renewable energy and ECOWAS-Brazil partnerships were central topics of discussions.

Ultimately, discussions shall help build consensus among West Africa's regional organisations (ECOWAS/UEMOA/CILSS) on an integrated regional approach to renewable energy. Participants will also discuss ways in which SWAC might contribute to and support the development of a regional renewable energy policy in West Africa.

This Forum is hosted by the Government of Cape Verde.

The Conference is organised by the Sahel and West Africa Club Secretariat (SWAC/OECD), in collaboration with the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE).

OBJECTIVES

Discussions will focus on:

- Development co-operation prospects between West Africa and new partners, especially Brazil;
- Links and challenges related to bioenergy and food security objectives; and
- The next steps towards a regional policy on renewable energy in West Africa and possible SWAC contributions.

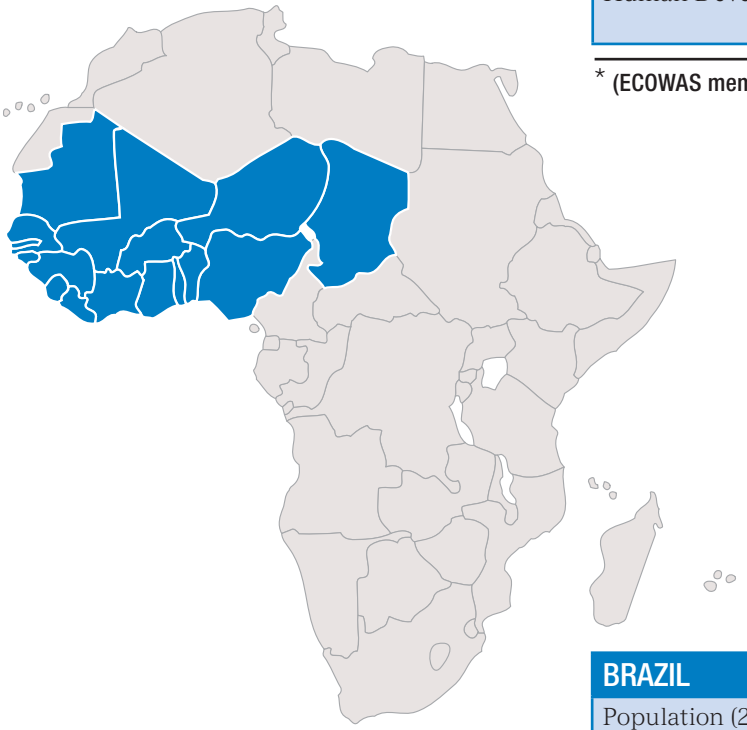
PROGRAMME

Session 1: West Africa and its Emerging Partners

Building on the *African Economic Outlook 2011*, jointly produced by the African Development Bank (AfDB), the OECD Development Centre and the UN Economic Commission for Africa (UNECA), discussions will focus on emerging economic partnerships. A special emphasis will be placed on Brazil's and Cape Verde's visions.

Session 2: Renewable Energy in West Africa: Issues and Outlook

The second day is dedicated to the topic of renewable energy. More particularly, presentations will analyse the complex linkages between bioenergy and food security issues. In the afternoon, discussions will aim to make progress towards defining a roadmap for a regional policy on renewable energy in West Africa.



WEST AFRICA	
Population (2010):	318 million
Land area:	7.4 million km^2
GDP per capita (PPP), (2010):	USD 1 885
Annual growth (2010):	2.8 to 7.4%
Life expectancy at birth:	52.7 years
Human Development Index:	Rank ranging from 133 to 186 (out of 187 countries)

* **(ECOWAS member countries, Chad and Mauritania)**

BRAZIL	
Population (2010):	191 million
Land area:	8.5 million km^2
GDP per capita (PPP), (2010):	USD 10 800
Annual growth (2010):	7.5%
Life expectancy at birth:	72.5 years
Human Development Index:	Rank 84 (out of 187 countries)

5 DECEMBER 2011

08:00 - 9:00	**Welcome and Registration of the participants**
09:00 - 10:30	**Opening Session**
	• Mr. François-Xavier de Donnea, President, SWAC • Ambassador Maria Dulce Barros, Ministry of Foreign Affairs, Brazil • Mr. Christian N. Adolèvandé, President, BOAD • President, UEMOA Commission • Ambassador Victor James Gbeho, President, ECOWAS Commission • Opening by Dr. José Maria Pereira Neves, Prime Minister, Cape Verde
10:30 - 11:00	**Press Conference** *& Coffee break*
Session 1. West Africa and its Emerging Partners	
	Chair: Ambassador Victor James Gbeho, President, ECOWAS Commission Panelists: • Mr. François-Xavier de Donnea, President, SWAC • Mr. Christian N. Adolèvandé, President, BOAD • President UEMOA Commission • Dr. José Maria Pereira Neves, Prime Minister, Cape Verde
11:00 - 11:15	**1. Introduction** • Prof. Mario Pezzini, Director, Development Centre - DEV/OECD *(15 min)*
11:15 - 11:45	**2. Visions of Brazil and Cape Verde** • Brazil's vision on its co-operation with West Africa, Ambassador Maria Dulce Barros, Ministry of Foreign Affairs, Brazil *(15 min)* • Cape Verde's vision of the co-operation between West Africa and its emerging partners, Dr. Jorge Alberto da Silva Borges, Minister of Foreign Affairs, Cape Verde *(15 min)*
11:45 - 12:15	*Comments from the panelists*
12:15 - 13:00	**Debate**
13:00 - 14:30	*Lunch break*
14:30 - 16:00	**Discussion and wrap-up by the Chair**
16:00 - 18:00	**3. Field visit: Solar Power Station; Wind Farm and Jatropha Research Field**
19:30	**Cocktail offered by the Embassy of Brazil, Hotel Tropico**

6 DECEMBER 2011

Session 2. Renewable Energy in West Africa: Issues and Outlook	
	Chair: President, UEMOA Commission
08:30 - 09:15	**Sequence 1: Introduction**
	• West Africa's experience with renewable energy resources (ECOWAS, UEMOA, CILSS) *(15 min)* • Brazil's experience and its vision of the co-operation with West Africa: 1. Diversification of energy sources, Ricardo Dornelles, Ministry of Mines and Energy *(10 min)* 2. Structuring the Food Security System in Brazil, Onaur Ruano, Ministry of Social Development and Fight Against Hunger *(10 min)* 3. Tropical Agriculture and Bioenergy, José Manuel Dias, Embrapa *(10 min)*
09:15 - 9:30	*Comments from participants*
	Sequence 2: Bioenergy and Food Security
	Moderator: Mr. Mahama Kappiah, Executive Director, ECREEE Panelists: • Dr. Abdoulaye Combari, Delegate Minister in charge of Agriculture, Burkina Faso • Mr. Baba Seïd Bally, President, AAPB • Prof. Fatou Sarr, President, Enda-Tiers Monde • Mr. David Ato Quansah, The Energy Center/KNUST, Ghana • Mr. Hamata Ag Hantafaye, Director, ANADEB, Mali • Mr. Antonio Carlos Kfouri Aidar, Director, FGV Projetos, Brazil
09:30 - 10:10	**1. Presentations of Concrete Experiences** *Country level approaches and initiatives:* • Mali Biocarburant SA *(10 min)* • Senegal: PERACOD *(10 min)* • Nigeria: Global Biofuels Ltd *(10 min)* *Regional perspective:* • Biofuel versus Food Security concerns, by ROPPA *(5 min)*
10:10 - 11:00	**2. Comments from the panelists**
11:00 - 11:30	*Coffee break*
11:30 - 12:30	**Debate: Reconciling Bioenergy with Food Security Policies**
12:30 - 13:00	Documentary film Belwet Biocarburant SA; comments Mr. Mahamadi Siemde, Technical Director
13:00 - 14:30	*Lunch break*

