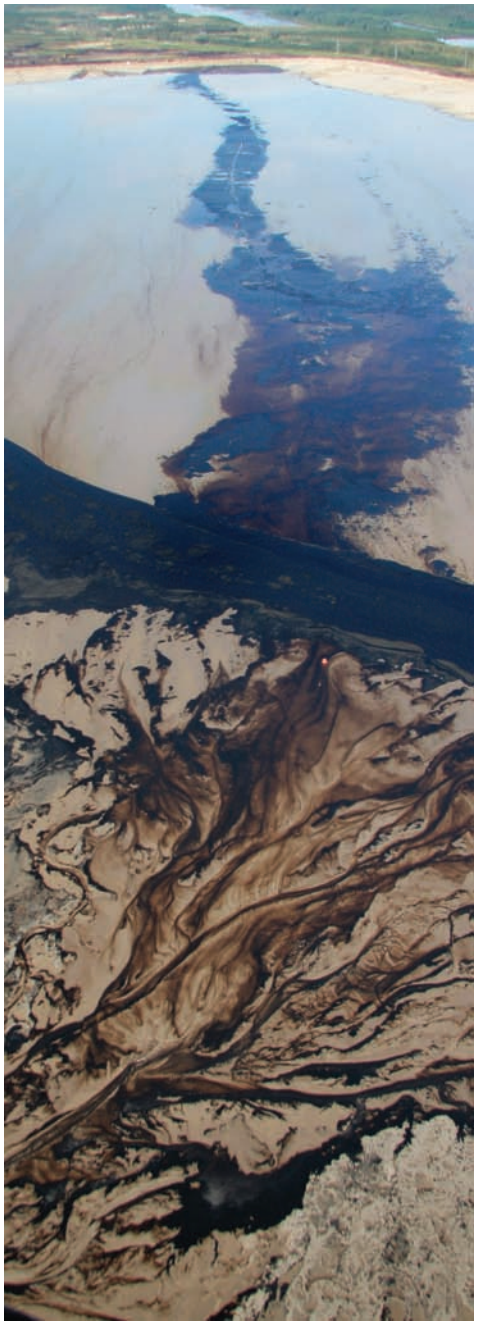
HEINRICH BÖLL STIFTUNG

ENERGY FUTURES?

Eni's investments in tar sands and palm oil in the Congo Basin



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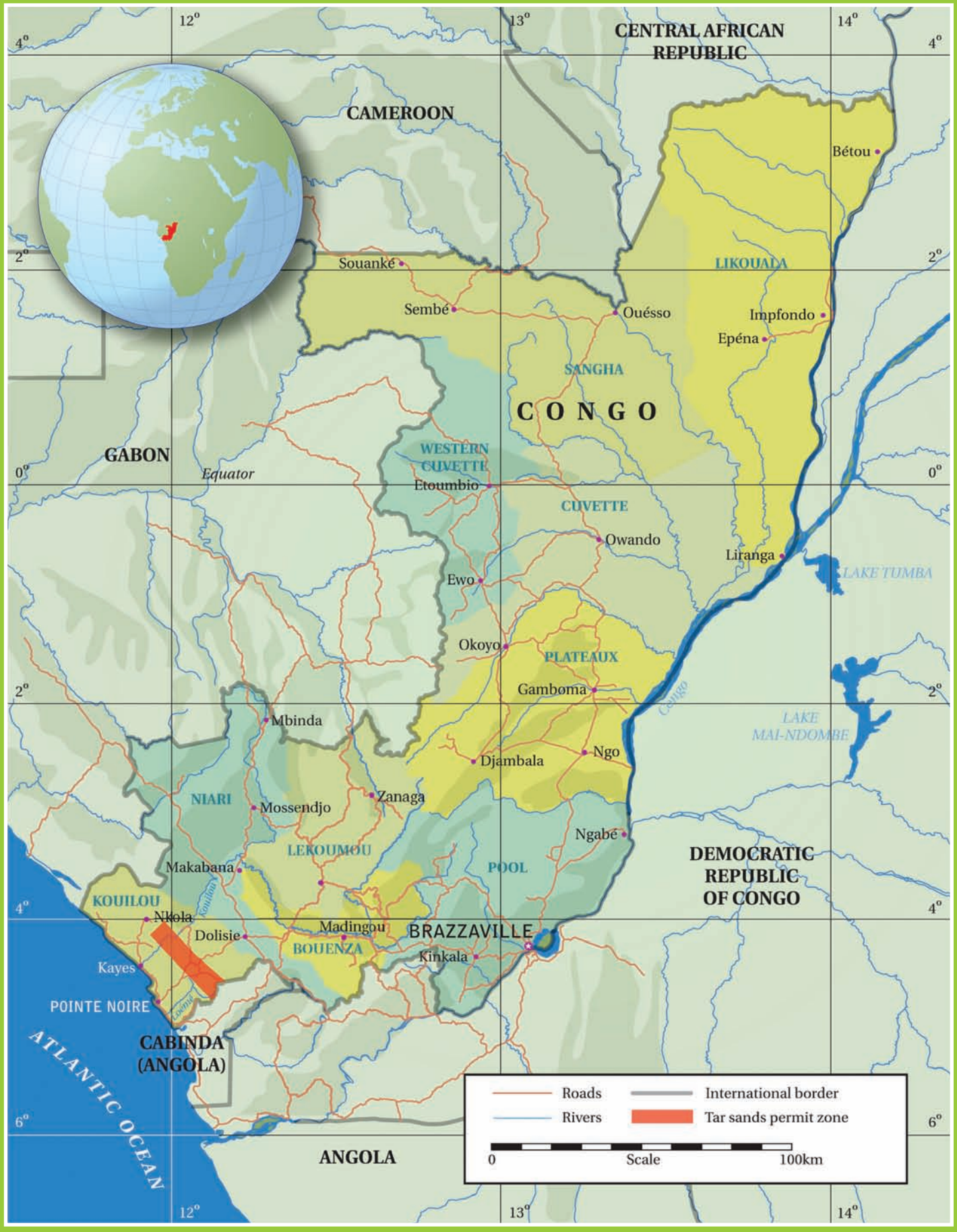

Republic of Congo

Capital: **Brazzaville**
Land area: **341,500 sq km**
Population: **4.01 million**
Life expectancy: **54.1 years**

Main exports: **Oil, timber**
GDP (PPP): **$15.35 billion***
GDP per capita (PPP): **$3,900***
Budget: **US$4.515 billion**

Education expenditure: **1.9%** of GDP (2005)

* 2008, estimate.
Source: The CIA World Factbook, 2009.

Front cover: 1. Coal-fired power station, Eggborough, UK. ©Greenpeace/Steve Morgan; 2.Tar sands exploration area, Dionga, Kouilou, Congo; 3. Tar sands tailing pond containing toxic waste material, Canada. ©Greenpeace / Eamon Mac Mahon

Executive Summary

At this year's G8, the major economies and energy producers recognized that dealing with the interlinked issues of energy investment, access and availability and tackling climate change is the key challenge to their countries. They also promised resolute action to address the energy poverty in which most of the world's citizens still live. This is particularly stark in Africa, where two thirds of sub-Saharan households do not have access to a secure energy supply.

One country with very poor energy access is Republic of Congo (Brazzaville), a small central African state where 70% of the population live under the poverty line, despite the country's oil wealth. Congo, besides being sub-Saharan Africa's fifth largest oil producer, is also rich in the biodiversity of its forests, which cover two thirds of the country. The Congo Basin forest is both a key resource for local people and a giant carbon sink that plays an increasingly vital role in protecting our climate. However, Congo's record on environmental and human rights protection and on transparent management of the country's natural resources is extremely poor. The country currently has no functioning environmental regulation. Despite this, Congo's government wishes to take on a leading role in stewarding the global resource of the Basin.

Eni, formerly the Italian state oil company, is one of the top ten energy companies in the world. It is still 30% owned by the Italian state. Eni is undertaking a new multi-billion dollar investment in Congo in developing tar sands, oil palm for food and bio-diesel and gas-fuelled electricity. This would be the first tar sands project in Africa and the agro-fuels project would be one of the largest on the continent. Eni has the biggest footprint in Africa of any oil company and wants to build long-term partnerships with countries like Congo extending beyond the energy sector. The company is also currently ranked as the world's most "sustainable" oil and gas company and is keen to promote its green credentials.

The agreements made between Eni and the Congolese government have not been disclosed. Research has revealed an almost total lack of public awareness of the investments in Congo. There has been no meaningful engagement at local or national level by Eni or by the government with Congolese citizens about the projects' potential fiscal, social and environmental impacts. This violates Eni's own environmental and human rights policies.

Local communities affected by oil production have long complained about inaction by corporations and government to address its impacts. Gas flaring levels at the huge onshore M'Boundi oil field, now operated by Eni, are extremely high (currently over 1 billion cubic metres per year) and have been a health and environmental hazard for years. Flaring is not only a violation of the right to health, but a huge waste of resources and a major contributor to greenhouse gas (GHG) emissions. Eni's plans to turn the gas into electricity are welcome, but the company still needs to address flaring's current impacts on communities. The extent to which the plant will serve Congo's energy-starved consumers is also unclear, as is its governance and financing structure. Eni also intends to apply for emissions reductions credits through the UN's Clean Development Mechanism for the electricity project: this is highly problematic for several reasons, including the fact that the plant could provide energy for any high-emitting tar sands development.

Eni's investments in tar sands and oil palm are inherently high-risk. In other parts of the world, such investments have been heavily criticized for causing social and environmental damage, both locally and globally. Extraction of tar or bitumen and its processing into synthetic crude is extremely intensive in water and energy use. In Alberta, Canada, the only place where tar sands are currently being developed, it has led to water depletion and pollution, with health impacts on communities, deforestation of Canada's boreal forest and habitat destruction. Production of a barrel of tar sands bitumen is 3-5 times more intensive in terms of GHG emissions than production of a barrel of conventional oil. Canada now has the highest emissions per capita of any G8 country and is being increasingly criticized for its inaction on climate change. Many civil society groups, local indigenous residents and scientists are now calling for a moratorium on new tar sands investment.

Investment in monoculture plantations of oil palm and other crops to produce agro-fuels, encouraged by targets introduced by national governments and the European Union, is a cause of the deforestation that accounts for around 20% of global greenhouse gas emissions. By replacing tropical forests and other ecosystems, monoculture plantations lead to a serious loss of biodiversity. The land-use changes they entail are also linked to increased food insecurity and to land conflicts, human rights abuses and threats to indigenous populations.

The risks of Eni's investments are heightened by the governance deficit within Congo, lack of transparency and community consultation and the area's ecological sensitivity. Eni has stated publicly that none of the investments will take place on rainforest or other areas of high biodiversity and will not involve resettlement of people. Yet the company's own studies reveal that the tar sands exploration zone comprises up to 70% primary forest and other highly bio-diverse areas. It also includes human settlements. There is no clarity as to what extraction and processing technologies Eni would use for the tar sands and it is impossible to predict the project's impacts on the country's water and energy resources.

Eni's investment throws into doubt the company's claims to be a player in sustainable development. It also raises wider issues about the social and environmental costs of supporting such high-carbon, export-driven energy investments in ecologically high-risk areas with minimal transparency and human rights protection. Particularly given the urgent need to tackle run-away climate change and improve energy access for the poorest. The Congolese government's collaboration with these projects undermines the credibility of its bid to be an environmental guardian of the Congo Basin. The Italian government is Eni's largest shareholder. Given its oversight role and international commitments, it has a responsibility to ensure that any investment by Eni involves due consideration of its potential developmental, human rights and environmental impacts.

In conclusion, it appears increasingly clear that there are some forms of new energy investment, (both fossil-fuel and so-called "renewable") that are particularly damaging to the local environment and communities and to our climate. For these reasons, they should be considered too high risk to pursue – especially in developing countries with very weak political and environmental governance. Eni's plans to develop tar sands and oil palm in Congo fall into this category.

RECOMMENDATIONS

To Eni and the Republic of Congo

- Given the high risk of irreversible environmental and social damage, cancel the investments in tar sands for oil production and oil palm.
- Place a moratorium on the bitumen for road surfacing project until its potential social and environmental risks have been fully assessed and local communities have given their free, prior, informed consent to the project.
- Disclose the fiscal terms of all agreements signed by the Congolese government and Eni relating to the tar sands, palm oil and electricity projects, and of any financing agreements related to any aspects of the projects, including any side agreements.
- Disclose the Independent Power Producer (IPP) agreement signed by the Congolese government and Eni, and the Power Purchase Agreements (PPA) entered into by the government with Eni or any third parties.
- Disclose the governance and shareholding structures of the CEC and the existing power plant at Djeno, including the *Accord Particulier M'Boundi*.
- Disclose all baseline studies, environmental and social impact assessments (ESIAs) and health impact assessments (HIAs) related to all the investments and related infra-structure (pipelines).
- Disclose in full the HIA and underlying epidemiological data related to the impacts of flaring at M'Boundi, plus any other studies, and facilitate independent evaluation of gas flaring at M'Boundi.
- Disclose any mitigation measures being planned with respect of flaring and institute a process of meaningful consultation with affected communities on these measures, including a compensation process.

To Eni

- Institute a moratorium on any further investment in tar sands development and industrial-scale agro-fuels production.
- Implement all the recommendations made by Amnesty International in relation to oil company operations in Nigeria in its Congo operations and its entire portfolio of investments. In particular, facilitate an independent review of the company's environmental management processes, and fully overhaul community engagement practices and ensure oversight of the community engagement process.
- Make free, prior and informed consent (FPIC) a condition of all project investment in developing countries, in particular in those with weak human rights and environmental protection, including Congo.
- Report to shareholders and disclose to the general public in its *Sustainability Report* detailed per project information on greenhouse gas emissions and on how Eni's investments are contributing to the Italian government's commitments to support reduction of GHG emissions.

To Eni Shareholders

- Urge Eni's management to implement all the recommendations on the company's investments in Congo and on its overall portfolio, as above.
- Support a moratorium on any further investment by Eni in tar sands development and industrial-scale agro-fuels production.

To the Eni Foundation

- Include independent civil society representatives on oversight structures for any social development programmes and develop a transparent and measurable stakeholder engagement plan for ensuring community involvement in design and implementation of programmes.
- Carry out an independent evaluation of the management and impacts of the healthcare programme, with an independent audit of expenditures, including of funds passing through Fondation Congo Assistance, and publish the results.

To the Government of the Republic of Congo

- Respect its commitments under international human rights conventions and environmental treaties to which it is party, and in particular its commitments under the Congolese Constitution to protect public health and the right to a healthy and sustainable environment and ensure adequate compensation for destruction and pollution caused by economic activities.
- Undertake to review the existing laws on compensation so that they are in line with international best practice, and in particular ensure there is adequate compensation for all loss of livelihoods and land expropriated to oil developments and related infrastructure.
- Undertake to produce a national management plan for forest law enforcement and for protection of other areas of high bio-diversity such as wetlands, and publish the findings of the forestry sector review produced under its HIPC debt relief agreement.
- Disclose any agreement(s) with Eni or any other company relating to the leasing of land for production of agro-fuels or any other agro-fuel related project.
- Disclose all studies by the state carried out into the public utility of continued flaring as per Decree 2007/294.

To the Italian Government

- Disclose in full information held on the environmental impacts of flaring at the M'Boundi field at the time of Eni's purchase of its majority stake in 2007 and of the tar sands development at the time Eni signed its agreements with Congo (May 2008).
- Ensure there is an annual investigation of the greenhouse gas emissions of Eni's operations on a per project basis, with the results published in the company's *Sustainability Report*, including how investments are contributing to emission reductions obligations under EU and other international agreements ratified by the Italian government.
- Report to the public on how Eni's investments in developing countries are contributing to development, poverty reduction and energy security objectives under EU and other international agreements ratified by the Italian government.

To the Executive Board of the Clean Development Mechanism

- Exclude from the CDM any project whose overall impacts from associated project activities would increase greenhouse gas emissions and undermine sustainable development criteria.

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1 Introduction

Deforestation is a major source of climate change.©Mauthe/Greenpeace

At this year's G8, hosted by Italy, energy ministers from the major economies recognized that "coping with the interlinked issues of energy investments, energy access and availability, and the climate change challenge is key to the future of our countries"[1]. Along with promising action to limit the rise in global temperature to 2°C above pre-industrialized levels[2], governments also promised "resolute action" to help the quarter of the world's population that are energy poor[3].

This energy poverty is particularly stark in Africa, where two thirds of sub-Saharan households do not have access to a secure energy supply[4]. This includes oil-rich countries such as Republic of Congo (Brazzaville), a small central African state where barely a quarter of the population have access to electricity[5].

Congo, besides being Africa's fifth largest oil producer[6], is "home to one of the richest and most biologically important forest ecosystems on the planet". Around "60% of the country is covered by lowland tropical forests, much of which is made up of large tracts of undisturbed virgin wilderness"[7]. The Congo Basin is the world's second largest tropical forest. It is "of incalculable importance", because of its biodiversity and as an economic resource for local people but also as "a giant carbon store that is essential for climate protection"[8]. However, Congo is also a classic "resource curse" country[9]: despite decades of oil wealth, it has very low levels of human development and high levels of repression and corruption, with a history of conflict centred on controlling its oil sector.

In May 2008, the energy company Eni announced a new US$3 billion dollar investment in tar sands[10], palm oil for food and bio-diesel and gas-fuelled electricity in Congo. Once the Italian state oil company, Eni now ranks among the world's top ten energy companies for financial performance[11] and has the largest footprint in Africa[12], with a market share of 1 million barrels (oil equivalent) per day and reserves of 5 billion barrels[13].

None of the terms of the agreements signed between Eni and the Congolese government are publicly available due to a confidentiality clause[14]. However, if the investment goes ahead, this will be the first tar sands development in Africa and one of the largest agro-fuels investments in the continent (see Box on p. 7). The deal also signals added impetus to Eni's operations in Congo, where the company has been present since 1968[15], producing around 64% of the country's oil[16]. The palm oil project in particular is described as part the company's drive for "social responsibility", expressed through "forging new partnerships with the countries involved in the traditional hydrocarbon business, proposing a long-term cooperation model for issues not related to the energy sector"[17].

Eni has recently won awards for promoting sustainability in its business model - indeed, it is the world's most "sustainable" oil and gas company, according to the Dow Jones index[18]. Most recently, the company proudly announced that its CEO Paolo Scaroni was "the only Italian and the only CEO of an oil company" to speak at the UN Leadership Forum on Climate Change in New York[19]. Scaroni urged delegates to

seize the opportunity offered by the upcoming climate change negotiations in Copenhagen, proposed a tax on fossil fuel use, admonished developed countries' "energy guzzling" habits and announced: "Gone are the days when we could afford to think about oil as a cheap input to economic and social growth, discounting the impact on the environment and on generations to come"[20].

Ensuring a secure supply of energy so that industrialized economies can function and developing countries grow and reduce poverty, while at the same time respecting human rights, protecting the environment and cutting the emissions that are de-stabilizing our climate, is the key challenge in today's carbon-constrained world. One view is that long-term security of supply can only be based on ensuring every citizen has access "to sufficient energy within ecological limits from appropriate sustainable sources for a dignified life", which includes prioritizing "the decentralised control and management of energy by communities for communities"[21].

Efforts to galvanize policy action in this direction from all actors are essential, particularly those driving investment such as the world's leading energy companies. Yet this report will show that Eni's planned investment in Congo is not a step down the path of energy sustainability. On the contrary, it is extremely high risk in terms of its potential to wreak environmental and social havoc, including further damaging our climate.

Italian Prime Minister Silvio Berlusconi during the last press conference after the last G8 meeting. G8website/PCM. Photo: Anticoli Livio

Eni's investment flies in the face of the company's CSR plaudits, raising questions about the company's real commitment to being a "player in sustainable development"[22], particularly in oil-producing countries in Africa[23]. It also raises wider issues about the social and environmental costs of supporting high-carbon, export-driven energy investments in ecologically high-risk areas with minimal transparency and environmental and human rights protection. Even more so in a region where the threat from climate change is now adding to the existing heady mix of governance challenges. How do energy companies and other key actors with oversight, such as the Italian government, which, in the case of Eni, holds a 30% stake in the company, propose to manage the inherent risks of such projects? How do such investments further the objective of tackling the interlinked issues of run-away climate change and improving energy access for the poorest?

1.1 Eni's agreements with Congo

On 19 May 2008, Paolo Scaroni signed draft agreements with the Energy Minister of the Republic of Congo, Bruno Itoua, for a projected €3 billion investment over several years[24]. Overall, there are 4 elements to the deal.

New 450MW electric power station near the Djeno oil terminal. A gas-fuelled power station of 25 MW capacity built by Eni has been operating since 2002[25]. The new plant will have a capacity of 300 to 450 MW and "will contribute to over 80% of the country's [electricity] requirements" and "supply important industrial customers"[26]. The station will be operated by "a new joint-stock company 20% owned by ENI Congo and 80% by the Republic of Congo". It will be fuelled by associated gas – gas produced during oil extraction which is currently flared - from Eni's M'Boundi oilfield and subsequently by the offshore discoveries of Marine Permit XII. "The initiative will benefit from the Clean Development Mechanism credits under the Kyoto protocol"[27].

Permits for tar sands exploration in two areas (Tchikatanga and Tchikatanga-Makola) "covering a total of 1790 square km". The project will "benefit from operative synergies resulting from the close proximity of the M'Boundi oilfields", principally as associated gas from the field will be used to supply the Eni Slurry Technology (EST) plant upgrading the bitumen extracted. This would also "achieve the goal of reducing atmospheric emissions while profiting from credits under the Kyoto protocol"[28].

"Food Plus Biodiesel" project: Eni and the government have signed an MOU for oil palm cultivation on "approximately 70,000 unfarmed hectares in the Niari region in the North West of the Country". This investment will produce "approximately 340 thousand tons/year of crude palm oil, enough to cover domestic demand for food uses and produce 250,000 tons/year of biodiesel". Surplus oil "will be destined to biodiesel production using Eni proprietary Ultra-Bio-Diesel technology. After a first pilot phase, the feasibility of building a bio-refinery in the Congo will be considered"[29].

Social projects: €8.5 million is to be spent on "important social initiatives aimed at enhancing infant healthcare in Congo's rural areas, promoted and developed by Eni Foundation, following the 2007 agreement with Congolese Health, Population and Family Ministry and local NGO foundation Congo Assistance"[30].

2 Challenges to our Energy Model

Wind farm in Guandong Province, China.©Greenpeace/Canxiong

According to the International Energy Agency (IEA), if we continue down our current energy path, fossil fuels will constitute 80% of our energy mix by 2030: renewable energy (non-hydro) will constitute only 12% (up 1% from today's levels) and in terms of global transport needs, bio- or agro-fuels are expected on this scenario to supply 5% of the total[31]. Africa will become increasingly important as an oil and gas supplier, with 21% of remaining conventional oil reserves[32]. Gas exports from the region will triple by 2030[33].

However, this high-carbon model of energy supply is in crisis. One reason is the gap between rising demand and falling supply of oil. The IEA predicts that production from existing, conventional fields will decline by 50% by 2020 and by 2015 projects a global gap of just under 8% between supply and demand – or around 60% of China's and 39% of the USA's predicted demand[34]. By 2030, the world will require an increase in oil supplies "the equivalent of almost six times the current capacity of Saudi Arabia"[35].

For this reason, investment in coal and "unconventional" fossil fuel resources, such tar or oil sands, extra-heavy oil and oil shales[36] is increasing. Overall, the global supply of unconventional oil is set to increase from 1.7 mb [million barrels]/day in 2007 to 8.8 mb/d in 2030[37] – or roughly around 11% of total oil output by 2030. Over half of this increase will come from tar sands projects in Canada[38].

Such sources are more difficult and costly to extract and much "dirtier", involving higher greenhouse gas emissions. Even if it were possible on the current fossil-fuel scenario to meet rising energy demand, can we afford the carbon cost? Overall, around 60% of carbon emissions come from energy-related use and these are set to almost double by 2030[39]. The urgent need to stabilize our climate makes our current energy path increasingly untenable – as even the CEO of a top oil company such as Eni admits.

In response to this situation, the European Commission produced in 2007 an "Energy Policy for Europe". The policy recognizes that "Europe is becoming increasingly dependent on imported hydrocarbons" which will constitute 93% of oil and 84% of European gas supply by 2030[40]. It further recognizes the need to reduce greenhouse gas emissions, to improve energy efficiency and to invest in renewable energy. Nevertheless, the key supposition is that "oil and gas will continue to meet over half of the EU's energy needs" and therefore "security of supply of these fuels will continue to be paramount to the EU economy"[41]. As a result energy security must become a "a central part of all external EU relations"[42].

Such a view could, in fact, undermine the very "international efforts to combat climate change" that the Commission is endorsing. The emphasis appears more on making fossil fuel production sustainable than massively scaling-up investment in low carbon alternatives[43]. A further problem with prioritizing security of supply of imported hydrocarbons is its "euro-centric" nature, where Africa is seen mostly as an "energy supplier"[44]. This view could undermine wider EU development and poverty eradication

objectives in the continent. Half of the population of the poorest sub-Saharan region live in countries defined as "resource-rich", accounting for 70% of Africa's GDP and receiving most of its foreign direct investment[45].