6 DECEMBER 2011

Session 3. Towards an Integrated Regional Policy on Renewable Energy in West Africa	
	Chair: Mr. Christian N. Adolèvandé, President, BOAD
14:30 - 16:00	**Introduction:** • ECREEE/ECOWAS Strategy, Mr. Mahama Kappiah, Executive Director, ECREEE *(15 min)* • Comments from Ministries in charge of Energy on current constraints and opportunities: - Dr. Humberto Santos de Brito, Cape Verde *(10 min)* - Dr. Joe Oteng-Adjei, Ghana *(10 min)* - Prof. Bart Nnaji, Nigeria *(10 min)* - Mr. Louis Seck, Senegal *(10 min)* - Prof. Ogunlade Davidson, Sierra Leone *(10 min)* • Potential role of Brazil's technical co-operation in support of the implementation of an integrated regional policy on renewable energy, Mr. José Nilton de Souza Vieira, Brazil *(10 min)* • Role of Brazilian Development Bank (BNDES) in the promotion of Brazil-West African relations, Mr. Sérgio Waddington and Mr. Pedro Quaresma, Brazil *(10 min)*
16:00 - 16:30	**Discussion: Toward a Roadmap for the Development and the Implementation of an Integrated Regional Policy on Renewable Energy in West Africa**
16:30 - 17:00	*Coffee break*
17:00 - 18:00	Debate and wrap-up of the decisions *by the Chair*
18:00 - 18:30	**Closing Session** Chair: Mr. François-Xavier de Donnea, President, SWAC Summary of the Forum: Mr. Mahama Kappiah, Executive Director, ECREEE **Final Remarks:** • Prof. Alhousseini Bretaudeau, Executive Secretary, CILSS • Mr. Djibo Bagna, President, ROPPA • Ambassador Maria Dulce Barros, Ministry of Foreign Affairs, Brazil • Ambassador Victor James Gbeho, President, ECOWAS Commission • Dr. Jorge Alberto da Silva Borges, Ministry of Foreign Affairs, Cape Verde
18:30 - 19:00	**Press Conference**
18:30	**Cocktail Reception**

AFRICA AND ITS EMERGING PARTNERS

The arrival of a new group of emerging and newly industrialised economic players is one of the most notable phenomena in recent economic history. The interest of these countries in Africa has proven key in the continent's ongoing economic transformation, providing them with more diverse, business-centric partnerships. African countries have also benefitted from additional investment, trade and financial transfers.[1] This expansion of partnerships has diversified the conditions and terms of economic development in Africa and reflects the normalisation of the continent's post-colonial relations.

In contrast with traditional partners, these so called "emerging" powers are more familiar with the development challenges facing African countries and are therefore in a better position to share best practice strategies and solutions based on their own experiences. These 'South-South' relationships also bring a new array of products, capital and trade goods, technology, expertise, and development models and experience.[2] For example, technologies designed in newly industrialised countries are more likely to be successfully adopted in African countries than those designed in advanced economies because of their lower prices and more feasible implementation within an African context. Indeed, Africa's prospects for technology transfers and access to financing from emerging powers are positive. According to current analyses, Africa's industrialisation, debt sustainability and governance should not be negatively impacted by these new economic partnerships.[3]

DEFINING AFRICA'S "EMERGING PARTNERS"

The notion of "emerging partners", used within the African Economic Outlook 2011, tries to capture two characteristics:

1. They are considered "emerging" economies in the global context;

2. Their economic relations with Africa have been marginal until the last decade but are rising fast and are expected to grow further.

"Emerging partners" are economic partners of African countries which did not belong to the club of traditional "donors", the OECD Development Assistance Committee (DAC), at the outset of the millennium. But this category brings together partners at markedly different stages of engagement with African countries.

Source: African Economic Outlook 2011, ***www.africaneconomicoutlook.org***

1 AfDB/OECD/UNDP/UNECA. 2011. Africa Economic Outlook 2011: Africa and its emerging partners. OECD Publishing.
2 Ibid
3 Ibid

While traditional partners continue to play an important role in Foreign Direct Investment (FDI) and Official Development Assistance (ODA), non-OECD countries are becoming increasingly involved in co-operation partnerships, despite their own development needs. South-South co-operation is often associated with the concept of non-exclusivity and focuses on win-win relationships. It is not explicitly bound to certain conditionality and adopts a holistic approach in which trade and investment are conceived as legitimate, effective ways to further development for both sides.[4]

Traditional partners account for about 80% of FDI flows to Africa and trade volume with the continent has doubled in nominal value. However, their importance has decreased in comparison with non-OECD partner countries, whose share in FDI has risen from an average of 18% in 1995-99 to 21% in 2000-08. The Middle East represented the largest share of FDI flows to Africa (about 58%), while China and India accounted for only 10% and 17% of FDI flows in 2009 respectively. This helps illustrate that FDI is not the primary means through which emerging economies, particularly China, seek to establish partnerships in Africa.

Emerging economies' share in Africa's imports, exports and total trade also increased over the 2000-2009 period (by 16.4%, 10.7% and 13.5% respectively). For example, China's share of trade more than tripled during this period, increasing from 5% to 16%, and by 2009, it had surpassed the United States. Compared to other emerging countries, China accounts for 38% of total trade, followed by India (14.1%), South Korea (7.2%) and Brazil (7.1%).[5] Emerging economy partners such as Brazil and India receive more diversified imports from Africa than traditional ones, and an increasing share of the continent's manufactured exports goes to developing countries, although better data for FDI and investment are necessary to confirm this observation. It is important to note that comparing emerging and traditional partners is difficult due to gaps in reported data and large discrepancies between different sources and methodologies.

Additionally, emerging economies are grouped together due to their economic performance and regular collaboration through forums such as BRICs (Brazil, Russia, India and China), IBSA (India, Brazil and South Africa), or BASIC (Brazil, South Africa, India and China). Their own histories and domestic approaches to development and foreign policy are, however, rather diverse and distinct, each leaving an "indelible imprint" on the international co-operation system.[6] These South-South partnerships with Africa vary based on the sectors, types of goods traded, underlying technologies and innovation, geographical focus and financing models involved.[7] The number of African countries with which each emerging economy trades and co-operates also varies greatly, with China, India, South Korea and Brazil having the broadest scope.[8]

Brazil's co-operation approach

Brazil eschews the language of 'donor' and 'recipient' in development co-operation, preferring the concept of *horizontal co-operation*.[9] Through such exchanges with African countries, Brazil may strengthen its international presence and its technological capabilities, and considers its partnerships with Africa as a way of restoring its national identity.[10] Moreover, while Brazil has historically favoured relations with Portuguese-speaking countries,[11] its foreign

4 Haibin, Niu. Emerging Global Partnership: Brazil and China. Rev. Bras. Polít. Int. 53 (special edition).
5 AfDB et al, 2011.
6 Bliss, K. 2010. Key Players in Global Health: how Brazil, Russia, India, China and South Africa are influencing the game. Washington : CSIS Global Health and Policy Center.
7 AfDB et al, 2011.
8 Ibid
9 Rowlands, D. 2008. Emerging Donors in International Development Assistance: A Synthesis Report. IDRC/CRDI.
10 ABC/MRE. 2011. Brazilian Technical Cooperation in Africa.
11 Accounting for 55% of all resources available for technical co-operation projects in Africa in 2009 (ABC, 2010)

policy is rapidly diversifying amongst non-Portuguese speaking partner countries in Africa.

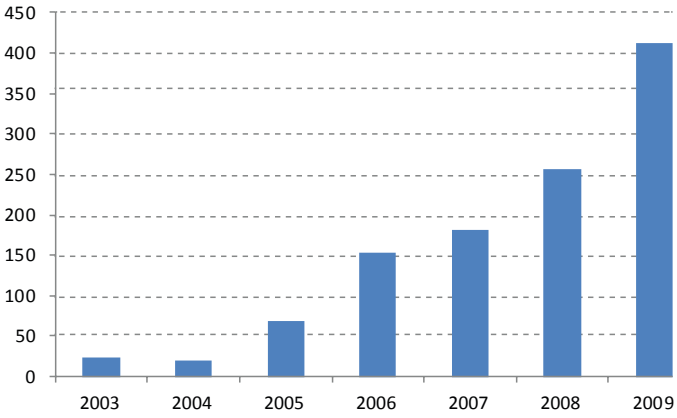
Brazil places particular emphasis on technical co-operation, and although its strategies are often centred around agriculture, health and vocational training, the country's portfolio of projects remains reasonably vast. Energy, particularly biofuels, represents an issue of increasing importance for Brazil, and West Africa's clear commitment to this issue.