In Lisbon in December 2007, a new Joint Africa-EU Strategy was announced[46]. The "Energy Partnership" stressed the need to mobilise increased investments for continental energy infrastructure and "promote the development of energy interconnections between Africa and Europe"[47], for example through the Transaharan Gas Pipeline[48].

However, the emphasis on export-oriented energy projects undertaken by European corporations in Africa - including Eni's Congo investment – often fails to take into account their implications for the energy security of Africa's citizens and whether they promote sustainable exploitation of the continent's natural resources. EU support for such projects sits uneasily alongside commitments in the Strategy to "support Africa's capacity building efforts in the sustainable management of natural resources", through a holistic approach which recognizes that the latter is an essential building block to environmental sustainability and tackling climate change in the continent and inextricably linked to "food security, sustainable agriculture and land management"[49].

In summary, any vision of European energy security based on prioritizing an ongoing supply of hydrocarbons for European consumers is dangerously myopic. Apart from ignoring the developmental outcomes in supplier countries, it underplays both the supply gap problem and the consequences of climate change for Europe's own energy security - and global geo-political security. US military and intelligence analysts now believe that climate change "will pose profound strategic challenges to the United States in coming decades"[50]. General Anthony C. Zinni, former head of the US Central Command states that: "We will pay to reduce greenhouse gas emissions today, and we'll have to take an economic hit of some kind. Or we will pay the price later in military terms. And that will involve human lives"[51].

Expert observers believe industrialized countries need to cut emissions by 45% or more below 1990 levels by 2020 and by at least 80% by 2050 to keep the inevitable rise in global temperature to the "safe" level of 2°C or below, avoiding the dangerous "tipping point" beyond which it is unlikely we could stabilize our climate. Some view this as too little, too late[52]. There is also general agreement on the fact that developed countries, as the main greenhouse gas polluters, must bear the brunt of the cost of mitigation and adaptation[53]. Realistically, a massive political and financial "push" for energy efficiency and investment in renewable energy in industrialized and industrializing countries, plus transfer of low-carbon technology globally, may be required before any major "switch" from fossil fuels is likely[54].

Africa, before the financial crisis, was predicted to see income from oil and gas rise to around $250 billion by 2030[55]. Even if current energy trends continue, is such a fossil fuel "boom" likely to bring about sustainable growth and poverty reduction? The evidence points overwhelmingly to the opposite conclusion: without strong institutions and transparent and accountable governance, a sudden influx of wealth from natural resources, particularly oil, almost never leads to good development outcomes[56]. In most cases "oil wealth often wreaks havoc on a country's economy and politics"[57], to the point where non-resource rich countries often perform better in terms of economic growth than their resource-rich neighbours[58]. These outcomes can be clearly seen in the case of Congo.

For this reason, some civil society groups are already advocating stopping new investment in oil extraction in developing countries – particularly since to the toxic combination of poor economic performance, environmental destruction and low human development that characterizes oil-dependence can now be added its contribution to depletion of our limited carbon budget[59]. One such proposal to "keep oil in the ground" comes from civil society groups in Nigeria, who in February 2009 called for the country not to award any new oil concessions, on the grounds that the loss in revenues needed to be set against the gains in terms of avoiding oil's social and environmental ills and cutting carbon emissions[60].

It is clear that there are forms of new energy investment, both fossil-fuel and so-called "renewable", that are particularly damaging in terms of their environmental and social impacts, including their carbon footprint. For these reasons, it can be argued that they are too high risk to pursue – especially in developing countries with very weak political and environmental governance. Eni's plans to exploit tar sands and promote oil palm cultivation in Congo fall into this category.

2.1 New energy trends: unconventional oil, a step too far?

Tar sands – called oil sands by the oil industry - are deposits of bitumen, or oil in solid form that must be extracted and processed before it can be used as crude oil (see Section 4). The Athabascan tar sands in Northern Canada are the second largest oil deposits in the world[61]. With 173 billion barrels of defined resources[62] and a 30–40 year reserve life of current developments, Canada is now considered the largest marginal source of global crude oil supply not controlled by national oil companies. It is also now the number one source of US oil imports[63]. For this reason, Canadian tar sands have been described as "an increasingly important part of the fabric of hemispheric and global energy security"[64]. Companies investing in tar sands developments include Shell and Norway's Statoil and, more recently, Asian companies[65].

Tar sands are extremely energy intensive to produce and one of the "dirtiest" fuels on earth in terms of their carbon footprint. In Alberta, tar sands development has led to deforestation, water pollution and depletion, air pollution and concerns about the implications of their energy intensive production for Canada's energy security[66]. Apart from the local environmental and social costs, production of a barrel of Canadian tar sands emits between 3-5 more carbon than production of a barrel of conventional oil[67] (for more details see Section 4). Recent research has estimated that emissions from the tar sands could grow to between 127 and 140 million tonnes by 2020, exceeding the current emissions of countries such as Austria, Portugal, Ireland, Denmark and even Belgium, a country of ten million people[68].

If all North America's unconventional oil reserves were fully developed – including oil shales - it is unlikely carbon emissions could be kept below the level required to stop the global temperature rise exceeding the critical threshold of 2°, as the total emissions would be "equivalent to 20 years of global emissions at 2004 level"[69].

This emissions scenario means that further tar sands development in Canada - or elsewhere - constitutes a global threat to the climate that cannot be ignored. Canada now has the highest emissions per capita of any G8 country[70], and is being increasingly criticized for its inaction on climate change[71]. According to Greenpeace: "Canada has actively fought standards to lower the carbon content of fuels, lobbied against US legislation to lower emissions, muzzled federal scientists and obstructed international climate change negotiations"[72].

Because of their local impacts and the climate damage they cause, many NGOs are calling for a halt to all new tar sands projects in Canada and some for a stop to all existing projects[73]. From the business risk angle, tar sands developments entail inherent risks to *long-term* shareholder value that could ultimately render them unviable. These include - along with the risk of labour shortages and the rising cost of the energy - increasing adoption of low carbon fuel standards; the untested nature of the carbon capture and storage (CSS) technology that is an integral element of the investment projections; the cost of environmental clean-up operations and, finally, the cost of potential future litigation by affected communities[74]. All the major oil companies investing in Canada's tar sands are now seeing opposition growing in their home countries[75], with Statoil's holdings recently becoming an electoral issue in Norway[76].

2.2 New energy trends: not-so renewable "renewables"

Deforestation is responsible for around 20% of global emissions[77]. One source of deforestation is increasing investment in industrial-scale plantations of agro- or bio-fuels. Targets for agro-fuel use introduced by national governments and the European Union have intensified this trend[78]. The EU's *Renewable Energy Directive* obliges EU member states to source 10% of their transport fuel from renewable sources, which includes agro-fuels, by 2020[79]. Over 200 civil society groups now support a moratorium on EU incentives for agro-fuel production from monoculture plantations and on EU imports of such products[80].

The growing evidence is that industrial-scale agro-fuels make climate change worse. By replacing tropical forests and other ecosystems, monoculture plantations lead to serious deforestation together with loss of biodiversity, flooding, the worsening of droughts, soil erosion, pollution of water sources and an increase in pests[81]. The United Nations Environmental Programme (UNEP) reported in 2007 that, along with mining, "widespread investment in oil palm plantations and biodiesel refineries" could lead to the destruction of 98% of Indonesia's forest by 2022[82].

Several studies have looked at carbon dioxide emissions from direct and indirect land-use changes linked to agro-fuels. One such study in early 2009 calculated that to compensate for the carbon emitted by creating such plantations on forestlands, it would take 75 years of saved emissions through the use of agro-fuels – and 600 years for peatlands[83]. The figures produced by such findings may, in fact, be too low, as they "do not take account of other emissions linked to biofuel production [e.g. from associated infrastructure construction]"[84]. According to one source, it is impossible to factor in "the lost capacity of ecosystems to remove atmospheric CO2" and "to quantify the impact of lost ecosystem functions and therefore the contribution of plantations to the acceleration of climate feedbacks including ecosystem collapse"[85].

In April 2009, Friends of the Earth called on the UK government to scrap its target of sourcing 10% of transport fuel from agro-fuels given research had shown that such practices could double the carbon footprint of using conventional transport fuels[86]. The research also estimated that 10% extra crop land would be required to replace food and other crops displaced by agro-fuel plantations in Brazil, Argentina and the US. The UN World Food Programme has identified the impact of climate change and increased demand for agro-fuels as increasingly affecting its ability to deliver food aid[87].

In addition to exacerbating greenhouse gas emissions and food insecurity, agro-fuel monocultures have also been associated with illegal appropriation of land, land tenure conflicts and violation of human rights, including threats to indigenous populations[88]. Friends of the Earth states that "the current rush to develop agrofuels […] will contribute to an already unsustainable trade in plant-based oils whilst not solving the problems of climate change or energy security"[89].

In Africa, agro-fuels investment to date is limited, particularly in oil palm, although on the increase[90]. Although one view is that small-scale production may bring benefits, current policies promoting monoculture production could repeat "the damage already caused by biofuel plantations in Latin American and Asian countries"[91]. Already in 2007, African civil society groups called for a moratorium in Africa[92]. In June 2009, a broad coalition of civil society groups called for the immediate adoption of "rights-based and equitable policies and institutions to halt deforestation and forest degradation"[93]. Such policies would explicitly exclude the creation and management of monoculture tree plantations.

The International Finance Corporation (IFC), the private investment arm of the World Bank, has now suspended investment in palm oil[94], after its Compliance Advisory Ombudsman office upheld a complaint by Indonesian and international NGOs about dubious licenses, illegal logging and land rights conflicts on oil palm plantations in Indonesia[95].

2.3 Climate Change in Africa

It is worth rehearsing what continuing down our current energy path would likely mean in terms of potential climate change impacts in Africa. Although Africa has the lowest level of emissions in the world, it is one of the regions most sensitive to climate change and to climate variability, that is,

unpredictability in future weather patterns, according to the UN Intergovernmental Panel on Climate Change (IPCC)[96]. This is in part because of its "low adaptive capacity" (see below). The IPPC cites the following probable impacts on the continent:

- **By 2020, between 75 and 250 million of people are projected to be exposed to increased water stress due to climate change.**
- **By 2020, in some countries, yields from rain-fed agriculture could be reduced by up to 50%. Agricultural production, including access to food, in many African countries is projected to be severely compromised. This would further adversely affect food security and exacerbate malnutrition.**
- **Towards the end of the 21st century, projected sea level rise will affect low-lying coastal areas with large populations. The cost of adaptation could amount to at least 5 to 10% of GDP.**
- **By 2080, an increase of 5 to 8% of arid and semi-arid land in Africa is projected under a range of climate scenarios *(high confidence)*[97].**

One recent report analysing the potential security implications of a changing climate in Africa, argued that the region is likely to be particularly vulnerable to climate-related conflict given its reliance on "climate-dependent sectors (such as rain-fed agriculture) and its history of resource, ethnic and political conflict"[98]. Impacts will be determined by many, inter-twined factors, including how Africa's complex climate system interacts with "socio-economic challenges like endemic poverty; poor governance; limited access to capital and global markets; ecosystem degradation; complex disasters and conflicts; and urbanization – all of which may undermine communities' ability to adapt to climate change"[99].

In short, climate change is likely to be a "threat multiplier", intensifying existing problems such as water or food scarcity. The precise contours of what unfolds will ultimately depend on how other, systemic factors are managed and on the intensity and rapidity of climate impacts, which could render "adaptation" increasingly untenable[100]. In "resource curse" states like Congo, without deep-rooted governance reforms, climate change is likely exacerbate their existing governance deficiencies which, in turn, could render them less capable of dealing with ongoing impacts. This means it can no longer be a question of "energy business as usual", either on the part of investors in Congo's oil sector or of the Congolese government.

Congolese citizens are already well-aware that they are not benefiting from the current economic and energy model. In fact, the urgent need to plan for climate change adaptation adds even more weight to the argument for serious improvements in transparency and accountability structures in such resource-curse countries, in order to drive truly sustainable development and deal with climate impacts.

This is even more essential given the increasingly global role Congo plays as one of states responsible for managing the second most important tropical forest on the planet. It is encouraging that the Congolese government regards preservation of the area's bio-diversity as a priority[101]. President Sassou, who will represent the AU at the Copenhagen climate change summit in December, is reported as long being "committed to conservation, sustainability and other environmental protection measures"[102]. In an *Open Letter to President Obama*, Sassou calls for a concerted multilateral effort: "Our resources are limited [....] We need the same technical expertise and resources of the West to develop sound environmental policies which benefit us all"[103].