The Brazilian Cooperation Agency (ABC) promotes technical co-operation as a means of encouraging structural changes and multiplying beneficial impacts. The "structural projects" are centred on capacity building and combine human capital with organisational and institutional development. The first structural project, negotiated with the African Union, was established in West Africa (the Cotton-4). Additionally, the Africa-Brazil Agricultural Innovation Marketplace, a project in co-operation with the Forum for Agricultural Research in Africa (FARA) and supported by various donors (DFID, IFAD, World Bank), links experts and institutions in both continents to enhance agricultural innovation and further benefit smallholder producers. Finally, the physical presence of the Brazilian Agricultural Research Corporation (Embrapa) in the region – notably through its African headquarters, which have been located in Ghana since 2007 – may also encourage deeper partnerships in the fields of agricultural and bioenergy.

African countries receive about 50% of the ABC's annual budget,[12] and in 2010, more than 300 initiatives were recorded in 37 countries, accounting for USD 65 million (to be dispersed in three years).[13] These figures are thought, however, to be significantly underestimated, as they do not include the contributions provided by experts from the different co-operation institutions.[14] There is also no official data on Brazil's aggregate investment in Africa, but Ncube et al,[15] in collaboration with the African Development Bank (AfDB) and the Overseas Development Institute (ODI), reached an estimate of USD 10 billion in 2010.

Brazil's trade with Africa increased more than six fold from 2000 to 2008, from USD 4.2 billion to USD 25.9 billion. Although trade dipped to USD 17.1 billion in 2009 as a result of the global financial crisis, trade resumed its upward course in 2010, increasing to USD 20 billion.[16] Overall, Brazil imports more from Africa than it exports; in 2009, African countries accounted for 6.6% of Brazil's total imports whereas Brazil's exports represented only 3.4% of total African imports.

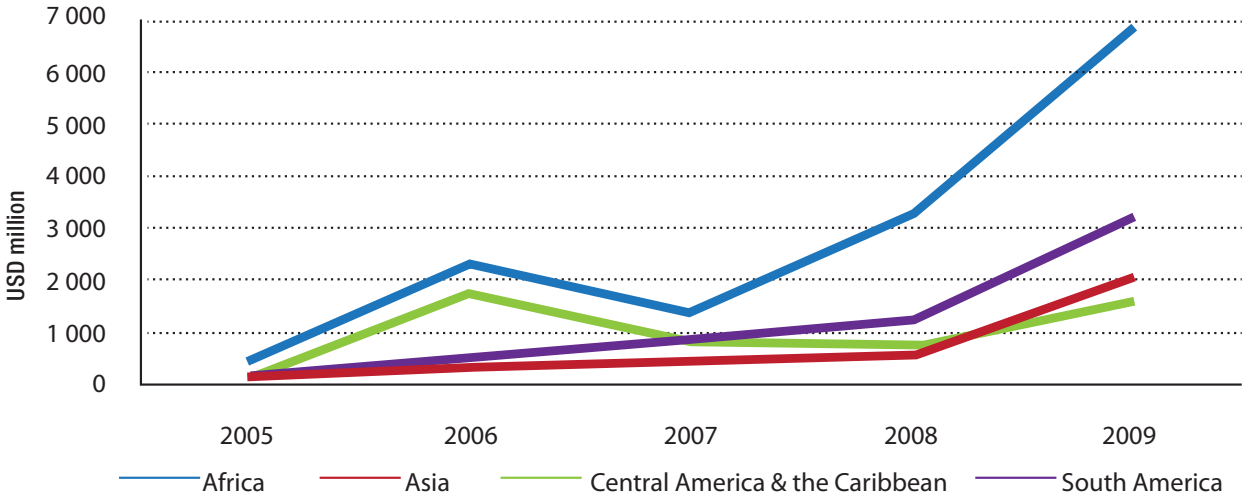
Evolution of ABC activities



Source: ABC, 2009

12 Cabral, L; Weinstock, J. 2010. Brazilian Technical Cooperation for Development: drivers, mechanisms and future prospects.ODI.
13 ABC, 2011
14 Cabral & Weinstock, 2010
15 Ncube, M; Lufumpa, C; Vencatachellum, D. Brazil's Economic Engagement with Africa. Africa Economic Brief. V 2, I 5. 11 May, 2011
16 Ncube et al, 2011

Resources channelled by ABC to technical co-operation across world regions, 2006-2009



Source: (ABC, 2010/Cabral, 2010)

Historically, former Brazilian President Luiz Inácio Lula da Silva's time in office represented an important push forward in the country's foreign policy for Africa. He endorsed the creation of 17 new embassies and undertook 10 visits to the continent (in 23 countries) along with certain private sector representatives. Brazil has co-operation agreements with 12 West African countries and in 2007, the country signed a Memorandum of Understanding on biofuels with UEMOA. A joint declaration with ECOWAS was adopted in 2010 in order to strengthen strategic political dialogue and co-ordination at the regional level.

The ABC has also partnered with numerous traditional donors in Africa through trilateral arrangements. Brazilian economic and cultural similarities with partner countries, the adaptability of their policies, their development experiences, and their low cost of implementing projects are combined with the existing logistical capacities and expertise of traditional donors, providing potentially improved development practices and relationships.

REGIONAL APPROACH TO IMPROVE ENERGY ACCESS

In an effort to undertake the problem of energy access, especially for rural and peri-urban populations, the Regional Policy on Access to Energy Services for Rural and Peri-urban Populations in the ECOWAS region was adopted and then detailed within the ECOWAS/UEMOA White Paper. This regional policy was developed jointly by ECOWAS and UEMOA, with the technical support of UNDP, and aims at ensuring that at least half of the population living in rural and peri-urban areas have access to modern energy services by 2015 (MDGs).

WEST AFRICA'S ENERGY CHALLENGES

West Africa's energy system is faced with the various interrelated challenges of energy access, energy security, climate change mitigation and adaptation. Many of these challenges can only be addressed regionally. One major problem in West Africa is the widespread and unsustainable use of wood resources for fuel. This contributes to deforestation and desertification, and might also have an impact on food production and food security. For most countries in the region over 60% of the total energy consumption comes from traditional biomass. In addition, over 90% of the population uses wood and charcoal harvested from local forests for domestic cooking.

Country	Population in 2005 (in thousands)	% Pop. GR 1990-2005	% Urban pop. 2005	% Household access to electricity	Primary energy prod. per capita kgoe/capita	Final Energy cons. per capita kgoe/capita	2004 GDP PPP/Pop ($/hab)	Electricity Cons. / Pop. (KWh/ capita)	CO2/ Pop. t CO2/ Capita	IDH	Energy Intensity of GDP kep/$95
Benin	8 439	3.3	46	22	183	228	998	45	0.3	0.421	0.761
Burkina Faso	13 228	3.0	19	5	191	234	255	36	0.1	0.302	0.800
Cape Verde	507	2.4	58	?	49	217	1 183	-	0.3	0.717	0.185
Côte d'Ivoire	18 154	2.4	46	39	348	227	1 365	157	0.7	0.399	0.512
Gambia, The	1 517	3.3	26	5	221	221	1 845	121	0.2	0.452	0.703
Ghana	22 113	2.4	46	35	280	332	2 183	244	0.3	0.568	0.957
Guinea	9 402	2.8	37	5	104	181	2 074	96	0.2	0.425	0.385
Guinea-Bissau	1 586	3.0	36	5	62	147	636	74	0.2	0.350	1.067
Liberia	3 283	2.9	48	?	703	737	884	234	-	nd	3.730
Mali	13 518	2.8	34	8	124	160	814	57	0.1	0.326	0.583
Niger	13 957	3.4	23	8	57	63	696	26	0.1	0.292	0.392
Nigeria	131 530	2.5	48	20	1 610	680	956	73	0.3	0.4666	0.838
Senegal	11 658	2.6	55.1	32	159	210	1 575	125	0.4	0.437	0.498
Sierra Leone	5 525	2.0	40	5	158	190	604	30	0.1	0.273	1.144
Togo	6 145	3.0	36	12	176	160	1 413	208	0.4	0.495	1.020
ECOWAS	**260 562**	**2.6**	**43**	**20**	**915**	**454**	**1 154**	**88**	**-**	**-**	**-**
OECD	**1 145 060**	**-**	**-**	**-**	**3 360**	**3 224**	**22 161**	**8 046**	**11.0**	**0.911**	**0.19**
USA	**287 460**	**-**	**-**	**-**	**5 798**	**5 418**	**32 042**	**13 228**	**19.7**	**0.939**	**0.25**
World	**6 195 660**	**-**	**-**	**-**	**1 663**	**1 145**	**7 008**	**2 373**	**1.2**	**0.729**	**0.29**

Source: UN DESA 2004; O'Sullivan and Hamaide 2002; Enerdata 2005; CIA 2005; UNDP 2004; AIE 2004 apud ECOWAS 2006

Moreover, global biofuel demand has increased since 2008 due to high oil prices, providing new opportunities and challenges for the West African region (see Green Fuels for Development, West African Challenges, no. 3).

Overall, the ECOWAS region is characterised by a very low access rate to energy services, impeding the development of economic activities. The region has some of the lowest energy consumption rates in the world; while it represents an average electricity consumption of 88kWh per capita, continental and global averages reach 563 and 2596 kWh respectively. Household access to electricity across the region is about 20% but wide differences exist between the access rates in urban areas that average 40% while rates in rural areas range between 6% and 8%. Energy prices also greatly vary both between urban and rural areas and between different countries in the region. There are significant electricity and overall energy pricing inequalities within countries. Electricity in rural areas is particularly low as there are currently no decentralized energy systems in place. At the household level, access to LPG or kerosene averages at a mere 5%.[17]

17 ECREEE's contribution

Many ECOWAS member states have not yet developed renewable energy policies. As a result, renewable energy projects are often conducted on an *ad hoc* basis, with little recourse to national energy plans, which are sometimes unavailable or outdated. If renewable energy policies exist, standards and codes are often not sufficiently developed. Policy frameworks are, however, key for the successful development of renewable energy sources in the region.

Furthermore, renewable energy projects lack sustainable financial resources, as demonstrated by low budgetary allocations in most countries. Local capacity-building is incredibly important, because relying on the services of experts from outside the region is expensive and unsustainable. The Region is among groupings of countries where information and data on resources, experts and institutions are lacking. Energy access, energy security and climate objectives cannot be achieved in the forthcoming decades without major investments to enhance the development of the region's renewable energy and energy efficiency markets.

USEFUL LINKS

- → ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (ECREEE): ***http://www.ecreee.org***
- → Africa Energy: ***http://www.africa-energy.com***
- → Brazilian Cooperation Agency: ***http://www.abc.gov.br***
- → Energy Industry News, West Africa: ***http://energy.einnews.com/west-africa***
- → Energy Profile, West Africa: ***http://www.eoearth.org/article/Energy_profile_of_West_Africa***
- → Afrique Avenir, Energy articles: ***http://www.afriqueavenir.org/sujet/economie/energie***
- → West African Power Pool: ***http://www.ecowapp.org***
- → U.S. Energy Information Administration (country analyses): ***http://www.eia.doe.gov/countries***
- → International Energy Outlook 2010: ***http://www.eia.gov/oiaf/ieo/pdf/0484(2010).pdf***

MALI BIOCARBURANT S.A.

SUSTAINABLE BIODIESEL PRODUCTION FROM *JATROPHA CURCAS* IN BURKINA FASO AND MALI

Overview of the Energy Sector in Mali

Mali is highly dependent on biomass for energy production, accounting for 80% of the national energy capacity.[1] About 50% of its land is in arid desert zones, and existing forests are degrading at an alarming rate, which constitutes a serious issue in a country that relies heavily on wood for its energy. Reforms in the sector are very difficult as they imply raising the already high price of electricity. Oil is the country's secondary energy source (16%) and is exclusively imported. Only 25% of the population has access to energy, and that percentage is even lower in rural areas (13.8%). In the last decade, Mali has had to increasingly rely on expensive diesel production and on imports from neighbouring countries.

Mali has already collected some experience in the development of renewable energy policies and projects. A solar energy laboratory was created as early as 1964, and in 2006, the country released its 2008-2013 national strategy for developing biofuels. The creation of the National Agency for the Development of Biofuels (ANADEB) in 2009 is one key feature of this strategy. Since its establishment, the agency has established biofuel norms, drafted a first round of biofuel legislation and created numerous demonstration sites and training opportunities, amongst other initiatives. Since 2005, numerous biofuel projects have been launched in Mali, but the jatropha industry is still in its early stages.

Mali Biocarburant S.A.

Mali Biocarburant S.A. (MBSA) was one of the first biofuel producers in West Africa. This private company uses jatropha oil to produce biodiesel in the Koulikoro region, where Jatropha is intercropped with food crops. Launched in 2007, the project processes *Jatropha curcas L.* nuts into biodiesel for local markets.

Smallholder farmers play an active role in the company. They are among the company's shareholders, and the union president in Koulikoro is a member of the board. Overall, MBSA works with a total of 8 000 smallholder farmers in three regions of Mali and two regions in Burkina Faso. The local population directly benefits through not only the sales of jatropha nuts, but also through the increased value of shares, including foreseen dividends.

Other shareholders include the Royal Tropical Institute (KIT), the Spoowegen Pensioenfonds, and private companies such as Power Pack Plus and Interagro. The project also receives financial support from the Government of the Netherlands (PSI programme and Daey Ouwens Fund) as well as a loan from the French Development Agency (AFD). MBSA has also collaborated with numerous research institutes to improve jatropha production and increase the potential value to its various by-products.

Its Jatropha production strategy is carried out by the *Fondation Mali Biocarburant* and the *Fondation Faso Biocarburant*. Both promote agroforestry systems by training producers to improve and integrate Jatropha in their farming systems, especially by intercropping Jatropha with food and cash crops.

Development Prospects and Next Steps

MBSA and its foundations will continue to invest in expanding the intercropped area of Jatropha to about

1 IFC, AfDB, WB

10 000 ha per country with approximately 10 000 collaborating farmers. It also plans to increase its production capacities in Burkina Faso and Mali to an annual production of around 10 million litres of biodiesel. The sale of jatropha nuts along with increased production of food and cash crops is intended to help increase farmers' revenues.

Intercropping in Mali

© www.malibiocarburant.com

Elements for Debate

Impact on local development and response to energy demands: MBSA sells biodiesel at a lower price than imported fossil fuels. Furthermore, this initiative generates direct employment for more than 150 people and indirectly for more than 8 000 farmers. The oil extraction from jatropha nuts, refining factory work and end-product distribution all occur close to the harvesting site, thereby contributing to the development of the local economy through job creation and increased local access to energy. Biodiesel is essentially produced for local markets and its main destination is the transport sector.

Addressing food security: Jatropha intercropping with food and cash crops is one important way to improve food security; it helps reduce soil erosion and is expected to increase food crop yields. Moreover, it diversifies the sources of income for local farmers, allowing them to sell Jatropha nuts in the place of a part of their food crops. It also contributes to diversifying and mechanising farming systems (introduction of drought tolerant maize varieties, organic manure from jatropha press cake, etc.).

Increasing farmers' revenues: The collaboration between Trees for Travel and KIA Motors in Mali and between ICCO and the Fair Climate Fund in Burkina Faso make the farmers beneficiaries of carbon credits that contribute to the financing of their operational costs. In addition, some Jatropha nut by-products are sold as organic fertilizer or material for soap making.

Local ownership and land use issues: Other principles of the company include: the non-possession of land, the use of the small amount of land owned for experimental purposes, and the prohibition of large monocultures of Jatropha, as the long-term consequences of large monocultures are still unknown. The company's primary innovation is that smallholders own shares of the subsidiary companies and participate in their governance.