Congo certainly needs support to diversify its economy away from dependence on oil production and destructive forestry practices. However, as the next section discusses, the Congolese government must also reform its own governance practices, prioritizing its citizens' rights and demonstrating effective and sustainable management of the country's natural resources. The new deal with Eni, agreed without prior consultation with those citizens most likely to be affected by it, and with the potential to cause irreversible damage to the country's and sub-region's biodiversity, only further undermines its credibility on environmental stewardship of the Congo Basin.

Equally, other actors at national, regional or international level should not incentivize, directly or indirectly, export-led energy investments in Africa that ignore wider developmental and energy sustainability goals. Particularly in countries that are themselves struggling to meet the UN Millennium Development Goals. The Italian state bears a clear responsibility in the case of Eni's Congo investment, due to its key shareholding. It should ensure adequate oversight of the climate impact of the company's investment strategy as part of its efforts to meet global targets to reduce carbon emissions. Equally, national policies by Italy and other EU member states (and support for regional directives) that prioritize hydro-carbon imports and the use of agro-fuels not only fail to rise to the sustainability challenge, they actively undermine other inter-connected objectives, such as promoting sustainable growth that protects both human rights and the environment in developing countries.

Mauritania: villagers secure sand dunes
© Clive Shirley / Greenpeace

3 The Investment Context

In order to assess the risks posed by Eni's new projects, it is important to look at the investment context, namely the state of governance prevailing in Congo – primarily fiscal transparency, respect for human rights and environmental protection. This will inevitably condition the terms and implementation of the agreements made by Eni and by the Congolese authorities. Eni states that country assessment is part of a risk management approach underpinning all its business operations. Yet in its approach to this investment, the company appears to have paid minimal heed to the country's fundamental governance deficit.

3.1 Congo's management of oil resources

Oil accounts for around 90% of Congo's export earnings, earning the country around US$4.4 billion in 2008[104]. Yet after decades of conventional oil production, 70% of the population lives under the poverty line[105]. In terms of energy access, barely a quarter of people enjoy secure access to electricity[106], "despite [an] energy potential estimated at 2500 MW in hydroelectricity […], 1.5 billion barrels of crude oil reserves, 391 billion m3 of gas reserves and a very good level of sunshine"[107].

Civil society activists have long campaigned to clean up the country's public finances and ensure that its natural resource wealth goes to poverty reduction[108]. Mismanagement of this wealth by corrupt local elites, with the complicity of corporate interests, has been extensively documented[109]. In the World Peace Foundation's *Index of African Governance*, Congo is categorised as one of "the worst performing ten countries"[110].

One report summarizes the governance situation as a decades-long "pillaging" of the country's riches by its current President abetted by corporate interests, with former French state oil company Elf Aquitaine "at the heart of the misappropriations"[111].

In 2007, a police investigation in France into assets owned by several African Presidents revealed that President Sassou Nguesso and his family owned twenty four properties worth millions of euros in France[112]. The President himself owns "a mansion in a rich Paris suburb"[113] and his wife a luxury apartment valued at just under €2.5 million in 2007[114]. In 2008, a legal complaint was lodged by French NGOs, calling for an investigation of the origin of the funds used to buy these assets[115]. At the time of writing, the case is still awaiting a final decision on its admissibility[116].

In March 2006, the country was controversially granted access to international debt relief. At the time, the World Bank highlighted "serious concerns about governance and financial transparency" centred on the national oil company, Société Nationale des Pétroles du Congo (SNPC)[117].

Congo promised to reform its public finances, including preventing "conflicts of interests in the marketing of oil" and obliging government officials to "publicly declare and divest any interests in companies having a business relationship with SNPC"[118]. Its debt relief programme has concrete criteria on natural resource governance management[119]. By late 2006, Congo was already "off-track". It had contracted expensive new debt, over-spent on non-priority sectors and failed to make headway with structural transparency reforms[120].

Congo was re-admitted to the debt-relief programme but, in March 2009, again breached the stipulation on no new debt on non-concessional terms, with a new €67 million loan. This time the lenders included public agencies such as the French Development Agency, the European Investment Bank and the Central African States Development Bank[121].

Despite such developments, the IMF described the country's performance as "broadly satisfactory" in July 2009, while admitting "progress is slow and uneven in two areas (public financial management and governance and natural resource management)"[122]. Indeed, there is no record of successful implementation of governance reforms[123], although there are some improvements: in September 2009, an Anti-Corruption Law was finally passed and an Anti-Corruption Observatory has been set up. However "more budget resources are needed to make it fully functional"[124].

Most importantly, the country's commitment to ensure that the national oil company (SNPC's) accounting systems are in line with international standards, demonstrated through successive independent audits, has not been fulfilled. The last audit of SNPC (2006 accounts) states the accounts "cannot be audited due to incomplete information"[125]. The government has now changed auditors and it appears an audit of SNPC's 2007 accounts has been completed, although at the time of writing this was not available[126].

Other auditors (KPMG) reporting on the quarterly transfer of monies from SNPC to the Treasury stated in their last report (Q1 2009) that proceeds from a February 2009 cargo of oil valued at $48 million had still not been transferred, with no explanation[127]. More fundamentally, SNPC did not provide primary bank account information but only its own "internal calculations [notes de calcul]" which "are not commercial documents"[128].

Overall, three years after committing to the debt relief agreement, there is little track-record of transparency reform. The country also signed up to a voluntary international transparency framework called the Extractive Industries Transparency Initiative (EITI) in 2004. Through EITI, the state discloses the revenues it receives from extractive companies (including state agencies), and the latter disclose their payments to the government. The figures are reconciled by an independent body and published[129]. At the time of writing, no data on oil revenues was publicly available through EITI, although it appears a first report (for 2004-06 revenues) has been approved by the national EITI committee[130].

When asked whether the company had carried out any evaluation of political or governance risk related to its new investment, given this context, Eni simply cited its participation in the EITI[131]. It appears that Eni has made no meaningful assessment of risks, despite the evidence of lack of fiscal transparency and good management in Congo. This appears to run counter to the company's own guidelines (see Section 8.4).

3.2 Congo: management of forestry resources

"Implementation of REDD+ in order to preserve tropical forests and fight against climate change is a question of commitment and political will. Now more than ever is the moment to act, to act quickly, otherwise it will be too late for everyone." President Sassou Nguesso, UN Summit on Climate Change, September 2009[132].

Tropical forests cover around two thirds of Congo[133] and are its second most important source of income. Yet environmental protection, including forestry sector governance, are very weak. Congo has no functioning environmental regulation and little enforcement capacity. A framework Environmental Law exists *(Loi 003/1991 sur la protection de l'environnement)*, but this law has not been followed by the adoption of any executive regulation *(décret d'application)*, so there is no means of enacting or enforcing it[134].

The country now has an independent forest monitor, who has stated that Congo's forests are "under serious threat" due to "the rapid growth of extractive activities and the industrial exploitation of natural resources – mining included, the deterioration of the quality of life for local populations, and the deterioration of governance"[135].

In 2006, the IMF noted that the sector was plagued by numerous problems including "modest transfer of receipts to the treasury, illegal logging, weak regulatory framework, and lack of transparency and competition in awarding concessions"[136]. For this reason, Congo's debt relief agreement contained a provision for a sectoral review to improve management[137]. In June 2007, the review had been extended "beyond economic reform, specifically taxation and concession auctioning, to cover biodiversity conservation, sustainable management of production forests, the participation of local and indigenous peoples, legal frameworks and safeguards applicable to forests and the green environment, and institutional capacity"[138]. As of July 2009, this review is complete but the sector is still "awaiting implementation of priority recommendations"[139]. The findings of the review are not publicly available.

There have been some improvements. In 2009, Global Timber UK stated most forestry concessions in the North were now FSC-certified. However, a Voluntary Partnership signed with the EU in May 2009 will likely exclude timber exported from the South, most of which is destined for China – Congo's principal export destination – and which is "probably illegal". Furthermore, "subcontracting of logging is a particular problem in the south", with subcontractors able to evade the legal stipulation requiring 85% of exported logs to be processed. Finally, statistics of timber exports recently published by the government "are unusable and grossly misleading" with China "not named as a principal destination". This might be due to "sloppiness" or reflect the difficulty "in obtaining credible data from certain sources - neither of which give confidence in Congo's purported shift towards transparency"[140].

Overall, the independent monitor concluded in its last report that there is "significant potential for effective forest law enforcement"[141], but major gaps still exist in policy and enforcement. One is the lack of a national strategy for forest sector law enforcement. Other recommendations are: "optimizing the use of human, financial and material resources; establishing systematic enforcement mechanisms to help detect all types of infractions and improving the monitoring and evaluation of enforcement mechanisms"[142]. On the fiscal side, there is a very low recovery rate of fines from companies and the Treasury does not transfer all the allocated funds to the Ministry of Forests. Finally, logging companies' compliance with their social responsibility obligations (cahiers de charges) is very poor[143].

According to a new website, the Congolese Government is now committed to prioritizing protection of the Congo Basin[144]. The website advocates in favor of adopting the initiative for "reducing emissions from deforestation and degradation in developing countries" or REDD, at the final UNFCC discussions on a successor treaty to Kyoto. This could "deliver millions of dollars to impoverished communities in the Congo Basin in carbon credits, providing a powerful incentive to protect this land of great value to the planet"[145].

REDD is a draft financing mechanism under discussion at the UNFCC whose aim is "to generate the requisite transfer flow of resources to significantly reduce global emissions from deforestation and forest degradation"[146]. According to the *Ecosystems Climate Alliance*[147], in its current form, REDD-plus risks "failing to either reduce emissions or to prevent deforestation"[148].

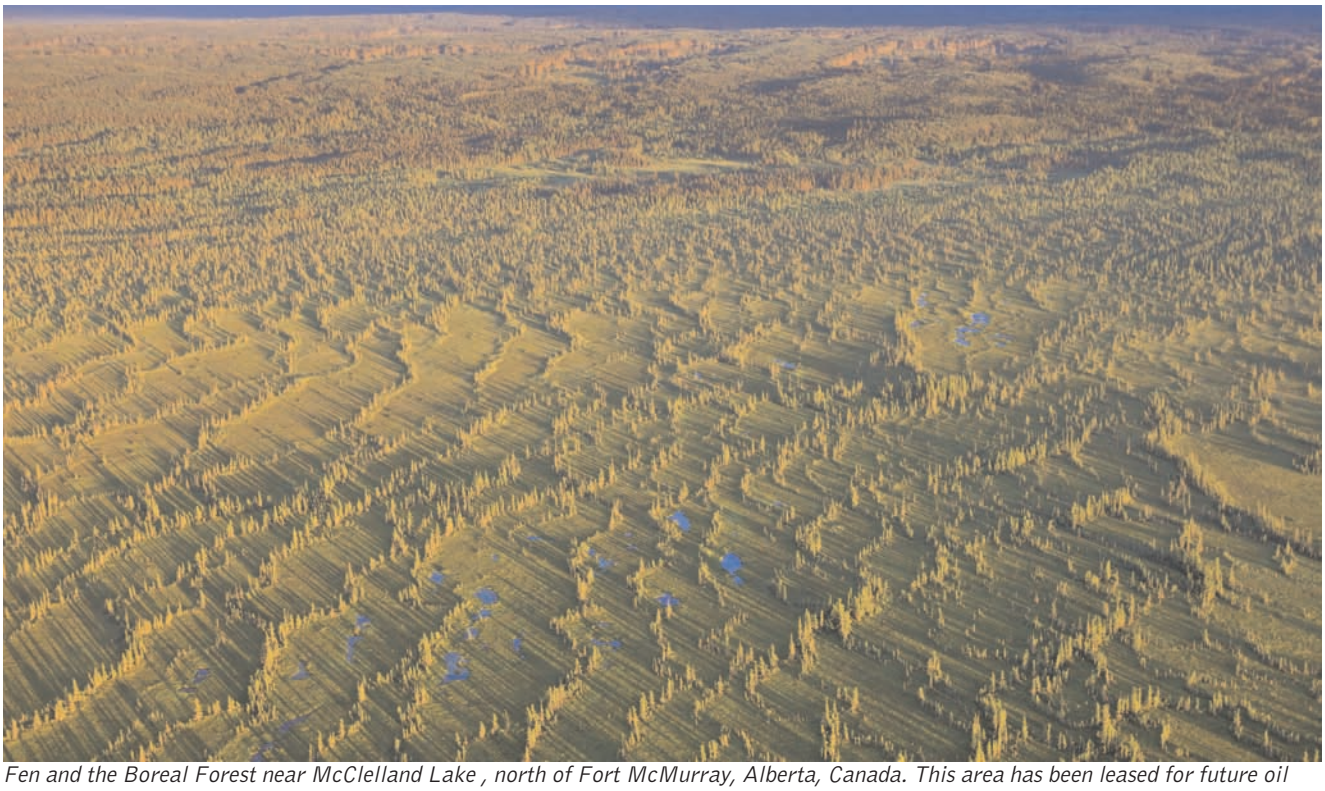
Among its criticisms of the current proposals is that the definition of forest does not distinguish between natural forests and plantations. The framework being proposed for "sustainable forest management" would thus, in practice, promote "destructive activities such as industrial-scale logging of intact natural forests"[149]. One illustrative example concerns a logging concession "run by Congolaise Industrielle des Bois (CIB) in the north of the Republic of the Congo". Research has shown that although this concession had been touted as a model of "sustainable forest management", its "reduced impact logging" did not, in fact, reduce carbon emissions[150].