Sustainability concerns: A great deal of research still needs to be conducted on Jatropha, particularly as concerns genetics, input responsiveness and agronomy, so as to better predict crop yields and ensure its long-term economic viability.[2] Additional research should also focus on how to add value to the by-products of the production process.

Other constraints: The validation of biofuel legislation in Mali and West Africa is an important driver for future sustainable biofuel development. Significant public and private investments are also required to help achieve greater impact.

2 Achten et al, 2007

Contributor: Hugo Verkuijl, CEO Mali Biocarburant S.A.

→ Mali Biocarburant S.A.: ***http://www.malibiocarburant.com/malibio***

GLOBAL BIOFUELS LTD.

BIO-ETHANOL PRODUCTION FROM SWEET SORGHUM IN NIGERIA

Overview of the Energy Sector in Nigeria

Nigeria is the largest country in Africa and accounts for almost half of West Africa's population. Despite being the region's biggest oil and gas exporter, 67% of its population uses wood or charcoal as cooking fuel. About 60% of the population has no access to electric power (90% in rural areas), and electricity transmission is a major problem in the country.[3] Some 60 million Nigerians own generators and spend USD 13 billion each year to fuel the devises.[4]

Its energy sector is presently undergoing drastic reforms. The hope now is that the private sector can succeed where the public sector has fallen short. President Goodluck Jonathan in August 2011 unveiled his Roadmap for Power Sector Reform, reviving a drive toward privatisation that had stalled under his predecessor. Pursuant to the Electric Power Sector Reform Act of 2005, the federal government is selling off the assets of the now defunct National Electric Power Authority (NEPA). Seven power generation companies and 11 distribution companies will be sold to the highest technically-capable bidder facilities.

Government strategies for upgrading infrastructure also focus on strategic partnerships with other countries (e.g. Brazil, China, France, Germany and India).

Legislation passed in 2000 supported independent power production, permitting states to build their own decentralised power plants for the benefit of low-income markets. In addition, the Renewable Energy Master Plan (REMP) was launched in 2007. It provides a roadmap for a gradual move away from fossil fuels. The country is also piloting large-scale biofuel production for use in transportation, domestic appliances and for bio-gas production.

The Nigerian National Petroleum Corporation (NNPC) received a grant of 70 000 EUR from the Renewable Energy and Energy Efficiency Partnership (REEEP) to support a feasibility study on high ethanol-yielding cassava varieties and other biofuel feedstock for the production of two types of automotive fuel: fuel ethanol and diesel from palm oil.

Global Biofuel Ltd.

Global Biofuels Ltd. implements the first set of biofuel refinery projects of the country. The company was established in 2008 to produce ethanol from sweet sorghum cultivars. The company is set to develop 15 fuel ethanol refineries, with 10 in Nigeria and 5 in other ECOWAS member countries, requiring 150 000 of the 8.5 million hectares of grain sorghum farmland currently cultivated to be switched to the sweet variety. The company is working in partnership with WEMET, SINOSURE, the Development Bank of China as well as the China Sugarcane Design Institute. It intends to further expand its operations within Nigeria's renewable energy sector.

Global Biofuels Ltd. also works in partnership with India's Praj Industries, the Institute of Agricultural Research of Ahmadu Bello University as well as the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). In a Public-Private-Farmer Partnership model pioneered by these institutes, scientists have developed sweet sorghum hybrids and conducted tests of new cultivars amongst smallholder farmers that have had positive results.

3 lied 2009

4 Manufacturers Association of Nigeria/Energy Commission of Nigeria http://www.energy.gov.ng/index.php?option=com_content&task=view&id=51&Itemid=58

The company's initiative is an agro-allied industrial complex where ethanol, livestock and organic fertilizers are produced in large quantities. The target area for large scale commercial sweet sorghum cultivation is the Sahel and savannah regions of Nigeria and across the West African sub-region. The company has been honoured in the international arena for its commitment to green energy production by Frost & Sullivan as well as the African Business Owners Forum in Washington D.C. It has also received local awards from a number of organisations.

© Global Biofuels Nigeria

Elements for Debate

Impact on local development and response to energy demands: Although already an OPEC member country and the continent's largest oil producer, the integration of the agricultural and energy sectors opens new opportunities for Nigeria. Based on the company's projections, the country will benefit from 58 000 new jobs (direct and indirect) in each of its locations in addition to further electric power generation, and community development through the further development of infrastructure in the affected regions. NNPC has undertaken to buy all Global Biofuels' production in Nigeria and plans to use it for transportation and for powering local industries.

Addressing food security: Sweet sorghum is a resilient crop. It is easy to grow, and is resistant to pests and weeds. It tolerates soil salinity, acidity and toxicity and can withstand the most extreme of tropical weather conditions; tolerating both heat and water logging. Since the company is not using the grain for ethanol production, the impact on food prices and food security is limited. It is a sustainable use of the entire sweet sorghum plant.

Increasing farmers' revenues: Decentralised oil production and the generation of additional electric power is helping to create new employment opportunities. The parts of the plant remaining after energy production are then used in creating an organic fertiliser, thereby helping to improve farmer incomes.

Sustainability concerns: Unlike certain biofuel crops that produce more greenhouse gases than is being saved, the energy gained in the "sweet sorghum to ethanol initiative" is far in excess of the energy invested. Similarly, the initiative does not compete with farmland or water for crop production because sweet sorghum is merely switched in place of grain sorghum on already-farmed dry-lands that are low in carbon storage capacity. The issue of clearing rainforest does not arise.

Other constraints: The major constraint for the further development and sustainability of this initiative is funding. Long-term credit is generally unavailable in West Africa.

Contributor: Felix Obada, Global Biofuel Ltd.

→ Global Biofuels Nigeria:
http://www.globalbiofuelsnig.com

PERACOD

THE USE OF AGRICULTURAL WASTE FOR BIOCHAR PRODUCTION IN SENEGAL

Overview of the Energy Sector in Senegal

Senegal's energy supply is dominated by biomass (56%), followed by petroleum products (38%). Firewood accounts for about 84% of household energy consumption[5] while oil imports account for more than 43% of the country's export revenues.[6] The average fuel consumption is still quite low in the country.

Butane gas subsidies were ended in 2009 because of their high cost. The resulting risks of increases in firewood demands and greater exploitation of forest reserves cannot be ignored. Growing demand from main urban centres is also contributing to deforestation.

Extensive agriculture cultivation, frequent bush fires, overexploitation and overgrazing also aggravate the problem of deforestation. According to FAO, about 40 000 ha of forests in Senegal disappear each year.

Thus, a priority for the Senegalese government is to secure sustainable energy sources for household cooking while protecting forest resources and the environment. To accomplish this goal, the government relies on projects and programmes such as PERACOD.

PERACOD

As part of the reorganisation of the development co-operation between Senegal and Germany, the best-practice achievements and experiences from domestic fuel (PSACD) and solar (PSAES) projects were merged into one programme.

The "Programme for the promotion of renewable energy, rural electrification and sustainable supply of domestic fuels" (PERACOD), under the technical supervision of the Ministry for Energy, aims to improve "the conditional frameworks and capacities for securing sustainable access to modern energy services - particularly for socially disadvantaged groups".

The German government's contributions are run by the technical agency GTZ, and the programme's length is estimated at 12 years (until 2015). Work focuses primarily on: implementing methodological tools in test areas, strengthening partners' capacities and defining policies and strategies.

PERACOD also benefits from co-financing from the Netherlands for the implementation of two modern energy access projects: the ERSEN project (Rural Electrification of Senegal) and FASEN (Improved Household-Burners for Senegal).

The programme for "domestic alternative fuels" component is meant, by providing support and advice to market operators, to help mitigate the problem of firewood supply by diversifying the types of fuel available domestically. A series of pilot activities are underway to confirm that the sector is economically profitable. Units of industrial and semi-artisanal charcoal exist through the implementation of "Public Private Partnerships (PPP)" and "North-South joint ventures" between businesses. PERACOD was thus able to support the introduction of different technologies and biochar production sectors among other technologies for agglomerating fine coal created from biomass (Typha, peanut shell, etc.) into charcoal briquettes.

5 Système d'information Energétique (SIE-2009)
6 SIE

Elements for Debate

Impact on local development and response to energy demands: PERACOD showed that a fixed forest area has higher productivity than the same area of cultivated land in Senegal. In addition, forest management has been able to evolve by involving the private sector in research on better ways both to promote derived products and services and to increase financial flows, all while guaranteeing a certain return on investments . In the context of rising fossil fuel prices, a shortage of traditional energy sources and the resulting supply problems, the potential for a charcoal briquette market is vast.

Addressing food security: Woodlands play an important role in this plan. Indeed, fruits, leaves, roots or wild game represent a significant nutritional contribution to diets and many plants are used in medicines. In addition, forests are the main source of energy for cooking or for making roofs and fences. It is often the poorest families who are the dependant on the use of forest products for their energy needs.

Increasing farmers' revenues: Energy is essential for treating timber and non-timber products. In general, all types of treatment, as well as cooling systems, can increase the value of forest products by 50%.[7]

Local ownership and land use issues: The use of firewood and wood charcoal from managed areas remains low. The participation of local populations in forest management is crucial, not only so that they become more involved in the issue, but also to improve surveillance meant to curb illegal exploitation. PERACOD has shown encouraging results in the field. However, it is now necessary to develop forest areas on a larger scale.

7 Owsianowski & Ehemba

Sustainability concerns: Biochar, obtained from the recovery of any unused biomass, has been identified as an alternative to wood charcoal within the context of energy dependence and environmental conservation. Deforestation in Senegal accentuates drought and desertification. Energy production from biomass does not further the loss of biodiversity as in plantations.

CARBONSEN - Kaolack's cabonisation equipment

© PERACOD

Other constraints: Biochar production is often confronted with the following problems:

- The profitability of the industry, especially the artisanal sector;
- The acceptability of the product due to the use of clay as the binding agent;
- Technology transfer in the case of North-South partnerships; and
- The identification of an operator who would be prepared to take possible risks.

Contributor:
Alassane Ndiaye, National Co-ordinator, PERACOD
→ PERACOD: ***http://www.peracod.sn***

Mr. Christian Narcisse Adovèlandé

President, West African Development Bank (BOAD)

Originally from Benin, Christian Narcisse Adovèlandé joined the BOAD in April 1978 where he has held various posts at varying levels of responsibility. He became the President of the Bank for Investment and Development (EBID) in 2002 but returned to the BOAD in February 2011 to serve as President. He has brought a new dynamism to a growing financial institution that has become a reference point in the sub-region. Adovèlandé has a Master's Degrees in Economics, Finance and Banking (DESFB).

Mr. Hamata Ag Hantafaye

Director General, National Agency for the Development of Biofuels (Agence Nationale du Développement des Biocarburants - ANADEB)

Hamata Ag Hantafaye is an Industries and Mines Engineer with a Master's of Science in Electromechanics at the Polytechnic Institute in Krasnodar, Russia. He served as the head of the Renewable Energy Laboratory Solar Energy Department in the 1980s and 1990s and later participated in the National Centre for Solar Energy and Renewable Energy (CNESOLER). In 2001, he became both the Head of the Energy Planning Department at the National Directorate of Energy and the Chairman of the Multi-Sector Energy Initiative of the European Union in Mali and the energy focal point of the UEMOA to Mali. In 2005, he was appointed the Director of CNESOLER and the Chairman for a Multi-sector Energy Committee. He also participated in developing the National Strategy for Development of Biofuels. Hantafaye has served as the Director General of the National Agency for the Development of Biofuels since 2009.

Mr. Antônio Carlos Kfouri Aidar

Director, Control Division, FGV Projects

Antônio Carlos Kfouri Aidar holds a degree in Business Administration from the Getúlio Vargas Foundation (FGV) and a Master in Economics from the University of Michigan (United States). Since 1977, Antônio Carlos Kfouri Aidar has been a professor in the Department of Economics at FGV. From 2001 to 2006, he was a member of the GVPEC Special Programme for Sports and Mentorship Programme. He was also Co-ordinator of the Rural Management Programme from 1984 to 2005. He has also authored books about agribusiness. He moreover acts as a consultant for various private and public companies. Antônio is a board member of several companies.

SPEAKERS

Mr. Pedro Quaresma de Araujo

Head of Research Division and Operations, National Bank of Economic and Social Development (BNDES), Brazil

Pedro Quaresma de Araujo was previously an analyst of Planning and Budget of the Ministry of Planning in Brazil. He moreover worked as an economist from the Institute of Policy Alternatives for the Southern Cone (PACS) and as an economic analyst for the Getulio Vargas Foundation (FGV). He has also participated in the drafting of conceptual reports, the development of economic projections and macroeconomic consistency models. A BNDES Economist since 2006, Pedro Araujo has participated in the management of Corporate Planning of BNDES between 2006 and 2008, becoming the assessor of Superintendent between 2009 and 2011 before holding his current position since 2011.

Mr. Djibo Bagna

President, Board of Directors, Network of Farmer Organisations & Agricultural Producers of West Africa (ROPPA)

After a career in teaching, Djibo Bagna dedicated his efforts towards peasant causes. He joined the Association for the Revitalisation of Livestock Breeding in Niger (AREN) and became its Secretary of Information in 1993 before being promoted to Secretary-General of the governing board in 1997. He is currently the regional representative of AREN in his hometown of Tillabéri, Niger. Having served as Secretary-General of the Farmer's Platform of Niger (PFPN) since 1999, Djibo Bagna became the PFPN President in 2000. He also became a member of the executive committee of ROPPA in 2000 and was elected President of the board of directors of ROPPA in May 2010, a position he will hold for the next four years.

Mr. Baba Seid Bally

President, African Association for the Advancement of Bio Fuels and Renewable Energy

CEO of Noor Bio Energy and AAPB President, Baba Seid Bally specialises in developing agro-environments, providing agricultural mentoring, and implementing internal and external controls for organic farming. Developer of the first fair trade projects in West Africa, he worked towards the implementation of Agroenergy and ENRS projects, also launching the slogan, "For Africa, if no biofuels exist, they need to be invented." He also works as a project analyst for development and funding agencies.

Prof. Alhousseini Bretaudeau
Executive Secretary, CILSS

Originally from Mali, Professor Alhoussenini Betaudeau pursued a Doctorate in Agronomy from the Languedoc University of Science and Technology and obtained an additional degree in Agronomy from the University of Montpellier. He then returned to Mali and obtained an engineering degree in applied sciences from the Katibougou Rural Polytechnic Training Institute, where he began work as a Professor of agronomy-phytotechnology, genetics and biotechnology in 1984. In order to encourage research in the field of agronomy within Mali, he founded the Katibougou Polytechnic Institute Laboratory for Agro-physiological Genetics and Plant Biotechnology. He also lead a research project on the morpho-physio-genetic methods through which sorghum adapts to drought and worked on developing new sorts of sorghum that are particularly drought resistant. It was in testament to his research that Professor Bretaudeau was nominated the CILSS Executive Secretary in 2007 and re-elected in 2010.

Dr. Abdoulaye Combari
Delegate Minister of Agriculture, Burkina Faso

Abdoulaye Combari holds a Doctoral Degree of Engineering, having conducted his thesis in the field of Agricultural Sciences with a focus on Parasitic Weeds in 1987 from the National School of Agricultural and Food Industries of Nancy in France. With more than 15 years of experience in agricultural research and more than ten years of experience in the field of agricultural training, Abdoulaye has since held many positions of responsibility at national and sub-regional levels. He has acquired extensive experience and knowledge about the agronomic problems of major agro-ecological zones in Burkina Faso and other Sahelian countries. Abdoulaye has held his current position since 2008.