Another key deficiency of current REDD proposals is that they do not sufficiently ensure protection of the rights of forest-dependent communities[151]. Finally, most countries that will benefit through REDD "suffer from poor legal frameworks, weak enforcement, and collusion between political elites and the logging industry", which makes "[g]ood governance and comprehensive systems for monitoring […] vital to effective REDD implementation"[152].

The Congolese government's own record to date on management of the country's forests regrettably falls into the above category. Congo's citizens have long suffered from a lack of political will and a lack of institutional capacity to protect both Congo's environment and communities impacted by extractive and logging activities, as Section 8 will discusss.

Election poster, Congo, May 2009. ©Chris Walker

4 Tar Sands: the Canadian experience



Fen and the Boreal Forest near McClelland Lake , north of Fort McMurray, Alberta, Canada. This area has been leased for future oil sands development. ©Peter Essick 2009 All rights reserved

Canada has the second largest oil deposits in the world, in the form of tar sands, after Saudi Arabia[153]. These extend over 138 000 km^2 of land (an area the size of Florida) in Northern Canada that includes 4.3 million hectares of the Boreal Forest[154]. Companies are now producing over a million barrels of oil per day from the tar sands, and this number is constantly increasing[155]. The number one export destination for Canadian synthetic crude is the USA.

Tar sands (called oil sands by the oil industry) are deposits of sand and clay saturated with bitumen. Bitumen is oil in a solid or semi-solid state. The bitumen requires unconventional extraction methods to get it to flow to the surface and processing or "upgrading" to convert it into synthetic crude.. Because of the large scale of operations in Alberta, large amounts of fossil fuels are burned to produce the energy needed to extract bitumen from the tar sands and upgrade it.

NGOs, scientists and local Albertan residents have expressed serious concerns about the irreparable environmental damage tar sands projects have caused locally, with its attendant health impacts, and also their global cost: production of a barrel of Canadian tar sands emits on average between 3-5 more carbon than production of a barrel of conventional oil[156]. A useful overview of the manifold risks posed by tar sands developments (for a more detailed discussion see below) identifies 6 main "risk categories"[157]. Several of these categories also appear relevant to Eni's Congo investment, particularly that of *Ecological Blowout*.

4.1 Ecological Blowout

1. ***Greenhouse Gas Emissions*** are three to five times higher than those of conventional oil and gas production.

2. ***Water Depletion and Pollution.*** The average of 2 to 4.5 barrels of water are used to produce one barrel of oil, which is seriously lowering the levels of water sources, namely the Athabasca river, and pollution is alleged to be causing sickness among Aboriginal peoples downstream.

3. ***Boreal Forest Destruction.*** The clearance of enormous areas of boreal forests is having a huge impact on the sequestration of carbon dioxide emissions from greenhouse gases.

4. ***Tailing Ponds.*** Enormous holding tanks the size of lakes have to be set up to hold the waste products from tar sands production. The water contains highly toxic chemical products.

As an analysis of the risks raised by Eni's investment shows (see Section 5.4) most of these threats exist in Congo - with boreal forest replaced by tropical forest - and the risks to local communities and to the environment could be magnified, given the highly sensitive ecology of the permit zone and its downstream area, plus the country's record on environmental and human rights enforcement.

Syncrude Aurora Oil Sands Mine, north of Fort McMurray, Canada. ©Peter Essick 2009 All rights reserved

4.2 Extraction and upgrading[158]

Two main methods are used to extract Alberta's bitumen deposits. Firstly, if the deposits are less than 75m underground (only about 18%), strip or open-cast mining is used. The area is first cleared of trees, then the land is drained to expose the tar sands deposit. The tars sands are loaded onto gigantic trucks that transport them to an extraction plant where heat and water separate the bitumen from the sand[159].

Most of the huge amount of water used to separate the bitumen is untreatable and ends up with other waste materials forming a toxic mix known as "tailings" that is deposited in giant dykes the size of lakes, or "tailings ponds". These are among the largest man-made structures on earth, covering over 130 square kilometres[160], and can be seen from space[161].

According to one expert source, "the toxins are known to leach into the surrounding ecosystem" and it appears there is no lasting disposal solution since "the long-term plan to store the tailings in the bottom of large lakes is untested and risky"[162]. In April 2008, 500 ducks were killed when they landed on a tailings pond, confirming their toxicity[163].

Deeper deposits are recovered using techniques that heat and extract the bitumen "in place" *(in situ)* so it can be pumped to the surface[164]. *In situ* extraction primarily involves drilling several wells, using steam to heat and separate the bitumen and then pumping the bitumen to the surface[165]. The most common techniques used are cyclic steam stimulation and steam assisted gravity drainage (SAGD).

Once the bitumen has been extracted, it has to be converted into synthetic crude or "upgraded". Upgrading plants are huge complexes that take years to construct[166], and there are "a number of methods for [upgrading] – all extremely energy intensive"[167].

4.3 Financial costs of tar sands developments

Tar sands production is significantly more expensive than conventional oil. Research notes that "labour costs are the single largest cost centre"[168]. In Congo, unskilled labour would be considerably cheaper, although the costs of importing materials and engineering would likely be higher. There is also a question mark over what kind of employment and economic benefits such a development would bring to Congo, set against its long-term environmental and social costs.

Oil prices must remain high and costs kept down in order for tar sands production to be profitable. Investment is currently being slowed by the high development costs, magnified by the effects of the recent slump in oil prices and the credit crunch.

In November 2008, Shell withdrew an application for a new tar sands project and postponed the second phase of expansion on its Athabasca project partly because of rising cost[169]: Shell's production costs had risen from $29 per barrel

in 2007 to $38 in 2008[170]. In September 2009, *The Economist* noted that: "13 projects that were on the books a year ago have been delayed or cancelled […] Just a couple of years ago the Canadian Association of Petroleum Producers predicted output would reach 4m barrels a day (b/d) by 2020. Now it says 3.3m b/d by 2025"[171].

Yet even the with oil price slump and credit crunch, tar sands production in Canada is still set to double, mainly through development of existing projects, and is also attracting new investment. Petrochina recently purchased a US$1.7 billion majority interest in two projects[172].

4.4 Impacts on local communities

The impacts of tar sands development have been particularly felt by Canada's First Nations citizens, who live near, or downstream from, the projects. While some have benefited from increased employment opportunities, many people feel that the benefits are outweighed by the environmental and cultural losses. The main concerns of First Nations communities are about the health effects of tar sands developments. Studies have found that Fort Chipewyan, downstream from the Alberta tar sands mines, has a cancer rate 30% higher than expected[173].

Other concerns are centred on impacts on the quality and quantity of water (see below), loss of traditional ways of life and the transparency with which monitoring data is collected and communicated. In Alberta, consultation with stakeholders regarding tar sands development is carried out after lands have been leased and exploration has taken place. There are currently three legal challenges by First Nations groups to counter the lack of adequate consultation and baseline environmental studies around the development of the tar sands in Alberta[174].

One source has categorized the "Social Damage" caused by tar sands development, which affects not just First Nations Albertans, as inadequate public revenues, collapsing social services and undermining of labour practices[175]. This includes fears that the tar sands industry is undermining Canada's energy security, due to its depletion of the country's natural gas reserves, with the implication for future dependency on imports. In surface mining alone, production of one barrel of crude takes "250 cubic feet of natural gas, enough to heat a Canadian home for almost 1.5 days"[176].

In terms of the fiscal benefits, it has been argued that "[t]he current fiscal policy provides the oil industry and its shareholders with an inequitable share of the wealth derived from tar sands exploitation"[177]. According to another source: "Alberta, where carbon emissions are increasing, earns only 47 per cent of net oil revenue, while Norway, where emissions are stabilizing, collects 88 per cent of its share."[178].

Albertan concerns over unfair fiscal regimes and impacts on energy security could also have echoes in the Congolese context. Congo's economic and human development has already suffered from its overwhelming dependence on oil which has only benefited a small elite and which makes the prospect that real benefits will accrue to its people from Eni's new investment unlikely.

To date, there has been no disclosure of the exploration agreements between Eni and the Congolese government, thus Congo's citizens do not know what public revenues may be generated from this investment, how equitable the contractual terms are, and whether these investments represent a wise use of Congo's natural resources.

4.5 Greenhouse Gas Emissions

Tar sands development is "the fastest growing source of greenhouse gas (GHG) emissions in Canada[179]. Current estimates may not be the whole picture, as they do not factor in emissions from the destruction of the boreal forest. Under full development, the annual average release of carbon from land use changes could be 8.7 megatonnes, and reclamation is "unlikely to replace most of the lost biocarbon for thousands of years"[180].

The API (American Petroleum Institute) gravity is a measure of the oil's weight: the lower the API value, the heavier the oil[181]. A study comparing the greenhouse gas emissions intensity associated with the refining of different crude oils found that, in general, heavier crudes with lower API values require more energy to refine and result in greater greenhouse gases emissions[182].

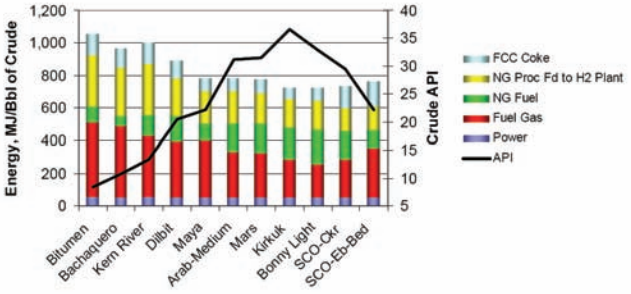


Figure 5-14. Energy used to refine crude, SCO, bitumen, or dilbit[183]. Bitumen (far left) uses most energy.

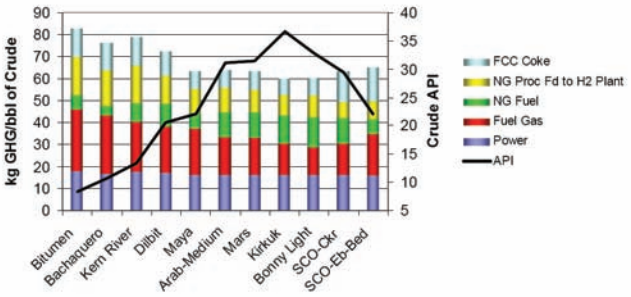


Figure 5-15 GHG emissions from energy sources used to refine crude, SCO, bitumen, or dilbit[184].

In situ tar sands operations are not only more carbon intensive than conventional crude production, but also tar sands mining operations[185]. This is worth noting, given it appears that the likely extraction methods in Congo would be *in situ*. While most *in situ* facilities do not upgrade bitumen on site, the emissions from upgrading should also be considered. Another key difference between mining and *in situ* facilities is the fuel combustion. Unlike tar sands mines, *in situ* operations do not use large diesel burning trucks, however, a very large amount of natural gas is burned to produce steam. This appears to be the likely method that will be used in the Congolese project.

4.6 Water Use and Impacts

Water use is another major environmental concern for tar sands mining and *in situ* operations in Alberta[186], and hence for any Congo development. Firstly, tar sands mines utilize large volumes of fresh water, mostly taken from the Athabasca River[187]. Mining operations alone are licensed to divert 593 million m3 of water each year[188], roughly the annual water needs for a city of 3 million people in Canada. Tar sands mining have a net use of two to four barrels of water per barrel of synthetic crude[189].

What is left after the process of bitumen separation is generally referred to as mature fine tailings (MFT). On average, 1.5 barrels of MFT accumulate for every barrel of bitumen produced, and around 1.8 million cubic metres of tailings are produced per day[190]. These tailings are stored in giant ponds whose waters are acutely toxic to aquatic organisms and mammals[191]. Some tailings ponds are built directly beside the Athabasca River, posing a threat to the river and ecosystems downstream and if one of the tailings pond walls breached, an ecological disaster would occur.

With *in situ* extraction, when the bitumen is pumped to the surface it does not need to go through the same hot-water separation processes as used with mining. Because of this difference, *in situ* tar sands operations are less water intensive than mining operations and do not produce tailings. On average, *in situ* operations use between 0.6 and 0.9 barrels of water (net) to extract[192] and upgrade one barrel of bitumen[193]. However, after processing and recycling, there is residual contaminated water that is often re-injected deep underground[194], with a risk that waste fluids will flow underground and contaminate other ground water sources.

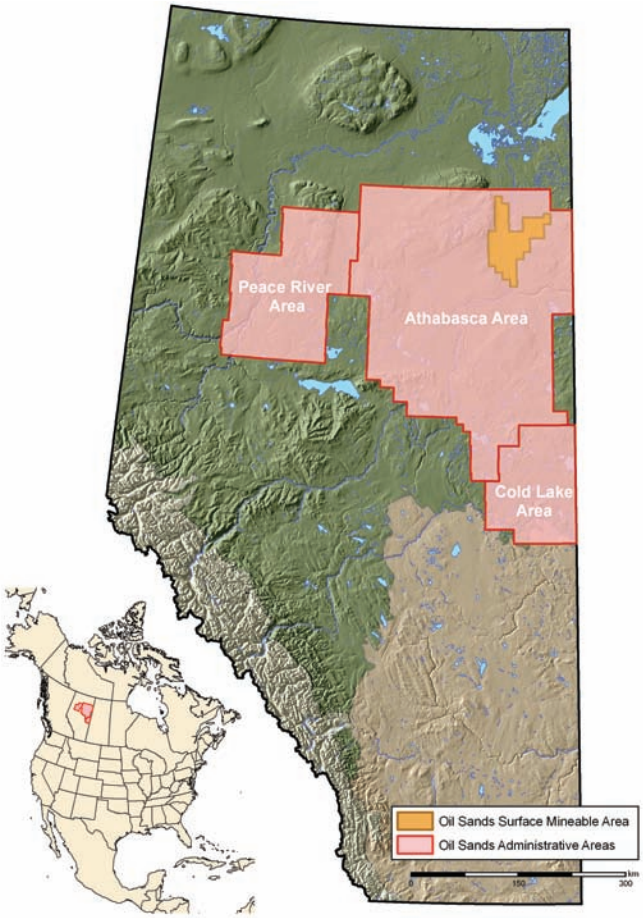
Another concern with thermal *in situ* operations is the potential impacts to the surrounding ground water systems. Where high-pressure steam is injected underground, underground temperatures are significantly higher than usual, forming a 'thermal plume' that can slowly cause minerals to migrate over time. Naturally occurring minerals, such as arsenic, become highly concentrated and through migration, can contaminate ground water systems[195].

4.7 Air Pollution

The tar sands industry is a major source of air pollution. Of particular concern is the release of nitrogen oxides (NOX), sulphur oxides (SOX), and volatile organic compounds (VOCs). These emissions are pollutants that are known to affect human health, for instance respiratory illness, and to contribute to air quality problems such as smog and acid rain[196]. Other air emissions including hydrogen sulphide, carbon monoxide, polycyclic aromatic hydrocarbons, and particulate matter may also be of concern, especially those released through the upgrading processes[197].

4.8 Land Impacts

Impacts to the land from tar sands mining operations are intensive. Furthermore, tar sands operations tend to be ongoing over decades, so the mines are likely to grow with time. In Alberta, tar sands mines have been operational and growing since the late 1960s[198]. The result of this development is an area of land disturbance of over 600 km2 to date[199], which is expected to grow.



Location of Alberta's bituminous sands. Source: Global Forest Watch Canada

Land use and impacts from *in situ* resource recovery are different as it does not involve the complete clearing of an area of land or the digging of an open pit. However, while less destructive than open pit mining, *in situ* operations are significantly more damaging than conventional oil extraction methods[200]. *In situ* land use takes the form of a network of linear disturbances from seismic lines, pipelines, power lines, roads, and well pads[201].

So while the land use impacts for *in situ* projects may be less intensive than tar sands mining on a project-specific basis, the *in situ* impacts will take place over a much larger region (roughly 30 times as large as the mineable resource area). Furthermore, a recent life-cycle assessment study suggests that if land use impacts from upstream processes are considered, *in situ* operations may have a larger impact than tar sands mining[202]. Again, this is significant given the high probability that Eni would employ *in situ* extraction methods in Congo.

4.9 Reclamation after mining

Reclaiming land disturbed by surface mining is a challenging task. Tar sands mines have disturbed over 600 km2 of land in Alberta, but only 1.04 km2 (104 hectares) have been certified by the government as reclaimed[203]. Much of the landscape is comprised of wetlands and peatlands that perform important ecological functions including the reduction of flooding and erosion, recharging water tables, as well as acting as carbon sinks[204]. Surface mining leaves no remnants of wetlands to recover, and the reclamation of peatlands (fens or bogs) in the Athabasca Boreal region has never been commercially demonstrated[205]. Furthermore, in 40 years of tar sands operations, no tailings lakes and no areas of solidified tailings have been fully reclaimed[206].

5 Eni's New Investments: Tar sands in Congo

Tar sands sampling, Dionga, Congo. ©Elena Gerebizza

"The results [of remote sensing and mapping] show that tropical forest and other very sensitive environments of the biosphere (e.g. marshlands) represent about 50% to 70% of the [tar sands] permits."
Eni S.p.A. Exploration and Production Division, March 2009[207].

"Our tar sands are not in a tropical forest otherwise we wouldn't do it. We discovered tar sands in an area which is essentially savannah, in which we could remove the oil from the sands, restore the ground as it is, replant savannah and the environment will be better than before."
Paolo Scaroni, CEO of Eni, July 2009[208].

There is little public information about the tar sands development. Eni estimates the deposits at 500 million barrels of bitumen risked and up to 2.5 billion barrels unrisked. "Risked" refers to volumes of hydrocarbon resources that are not yet discovered but are expected to be eventually recovered from the reservoir[209]. "Unrisked" resources are in-place resources, of which there is no certainty that any portion will be discovered and which may not be economically viable or technically feasible to produce[210]. The size of the recoverable Congo Basin tar sands resource is thus as yet unknown[211].

Before considering the project's potential environmental and social costs, it is worth asking whether Eni's claims about the low financial cost of its investment - one of its main drivers - still hold, despite the current financial crisis and lower oil price. In 2008, Eni's Claudio Descalzi estimated the capital and expenditure costs (capex) for the Congo project to be "between $24 and $27 per barrel"[212]. Eni head office recently cautioned that the Descalzi figures were "notional"[213]. In a recent TV interview, Eni's CEO, Paolo Scaroni appeared to row back from the project on cost grounds, stating that "with today's oil prices", Eni was not moving ahead[214]. Despite this reticence to affirm the project's future, the company still has another two years remaining on its exploration permit and at end September 2009, Eni was still continuing its exploration of the development potential of the zone.

5.1 Potential environmental and social impacts of tar sands in Congo

Field research carried out in Spring 2009 estimated the proposed permit zone included around 50% tropical forest plus agricultural land, although its exact footprint was unknown at the time[215]. Eni has stated publicly that it will attempt to "minimise the environmental impact and study the appropriate conservation and restoration techniques" of its tar sands development[216]. In response to a shareholder, Eni stated in July 2009 that "[a]n ESIA for […] the Tchikatanga permit has been completed and approved during the year 2008. In addition to that, more detailed social and environmental studies have been conducted on two sub-regions: Col du Lac Kitina in the Tchikatanga permit and Dionga in the Tchikatanga-Makola permit"[217].

On the crucial question of land use and biodiversity impacts, Eni stressed that none of its investment activities would take place in areas of rain forest and that "these areas, at the end of the activities, will be object of forestation"[218]. The reference to (re-)forestation of areas that are not forested is somewhat paradoxical. It should also be noted that no successful examples of re-forestation after tar sands developments exist in Canada (see Section 4.9).

The company has reiterated that the tar sands project will conform to its corporate guidelines, namely: no destruction of primary forest; no occupation of existing farmland; no destruction or impact on areas of high biodiversity; and no direct or indirect resettlement of people[219]. If the development is to avoid areas of high biodiversity (primary forest) and of human activity (all cultivated areas), it can only take place on areas of open savannah (grasslands). This was confirmed by Eni's CEO, Paolo Scaroni in July 2009:

"Our tar sands are in an area where there is savannah, no tropical forest [….] otherwise we wouldn't do it. We discovered tar sands in an area which is essentially savannah, in which we could remove the oil from the sands, restore the ground as it is, replant savannah and the environment will be better than before".[220]

Scaroni refused any comparison with Canadian tar sands developments, explaining that the Congolese project would involve no water pollution or toxic tailing ponds. The project will inject gas into the deposit to liquefy the oil which will be upgraded outside Congo although "one day [there] will be

the refinery in Congo"[221]. This suggests that the extraction method used may be similar to *in situ* projects in Canada. However, Eni has reiterated on several occasions that the reference point for its Congo project is not Canada. When asked how it would manage the devastating environmental impacts of tar sands production as currently evidenced in Alberta, the company replied: "A great effort is put in place to identify and develop innovative techniques; Canada's tar sands technologies are not taken as a reference for the planned activity"[222].

Such statements not appear cognizant of the findings of Eni's own Exploration and Production Division. These are summarized in a progress report dated 31 March 2009, and circulated to Eni Congo Directors and also to senior management in Milan (Senior Vice Presidents responsible for the sub-Saharan African region, for Development Projects and Technology and for Exploration and Petroleum Engineering)[223]. Eni's findings, reviewed for this report, show that concerns over the potential for this project to cause irreversible environmental and social damage are fully justified.

5.2 Eni's assessment of the permit zone's ecology

Eni defines one of the goals of its current exploration activities as being to "determine the viability of an opencast mining project which by using in situ techniques aims to transform the bitumen into synthetic oil"[224]. 14 wells for seismic have been drilled near Lake Kitina, plus 30 shallow stratigraphic wells at Dionga to collect bitumen for testing at "the Bolgiano small pilot EST factory". An "extensive sampling campaign across the whole areas of the permits" was about to begin in July 2009[225]. According to Eni's geological and geophysical studies: "the presence of tar sands is demonstrated across most of the [Lake Kitina] zone (around 70 km2)" and in the Dionga plateau "the presence of several partially described tars sands outcrops has been confirmed [along with] 3 previously unknown outcrops"[226].

The report also reveals that Eni has "committed to defining and making available a part of the exploration zone for the needs of bitumen for road building". The requirements for 200 km/per year of road surfacing over 5 years are estimated at 56,000 m3/per year of tar sands[227]. This aspect of Eni's agreement with Congo has not been publicized internationally, nor was it mentioned in Eni's response to its shareholder, but it explains why more detailed ESIAs have been carried out on the Lake Kitina and Dionga areas, as potential quarry sites (see below). Bitumen production has been alluded to in the Congolese press[228] and road building to improve the country's basic infrastructure provision was mentioned in President Sassou's recent electoral programme.[229]

It was also reported in February 2008 that Congo had concluded an agreemet with the Rawabi Holding Company, for a €635 million investment in the state refinery, which would also include Congo spending "19.5 billion Francs CFA (30 million euros) on the creation of a bitumen production plant"[230]. The current status and full details of this agreement are not known. This may explain why it is the Ministry of Mines taking the lead in the tar sands development, rather than the Ministry of Hydrocarbons; "as part of the mission of the department of mines, that is promotion of the solid minerals sector."[231]

There is no public information on how the road surfacing project will be financed and managed – as with the financing of the overall tar sands development. Eni reports a budget line for feasibility studies for the quarry project of US$780,000 (2008-9), which does not include "possible operational phases"[232]. This project would not be affected by oil price variability and could be implemented independently of whether the project involves synthetic crude production. However, the commercial motivation for Eni's financing of such a project without oil development is unclear.

A map of the permit zone in Eni's report has been reconstructed (see pp. 20-21) in order to identify, as far as possible, the presence of human settlements, water sources and areas of environmental sensitivity within the zone. The results support the findings of preliminary field research, which raised concerns that the license area was high-risk[233]. The zone contains important hydraulic networks, including the Kouilou river. According to BirdLife International, the Kouilou basin is designated an important bird area (IBA) on three counts, including containing a species that is "Critically Endangered, Endangered or Vulnerable"[234]. The 900 km^2 marsh of the Kouilou basin includes "15 km^2 of Rhizophora mangrove, 20 km^2 of lakes, 65 km^2 of papyrus (pure or mixed with low shrubs), 30 km? of wet Jardinea grassland, c.170 km? of flooded thickets and c.600 km^2 of permanently or seasonally flooded forest". In addition, its coastal area has "dry evergreen Symphonia forest (in gorges), giving way to a forest-savanna mosaic further inland with c.100 km^2 of dry Andropogon grassland. Semi-evergreen rainforest, from this mosaic to the foothills of the Mayombe, covers c.500 km^2"[235].