Mr. Mamadou Dianka
Co-ordinator in charge of energy, UEMOA Commission

Mamadou Dianka holds a State Diploma in Hydrocarbon Engineering from the National Institute of Hydrocarbons (INHC) in Algiers (Algeria), a Master's in Renewable Energy from the University of Gainsville, Florida (USA), and an MBA from the University of Montreal (Canada). Throughout his career, he has been notably held the positions of Chief of the Renewable Energy Division in Senegal, Director of Energy, and Director of Industry. He has also served as the Technical Secretary of the World Bank's Regional Programme for the Traditional Energy Sector (RPTES) and has held his current Co-ordinator post since 2005 while also being responsible for energy under the Regional Initiative for Sustainable Energy (IRED). He also acquired invaluable experience by participating in initiatives organised by RIAED Network, Biogas for Better Life in Africa, COMPETE, the UN Foundation, the United Nations Development Programme (UNDP), and the African Union (AU).

Dr. José Manuel Cabral De Sousa Dias

Vice-Director, Technological Transfer, Brazilian Agricultural Research Corporation (EMBRAPA)

With MSc and PhD degrees in Chemical Engineering, José Dias has been a researcher for EMBRAPA since 1980, working on fermentation processes and products, energy, business technology, communications and innovation. He has served as the Assistant Director of Communication and Business for EMBRAPA's Genetic Resources and Biotechnology Centre (1988-2003); General Head of EMBRAPA Genetic Resources and Biotechnology Centre (2004-2008); and Assistant Director of Communication and Business at the EMBRAPA Agro-energy centre (2009-2011). He was appointed the Assistant Director of Technology Transfer in September 2011.

Mr. François-Xavier de Donnea

Belgian Minister of State; Member of the Belgian House of Representatives; SWAC President

François-Xavier de Donnea served as the Belgian Secretary of State for Development Co-operation from June 1983 to November 1985 before appointed the Belgian Minister of National Defence from November 1985 to May 1988. He is also Professor Emeritus at the Catholic University of Louvain where he was in charge of the Centre for Research in Public Management of the Institute of Administration and Management. Among his many commitments, he has been President of the Sahel and West Africa Club (SWAC/OECD) since 2009 and played a key role in the creation of the new Club. His work for the Club has focused notably on engaging new development actors in the region: strengthening South-South co-operation and increasing the participation of Parliamentarians from OECD countries and West Africa in the work of the Club. He holds a PhD in Economics from Erasmus University Rotterdam.

M. Ricardo de Gusmão Dornelles

Director, Department of Renewable Energy, Ministry of Mining and Energy, Brazil

An Energy Engineer by education from the University of Brasília, Ricardo Dornelles co-ordinates the supply chains and the market supervision of renewable fuels. He is also the ministerial representative of the Inter-ministerial Council's Ministry for Sugar and Ethanol, the Sector-Wide Chamber of Sugar and Ethanol Supply, the Managing Group for the National Production of Biodiesel, the Executive Committee of the Bioenergy Co-operation Accord of the International Energy Agency (IEA) as well as a member of the Board of Directors of Petrobras Biocombustíveis (PBio).

Ms. Lidia Martinez Frances
Bioenergy and Food Security Officer, FAO, Sierra Leone

Lidia Martinez is responsible for co-ordinating the Bioenergy and Food Security Project (BEFS) in Sierra Leone. She previouslyworked in the Natural Resource Management and Environmental Department at the FAO Headquarters in Rome. Previous experience also includes serving as project manager for the Spanish Agency for International Development Cooperation (AECID). Her expertise ranges from local development to renewable energy and food security. She holds a degree in Geography and a Master's degree in International Development.

Mr. Mahama Kappiah
Executive Director, ECREEE/ECOWAS

Mahama Kappiah was formerly the Head of both the ECOWAS Energy Division for Energy Access and Renewable Energy and the Conventional Energy Division. Some of his achievements include the creation of the West African Gas Pipeline Project, the founding of the West African Power Pool and the Regional Electricity Regulation Authority. Moreover, he was involved in the establishment of the regional programme on access to energy services and the creation of the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency. Prior to joining the ECOWAS Commission, he worked with the Volta River Authority (VRA) of Ghana for 15 years in positions ranging from Electrical Engineer to Manager of the Transmission Planning Unit.

Mr. Hamadi Konandji
Co-ordinator, Regional Programme for the Promotion of Alternative Domestic Energies in the Sahel (PREDAS), CILSS

Forest Engineer by training, Hamadi Konandji has over 25 years of experience dealing with domestic energy issues and possible alternatives and with natural resources and environmental management. He has conducted exchanges with various institutional partners of the domestic energy sector in Mali since 1983. Before joining CILSS as a Domestic Energy expert for PREDAS (2001-2009), he headed the Domestic Energy Strategy for Mali's Firewood Unit from 1994 to 1999. The PREDAS Programme Co-ordinator since 2009, Hamadi Konandji has helped contribute to the capacity building of national actors in the field of domestic energy.

SPEAKERS

Ms. Aukje de Jager
Assistant Director, Mali Biofuels

A graduate of Industrial Engineering from the Technical University of Eindhoven, the Netherlands, Aukje de Jager was Director in Charge of sustainable development projects in urban areas to the 'Wibaut aan de Amstel' Agency projects accountable to the Municipal Council of Amsterdam between 2004 and 2007, and Director of sustainable urban development projects between 2004 and 2007. From 2002 to 2004, Aukje de Jager was Project Manager and Urban Development Adviser for the professionalisation of internal organisation. She has been Director of Projects for decentralised oil extraction (biodiesel), biogas, ethanol, and Deputy Director of Malibiocarburant since 2011.

Mr. Alassane Ségou Ndiaye
National Co-ordinator, Programme for the Promotion of Rural Electrification and Sustainable Domestic Fuels (PERACOD)

After studying engineering and bioenergy and the Polytechnical Institute of Bucharest, Romania, Ndiaye served as the head of the Energy Economics Division of the Energy Conservation Bureau (EEB). He has worked as the national co-ordinator of the Senegalese-German Project "Supporting the domestic fuel sector in Senegal" (PSACD) and was a member of a task force studying the impact removing butane gas subsidies has had on household use in Senegal. Ndiaye has been national co-ordinator of the PERACOD programme since 2004.

Dr. Felix Babatunde Obada
GMD and Chief Executive, Global Biofuels Limited

Dr. Obada holds a PhD in Materials Management from Pacific Western University (Hawaii, USA) and began his professional engineering career at the Nigerian National Petroleum Corporation (NNPC) in 1977. He served as the Director-General and Chief Executive of the Materials Management Institute of Nigeria from 1996 to 1998 and served as a Consultant to the University of Surrey Space Centre, United Kingdom, between 2000 and 2003. Dr. Obada worked with the University of Surrey and the Federal Ministry of Science & Technology to design and launch Nigeria's first Satellite (NigeriaSat-1), as well as to develop automotive biofuels produced from agricultural wastes. Dr. Obada is the Acting Director General and Chief Executive of the Green Energy Society of Nigeria (GESON), the umbrella body of renewable energy producers of Nigeria. He is a fellow of many professional associations in Nigeria, the UK and the USA, and became an honorary member of the American Biographical Institute of Research Board of Advisors in 2002.

Prof. Mario Pezzini
Director, OECD Development Centre

Mario Pezzini, an Italian national, joined the OECD in 1995. He has filled various positions within the OECD, and his work has focused on rural-urban development, regional competitiveness and public governance issues. He was appointed the Director of the OECD Development Centre in July 2010. Before joining the OECD, Mario Pezzini was a professor of Industrial Economics, working at the Ecole Nationale Supérieure des Mines de Paris, as well as other Italian and American universities. He has contributed to global debates and to think tank work in the fields of economic development, industrial organisation and regional economics, focusing particularly on cluster and network policies for small and medium sized firms.

Mr. David A Quansah
Co-ordinator, The Energy Centre, KNUST, Ghana

David Quansah is a Lecturer at the Mechanical Engineering Department and a Fellow of The Energy Centre (TEC) at the Kwame Nkrumah University of Science and Technology (KNUST). He obtained a degree in Chemical Engineering in 2003 from KNUST and then earned two master's degrees in Renewable Energy Systems Engineering from KNUST and the International Institute for Water and Environmental Engineering (2iE) in Ouagadougou. He is currently coordinator of the World Bank-funded Solar Capacity Upgrading Project (SolarCUP) at TEC and also serves on the Management Team of the World Bank ESMAP funded Energy Access for the Urban Poor Project (EAfUP). David Quansah also coordinates short courses in Renewable Energy Technologies (RETs) at the Centre.