In October 1998, Congo signed up to the Ramsar Convention on Wetlands. Countries that are parties to this intergovernmental convention commit to designating suitable wetlands for the List of Wetlands of International Importance ("Ramsar List") and ensuring their wise use. In December 2007, Congo designated four new wetlands, including two in the Kouilou Basin area: *Conkouati-Douli and Cayo-Loufoualeba*[236]. According to a progress report submitted in 2008 by the Government, ten years after signing the Convention, there is to date no comprehensive evaluation of Congo's wetlands and their species and no information on the state and tendencies of the ecological characteristics of its wetlands[237]. A national policy to manage wetlands is "in preparation" but its finalisation depends on the assessment of sites, which does not yet exist[238]. Most significantly, no studies to assess the negative environmental impact on wetlands of any developments had been carried out[239].

The tar sands permit zone is also around 20km distant from the Conkouati-Douli National Park, to the West, while its South Eastern corner overlaps part of the Dimonika UN biosphere. Conkouati-Douli is a protected area described by the government as "the most ecologically diverse habitat in Congo" and "home to an extraordinarily diverse range of fauna, with marine species such as manatees, turtles, dolphins and whales, and many terrestrial threatened species, such as forest elephants, gorillas, chimpanzees, mandrills and forest buffalo"[240]. There is also a "significant human population […] many of whom rely on these natural resources for their livelihoods"[241]. Finally, "a rich and productive system of estuaries and lagoons, as well as the ocean, supports an important trade in fish and shrimp" and the coastline is "particularly important for nesting turtles"[242].

Dimonika is not a protected national park but it is a Unesco Biosphere. According to the UN: "A lowland guineo-congolese rainforest dominates the biosphere reserve together with savanna vegetation [….] Of special scientific interest are various types of forest communities recolonising old areas of forest exploitation. The fauna within the biosphere reserve is diverse and varied[243].

5.3 Tar sands exploration zone

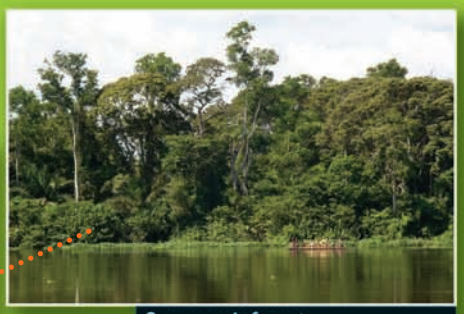
© Endangered Species International

Conakouati-Douli National Park is "the most ecologically diverse habitat in Congo" and home to many threatened species such as chimpanzees and gorillas. © Kim Gjerstad / Greenpeace

The coastline near the Conakouati-Douli National Park is important for nesting turtles, including the critically endangered Leatherbacks and endangered Olive Ridleys Leatherback turtle. © Dr Matthew Witt, University of Exeter.

Pointe Noire. © Chris Walker

Great Egret. The Kouilou basin is designated an important bird area
© Greenpeace / Michael Amendolia



Congo rainforest
©Greenpeace/ Filip Verbelen

Villagers living in the vicinity of M'Boundi © Chris Walker

Bitumen found near the surface, near MBoukou, Dionga, Congo
© Elena Gerebizza

Flaring at Eni's M'Boundi field.
© Chris Walker

In fact, the high ecological sensitivity of the whole exploration zone is clearly recognized in Eni's progress report. Remote sensing and mapping show that "*tropical forest and other very sensitive environments of the biosphere (e.g. marshlands) represent about 50% to 70% of the permits*" [244]. Feasibility studies on potential quarry sites in the Lake Kitina area have also raised "environmental issues concerning extractive activity in [this] covered forest zone"[245]. Because it is "less environmentally sensitive", Eni chose the area of Dionga, around 20 km South East, for its quarry feasibility study[246]. If the Lake Kitina area is deemed unsuitable for studies related to quarrying for bitumen due to its ecological sensitivity, why do Eni and the Congolese authorities consider this area suitable for tar sands development?

While it is difficult to determine the precise level of environmental impacts to be expected from such a development, given that the technical details of how Eni will extract the Congo Basin resource appear as yet undetermined, even without access to the full geophysical and geological data on the zone, it is possible to frame pertinent questions about the potential environmental risks posed by a project of this size and characteristics (see Section 5.4). Albertan tar sands projects are the only logical reference point for such an exercise – as indeed they are for Eni's activities. Despite the company's public protestations, its progress report refers on numerous occasions to the extraction and production methodology used in the Athabascan tar sands developments. Eni has commissioned a specific study, *Characterization of tar sands and progress report of bitumen extraction* from the Alberta Research Council[247], and is using literature dealing with Canadian tar sands to determine possible production technologies for resources in the 100–200 m range[248].

The devastating consequences of failing to consider adequately the environmental risks of tar sands development in Alberta have been comprehensively and graphically documented[249]. Development of Canadian tar sands has been characterized by a lack of environmental planning and oversight by both state and corporate actors[250]. If this can occur in one of the most highly regulated countries in the world, then what will happen in a country lacking in the most basic environmental governance, and in an area whose ecological sensitivity is recognized by both the corporate investor and the government with responsibility to protect it? All of these factors raise glaring "red flags" about the potential risks of this investment.

5.4 Congo tar sands – risk profile

Using the information contained in Eni's report, plus data from existing Canadian tar sands developments, the following risks can already be identified in relation to Eni's project, even taking into account the significant difference between the local environment surrounding the proposed project in the Congo Basin and the environment where tar sands are extracted in Canada (the boreal forest).

5.4.1 Extraction from Lake Kitina

It is not yet known if this will be a mining or an *in situ* project, or a combination of both[251]. The resource from the outcrops at the Lake Kitina site has an average bitumen weight of 15%, with a much higher viscosity and higher asphaltene concentration than the Alberta oil sands (35.9% asphaltene concentration in the Congo versus average of 18% in Alberta bitumen)[252].

The extraction process will therefore probably need to be mainly done *in situ* with solvents, as the high viscosity will make it difficult to use water methods (as per the Alberta oil sands)[253]. It is worth noting the water, energy and land impacts associated with *in situ* production in Canada (as discussed in Section 4).

There are several solvent extraction technologies that are being trialled, but none is yet being used commercially. Firstly, VAPEX (VAPour EXtraction), the most developed solvent technology. This is virtually free of water use[254] and there are currently two pilot projects operating in the Alberta oil sands[255]. VAPEX technologies may have significantly reduced greenhouse gas emissions in comparison with current *in situ* techniques[256]. However, the VAPEX technology has not been perfected and suffers from some serious flaws. In particular, the solvent injected into the well is often lost to the reservoir and not recovered, reducing the commercial viability of the technology.

A second technology, N-Solv, is a heated solvent vapour technology that does not require any water use and also anticipates lower greenhouse gas emissions and increased recovery rates[257]. There are no projects currently using this technique, although a first pilot program is under development in Canada[258]. Finally, *expanding solvent recovery* is a technique that combines steam injection with the use of a solvent[259]. It does require some water use, but simulations predict that water consumption rates could roughly 50% of that of current *in situ* operations[260]. However, while the expected performances of these three technologies appear to match the specifications of Eni's application, none of these methods have been proven at a commercial scale. This makes it difficult to determine if the technologies will perform as expected.

5.4.2 Extraction from Dionga

The Dionga resource has 7–13.5% bitumen content and a much lower viscosity (more similar to the Alberta oil sands deposit) and therefore there is a higher probability that *in situ* water extraction methods could be used on this resource. Eni has stated that they will not use fresh water in their tar sands operations, only "treated water"[261].

It is unclear what this means (what source this water is coming from and what it is being treated for). The water source, type of treatment it undergoes and recycle rates are all data that are essential to determine the environmental impacts associated with water use. It is possible that "water extraction method" refers to the mining process in which water is used to extract or wash the bitumen from the sand. More likely, however, it is referring to a water-based *in situ* technique, such as cyclic steam stimulation or steam assisted gravity drainage (SAGD). If this is the case, it is likely that the Dionga operation will bear many similarities to the Alberta *in situ* operations, with their attendant risks.

5.4.3 Upgrading

Eni states that they are not using technologies employed in the Canadian oil sands as a reference for their planned activity in Congo and, in particular, are assessing the use of Eni Slurry Technology (EST) for oil sands transformation into more economic products, in a refinery in Pointe Noire that would be fuelled by gas from the M'Boundi field. This technology has not yet been proven on a commercial scale, as it is currently in a demonstration phase[262]. According to the company website, EST is a highly innovative technology that is able to convert bitumen into high quality light products without the production of refinery residues (such as coke)[263].

This is accomplished primarily by a technique called "hydrocracking" which uses a molybdenum-based chemical as a catalyst to break down the long hydrocarbon molecules. This process also promotes an upgrading of the fuel mixture (the removal of additional sulphur, nitrogen and carbon elements)[264]. The project information also suggests that the EST has lower environmental impacts than thermal cracking technologies used in Alberta oil sands operations[265].

However, EST is not currently being used in oil sands applications in Alberta. EST was first tested in a pilot experimental state in 2001 and a demonstration plant has been operating in Italy (Taranto refinery) since 2005. To date, no full-scale industrial plant has been tested with this technology[266]. Without having a commercial-scale facility or this technology having been applied by the tar sands industry, it is impossible to know if it will meet all of the performance expectations that Eni has indicated.

5.4.4 Energy Use

In terms of the projected energy required to operate its oil sands development, whether mining or *in situ*, Eni simply states that it will make use of the "associated gas" from M'Boundi. Regardless of the type of project, oil sands operations are highly energy intensive with a high demand for natural gas, electricity and, in the case of mining projects, diesel fuel for large haulers. The energy demands and types of fuel used to meet them can have a very dramatic impact on the pollution and greenhouse gas emissions rates. This is crucial information when attempting to assess the environmental impacts of a project.

It also means the project could have implications for Congo's energy security, a concern raised in relation to the Canadian tar sands industry. There has been no national or local discussion with citizens on whether this project would represent a wise use of the country's gas resources, namely gas from M'Boundi or from Eni's other oil blocks (Marine XII).

5.4.5 Greenhouse Gas emissions

The project information suggests that the resources are all very heavy oils. The American Petroleum Index (API) gravity is stated as being 4.7 for the Kitina resource, 5.8 for the Dionga A site, and 10.9 for the Dionga B site[267]. According to research, crude from Alberta's Athabasca oil sands region has an API of 8.4[268]. In general, the lower the API, the more energy required to produce transport fuels, which produces more greenhouse gas emissions and other air pollutants. Loss of forested ecosystems, such as the rainforest in the Congo, will also have an effect on carbon sequestration in the area and should be assessed.

5.4.6 Questions Eni should answer

Mining Technology Type:

- What type of extraction method does Eni plan on using?

Energy use:

- What energy demands does Eni anticipate for its chosen extraction method?
- What types of fuel will be used in the extraction and upgrading processes?

Water use:

- Eni says it will use "only treated waters". Where does Eni plan to source its water from? Will it use groundwater sources?
- What type of water treatment technology is Eni planning to use for its *in situ* operations?
- Will there be any waste products? What kind? How will they be disposed of?

Bitumen Processing Technology:

- The Clark Hot Water Processing technology is the only commercial bitumen processing technology used at mine sites in Alberta. How does Eni plan to separate the bitumen from other materials collected during the mining process?

Tailings:

- What volume of tailings will be produced for every m^3 of bitumen produced?
- How will the tailings be stored? For how long?
- What is the chemical composition of the tailings? What techniques will be used to prevent seepage of tailings into the natural environment?
- What is the Eni reclamation strategy? How will the tailings be incorporated into a reclaimed landscape?

ESIA process

- Given the environmental concerns, will the results of all the baseline studies, ESIAs and all studies of geophysical data for the zone[269] be disclosed publicly?
- What is the timetable for start-up of the bitumen quarrying for road surfacing project?
- Will the ESIAs for both bitumen extraction for oil and for road surfacing involve consultation with potentially affected communities and other stakeholders or will there only be a public hearing once the ESIAs are finalized?

Aerial view of linear disturbance caused by in situ tar sands development. Source: The Pembina Institute

6 Eni's New Investments: Palm Oil for Food and Agro-fuels

Oil palm plantation on cleared rainforest, Kalimantan, Indonesia © Greenpeace/Markus Mauthe

There is even less information available on the oil palm investment than on the tar sands development, including on its exact location. 70,000 hectares is a huge area, equivalent to much of greater Milan. Eni stated in May 2008 that it would be located "in the Niari region in the North West"[270], but the Niari is in the South of Congo. This may be an error, or it could be that Eni is thinking of rehabilitating old oil palm plantations in the Sangha and Cuvette regions, which are in the North West.