Mr. Onaur Ruano
Executive Secretary of the Inter-Ministerial Chamber for Food Security and Nutrition - CAISAN, Brazil

Onaur Ruano is an agronomist and holds a Masters in Plant Pathology at the Federal University of Viçosa. He was Researcher and Director of the Agronomic Institute of Paraná - IAPAR, Municipal Secretary for Agriculture and Supply in the city of Londrina as well as Secretary of National Food Security and Nutrition of the Ministry of Social Development and the Fight Against Hunger in Brazil (MDS). He also worked as a consultant for FAO and was Deputy Executive Secretary of the MDS.

SPEAKERS

Prof. Fatou Sarr

Chair of the Board of Directors, International NGO Environment and Development in the Third World (ENDA)

Social anthropologist and environmentalist, Professor Fatou Sarr is also a member of the Board of the International Union for Conservation of Nature (IUCN). She is interested in relations between gender and the environment and participates in programmes on gender and climate change, having published articles on gender and energy and participated in the gender audit in energy policies and programmes in Senegal.

Mr. Mahamadi Siemde

Technical Director, Belwet Biocarburants S.A.

Mahamadi Siemde began his professional career in 2006 as a middle and high school life sciences and earth studies teacher. He has a Master's Degree in Biochemistry and Applied Microbiology as well as a university degree in Agricultural Food Industries. He joined the Burkina Faso Jatropha project initiated by Larlé Naba Tigre early in the project's development, he has been in charge of the organisation's industrial activities (from the production of pure vegetal oils to their production into biodiesel) since 2008.

Mr. José Nilton de Souza Vieira

Interim Director, Department of Agroenergy of the Ministry of Agriculture

With a degree in Economics from the Universidade Federal de Viçosa in 1992, and an MSc in Industrial Economics and Technology from the Universidade Federal do Rio de Janeiro in 1996, José Vieira has worked in the Department of Sugar Cane Agroenergy of the Ministry of Agriculture, Livestock and Supply since May 2001. He is a member of the team responsible for designing and implementing the National Programme for the Production and Use of Biodiesel. Involved in international discussions on bioenergy sustainability, he represents the Brazilian government in forums such as the Convention on Biological Diversity, Global Bioenergy Partnership, International Organisation for Standardization - ISO and the International Biofuels Forum.

Mr. Sergio Waddington

Economist, National Bank of Economic and Social Development (BNDES), Brazil

Sérgio Waddington holds a degree in Economics from the University of the State of Rio de Janeiro and a Masters in the same field from the Getúlio Vargas Foundation (FGV), with an additional Masters in Environmental Economics from the University Santa Ursula. He has taught in several academic institutions in Rio, acted as a consultant during the implementation of the "Plan Real" in Brazil, was a member of the Group of Studies in the Global Economy of the Institute of Applied Economic Research (IPEA). He was moreover a Research Technician at the Brazilian Institute of Geography and Statistics (IBGE). A BNDES economist since 2001, Sérgio Waddington joined the Department of Research and Economic Monitoring, which had integrated the Departments of Economic Planning, Foreign Trade and Information Technology.

FACILITATORS

Mr. Laurent Bossard

Director, Sahel and West Africa Club Secretariat (SWAC/OECD)

A geographer by training, Bossard is a specialist in regional dynamics, and has notably lead the ECOLOC programme "Managing the economy locally in West Africa" and has worked on cross-border co-operation, supporting ECOWAS in formulating its common approach on migration. His career began at the European Commission in the early 1980's where he became an advisor of the Commission to the Executive Secretary of CILSS. While based in Ouagadougou from 1984 to 1988, he organised the first consultations between the various Sahelian food stock offices, established the "Permanent Diagnostic for Food Security" programme, and contributed to regional discourse on cereal policies (Mindelo Colloquium, 1986). He directed the Regional Atlas on West Africa, published in 2009 by the OECD within the "West African Studies" series, and was appointed the SWAC Director in January 2011 after successfully co-ordinating the reform process of the Club.

Mr. Sibiri Jean Zoundi

Principal Administrator, Sahel and West Africa Club Secretariat (SWAC/OECD)

A rural development engineer with a Doctorate of Science Degree in Applied Biology from the University of Ouagadougou, Jean Sibiri Zoundi worked for 20 years as a senior research fellow at the Institute of Environment and Agricultural Research of Burkina Faso (INERA). He joined the SWAC Secretariat in 2006 as expert on agriculture and rural development issues. He ensures the co-ordination and implementation of various initiatives in the areas of agricultural policies, food security, and natural resource management.

Ms. Carolina Milhorance de Castro

Sahel and West Africa Club Secretariat (SWAC/OECD)

Carolina has facilitated preparation for the SWAC 2011 Forum. Her professional experience includes work for the Oswaldo Cruz Foundation (FIOCRUZ), the Brazilian Biodiversity Fund, CIRAD, and the OECD. She completed her bachelor's degree in International Relations at PUC-Rio as well as a second in Biology/Ecology at the Federal University of Rio de Janeiro, (FUNBIO); and she is currently enrolled in a Master's in Environment, Sustainable Development and Risks at the Paris School of International Affairs (Sciences Po Paris).

Government Representatives:

- Ministries of Energy from Benin, Brazil, Burkina Faso, Cape Verde, Chad, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo
- Ministries of Agriculture and Social Development from Brazil and Burkina Faso;
- Ministries of Foreign Affairs from Brazil and Cape Verde.
- National Agency for Development of Biofuels (ANADEB), Mali
- Rural Electrification and Sustainable Supply of Domestic Fuel Programme (PERACOD), Senegal

Regional and Pan-African Organisations:

- African Union (AU)
- Economic Community of West African States (ECOWAS)
- New Partnership for Africa's Development (NEPAD)
- Permanent Interstate Committee for Drought Control in the Sahel (CILSS)
- UN Economic Commission for Africa (UNECA)
- West African Economic and Monetary Union (UEMOA)

Development Partners:

- Brazilian Co-operation Agency (ABC)
- FAO/ Global Bioenergy Partnership Secretariat
- Institut de l'Énergie et de l'Environnement de la Francophonie (IEPF)
- International Renewable Energy Agency (IRENA)

Banks and Financial Institutions:

- African Biofuel and Renewable Energy Fund (BIDC/ FABER)
- African Development Bank (AfDB)
- Brazilian Development Bank (BNDES)
- Central Bank of West African States (BCEAO)
- West African Bank of Development (WADB)

Private Sector:

- AGRITECH
- Belwet Biocarburant SA
- BioFuel Africa
- Cassava Agro industries Services Ltd
- Global Biofuel Ltd
- Mali Biocarburants SA
- Nigerian National Petroleum Corporation (NNPC)
- Petrobrás Biofuels

Research Institutes:

- Brazilian Agricultural Research Corporation (EMBRAPA)
- FGVProjects, Brazil
- Forum for Agricultural Research in Africa (FARA)
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
- Quinvita
- The Energy Center (TEC/KNUST)
- West Africa Institute for International Research on Regional Integration and Social Transformations (WAI)

NGOs and Civil Society Representatives:

- African Association for Biofuel Producers (AAPB)
- Environmental Development Action in the Third World (ENDA-Tiers Monde)
- Global Village Energy Partnership (GVEP-International)
- Mali Folk Center (MFC)
- Network of Farmers' and Agricultural Producers' Organisations of West Africa (ROPPA)
- Regional Advisory Information and Network Systems (RAINS)
- Network of Farmers' and Agricultural Producers' Organisations of West Africa (ROPPA)
- Regional Advisory Information and Network Systems (RAINS)

Mailing Address SWAC/OECD
2, rue André Pascal
F–75775 Paris, Cedex 16

Office Le Seine Saint-Germain
12, bd des Iles, building B
F–92130 Issy-les-Moulineaux

Tel +33 (0)1 45 24 89 87
Fax +33 (0)1 45 24 90 31
E-mail swac.contact@oecd.org

www.oecd.org/swac