Eni stresses the project is being led by the Congolese Ministry of Agriculture and will be implemented by a Consortium formed by the Ministry and international organizations "such as FAO, IFAD, BAI, WB, UE", with Eni having an option on a 10% stake[271]. It is not clear which international organizations have already been approached regarding this project.

Eni's current role, with a budget of US$2 million, is to provide technical assistance and support for the set up of the Consortium and for feasibility studies. A mixed team from Eni and the Ministry of Agriculture is defining the selection criteria for pilot areas based on documents drawn up by the International Petroleum Industry Environmental Conservation Association (IPIECA), the Round table on Sustainable Biofuels (RSB) and by the Round table on Sustainable Palm Oil (RSPO), Eni documents and Congo's agricultural, social and industrial policies[272].

The question of "sustainability" criteria for agro-fuels plantations, especially the specific standards promulgated by the RSPO, is discussed below.

According to Eni's environmental and human rights standards, it will again have to locate the palm oil project on grassland or savannah areas and/or old plantations and also avoid areas of high biodiversity in secondary or logged forests. It must also ensure no conversion of land on which local communities rely, even if they are not resettled. Eni claims that the project "will employ approximately 10,000 people"[273]. This labour requirement means that the plantation areas will have to be accessible to existing settlements.

When asked if there were individuals, communities or protected species living within the boundaries of the plantation site, Eni stated solely that the project "aims to be a driver of local development"[274]. However, the company reiterated that areas located in primary forest, cultivated areas, and areas of high biodiversity "have been excluded a priori from the identification of the macro areas"[275]. It further stated that: "surface water will be used (collection of rain water, rivers, basins) in respect of water needs of the environment"[276]. This does not answer the question of the water requirements of a plantation of this size.

Working within all these constraints within Congo, let alone the Niari region, will not be simple or easy. According to research, most of the region is already assigned in forestry concessions or is permanent forest. There is also subsistence farming and an indigenous population[277]. Sources with knowledge of the forestry sector said they were unaware of the project's existence[278]. One source stated that the project might involve an attempted rehabilitation of former oil palm plantations in the areas of Lekoumou, Cuvette and Sangha,

and raised the risk of destruction of bio-diversity, and of rural exodus and abandonment of farming activities in other areas by people moving to the plantation area in search of work[279].

The difficulty of locating the plantation may explain why, in April 2009, representatives of Eni Congo stressed the preliminary nature of the development[280]. The point was reiterated by Eni in July 2009, who stated "the definitive size and place of production have to be defined yet"[281]. It is not known who has the primary responsibility for identifying the site(s) for development, Eni or the Congolese Ministry of Agriculture. In addition, it remains unclear whether the primary aim of the palm oil project is production of a food or fuel crop and whether any bio-diesel produced would be for domestic use or export.

Eni's views expressed in written communications and interviews with company representatives are unclear on this point. In May 2008, Eni stated that "250,000 tonnes of bio-diesel" would be produced, with construction of a bio-refinery[282]. Eni staff interviewed in Congo in March 2009 stated that the objective was production of palm oil for the country's food needs, with the company guaranteeing to buy any surplus oil as a fuel crop simply as an incentive to the government[283]. In July 2009, Eni again downplayed the agro-fuels element and emphasized food production, stating that only "excess production of palm oil, if any, will be used for industrial purposes, *if technical [sic] and economic[sic] viable* [emphasis added]"[284]. On the question of location of a bio-refinery, Eni stated such talk was "premature"[285].

In a TV interview, Eni's CEO rejected any suggestion of a major agro-fuels project in Congo: " Not major bio-fuel, it's a project to produce palm oil, then it will be part of the decision of the Government of Congo to use it either for food or for export or, as their decision, for bio-fuel"[286]. If industrial-scale agro-fuels are only a theoretical possibility, it is unclear what commercial interest Eni, as an energy company, has in this project.

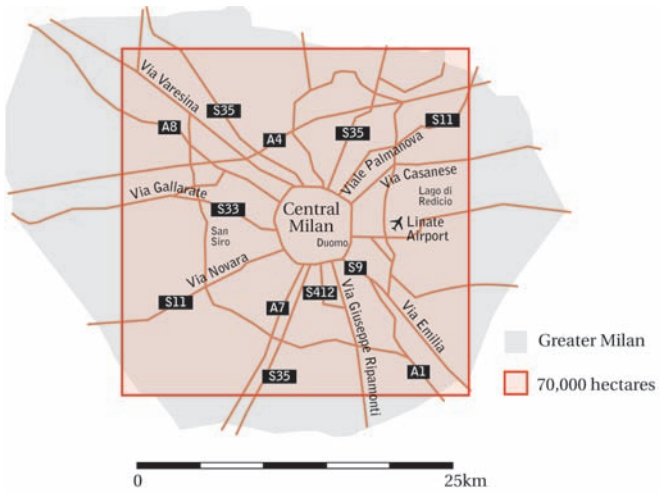
Eni claims its facilitation of the Congolese government's plans to produce palm oil for food is "part of Eni's social responsibility strategy". However, Eni's suitability as a development partner is called into question by this project, if its intention or outcome is the promotion of monoculture oil palm cultivation – whether for agro-fuels or food - in such an ecologically sensitive region as the Congo Basin. Monoculture oil palm projects have been roundly criticized due to their damaging environmental and social impacts (see Section 2).

Reference to the voluntary standards of bodies such as the RSPO are no guarantee of sustainability. The RSPO is a private sector initiative set up in 2004, in response to public concern about oil-palm cultivation, which aims at establishing credible global standards for the production of sustainable palm oil[287]. It has evolved criteria based on environmental and human rights protection, along with labour standards and respect for land rights, for use in certifying the operations of member companies (the criteria apply only to those operations certified, not to the company's overall operations)[288].

However, many NGOs believe that the RSPO criteria, firstly, do not go far enough and, secondly, are not being adequately enforced[289]. According to Greenpeace, the RSPO standards "will not prevent forest and peatland destruction, and a number of RSPO members are taking no steps to avoid the worst practices of the palm oil industry"[290]. A 2008 investigation into the granting of the first RSPO sustainability certificate to United Plantations in Malaysia concluded that: "deforestation, deep peat conversion, land disputes and illegal practices continue to occur in the plantation estates owned by a company that is RSPO certified for part of its operations"[291]. Other research into how European agro-fuel targets are fuelling "excessive expansion" of the oil palm industry in West Kalimantan (Indonesia) found that 43% of new oil palm plantation permits granted on 1.4 million hectares of land belonged to RSPO members while "not a single hectare of oil palm plantation" had been certified as meeting the RSPO standards[292].

The Congolese Ministry of Agriculture bears an equal responsibility for promotion of the oil palm project. It has disclosed no public information about its plans, nor details of any baseline studies. Concerns are not allayed by news reports that in July 2008 the Minister of Agriculture signed a draft agreement with another Italian company called Fri-El Green Power SpA[293]. Under the agreement, Congo will award 40,000 hectares of land for oil palm cultivation for agro-fuels[294]. The Italian company is reported as having "taken over the assets of the former [state-owned oil-palm production plant] Sangha Palm and the National Authority of Palm grove of Congo (RNPC), [...] in the district of Cuvette (north)[295]". The company's website states that in 2006 it began construction of "a thermoelectric power station that will be fuelled by vegetable oil". The plant, located in Acerra, Italy (Naples), "is expected to begin production by the first half of 2008 with an installed capacity of 74.8 MW"[296].

The current status of the Fri-Green agreement is unclear. Given its stated commitments to protecting bio-diversity in the Congo Basin, the Congolese authorities should disclose full details of any agreement(s) signed with Eni or other agro-fuel companies, including details on the location(s) being considered for the plantation. They should also disclose their plans to ensure proper consideration of the potential environmental and human rights impacts of any oil palm project(s), including meaningful consultation with affected communities. As with the tar sands development, if Eni and the Congolese authorities cannot demonstrate a convincing risk management approach, then given the damage to biodiversity and livelihoods caused by industrial-scale oil palm cultivation globally, this project should not go ahead.



70,000 hectares would cover a large part of greater Milan.

7 Eni's New Investments: Turning flared gas into electricity

None of the terms of the new investment deal Eni has signed with Congo are in the public domain: Eni states that the agreements "have been signed by the relevant/competent Ministers"[297]. Research in Congo was unable to find any MPs with full cognizance of their terms or details of any parliamentary debate on the agreements[298]. Their full terms are unknown to Congo's citizens, along with their potential environmental and social impacts.

Eni's new electricity plant at Djeno, near Pointe-Noire is the most advanced aspect of its new investments, due for start-up in July 2010. A new gas pipeline from M'Boundi to Djeno was completed in April 2009[299]. Eni has also doubled capacity of the existing plant at Djeno (to 50MW), which is supplied by 400,000 m3 of gas from M'Boundi daily[300]. So far, the company has spend US$ 490 million[301]. There is no public information on the terms under which Eni has financed these works and how it will recover its investment.

The new plant is to be managed by a joint venture company, the Centrale Eléctrique du Congo (CEC), in which Congo holds an 80% share in CEC, and Eni 20%[302]. It is unclear why a new company has been set up to manage the power plant. Concerns have been raised about how the governance of this structure will function and about its precise financing arrangements. The power station is an IPP ("independent power producer"), where the state has given a private entity (Eni) a concession to develop a power project. This usually means very minimal public capacity to regulate and license production and distribution, even if such oversight capacity existed. This arrangement involves "power purchase agreement(s)" or "PPAs" to sell the power either to the government utility, or major industrial users, or both, which can involve affordability issues and costs to the state.

The existing electricity plant at Djeno, also financed by Eni and Chevron, is run by a company called Société Congolaise de Production d'Electricité (SCPE). This appears to be a parastatal that furnishes electricity to the national electricity company (SNE) but is also open to private investment[303]. More significantly, when Eni obtained its majority stake in the M'Boundi field, it signed an "*Accord Particulier M'Boundi* (private agreement) that grants the company ownership of the associated gas"[304]. If the associated gas from M'Boundi now belongs to Eni, what are the fiscal implications of this arrangement? On what terms is the gas being supplied to the existing energy plant run by SCPE and on what terms will it be supplied to the CEC?

Eni has clearly stated that the financial attractiveness of tar sands development in Congo is based on synergies with its M'Boundi production, especially the fact that Eni will have "free" energy. Eni's Chief Operating Officer commented in late 2008 that Congo was selected "instead of Canada" because the breakeven and long-term cost margin was "between $40 and $50 per barrel" and because of operational "synergies" with M'Boundi, including the fact that "we don't pay [for] gas" and there is also "water availability"[305].

Eni's explicit linkage of the electricity plant project – and thus its potential CDM emissions reduction project - to the tar sands development is problematic. Any suggestion that potential emissions from tar sands production could be offset by the reduction in emissions from gas flaring is highly contentious, especially given the uncertainties over the extraction and upgrading techniques to be used by Eni and over the project's overall energy use. An independent investigation into current emissions from flaring at M'Boundi should also be undertaken.

In response to a question about the financing of the power plant and any associated transmission infrastructure, Eni replied that the CEC and its activities are "currently fully funded by its shareholders"[306]. This leaves unanswered the question of what funds, if any, were provided by the Congolese government as 80% shareholder of the CEC, their origin and the fiscal impacts of any associated financing arrangement. These questions are important given that, under the terms of its debt relief agreement, Congo has committed not to contract any loans backed by its future oil revenues (oil-backed loans) that cannot be paid off within one year, nor any loans on non-concessional terms. It is to be hoped that the World Bank, IMF and donor countries have full cognizance of the CEC project's governance and financing structure, but it would be more reassuring to Congo's citizens if this information were in the public domain.

In March 2009, Eni signed an agreement with MagIndustries to provide gas from M'Boundi for electricity generation at its potash project near Pointe-Noire, with a start-up date of late 2011 or early 2012[307]. Eni will support all the requirements of the plant[308]. MagPotasses and Eni are now working on constructing a gas pipeline "within the same corridor as EniCongo's other pipeline installations"[309]. The new power plant under construction at Djeno will use "approximately 2,000,000" cm of gas produced at M'Boundi, the Mag Potash Plant 600-800,000 m3/d from 2011 onwards. A further 70,000 m3 will be "used for field operations" and the rest will be re-injected[310]. The plant will also ensure "over 80% of the country's requirements", providing the country with "a dependable source of electricity, reducing its dependence on imports and consumption of its own oil products for power"[311]. The Congolese Minister of Energy and Hydrology stated in May 2009 that the country's requirements are estimated at 600MW, with a current capacity of 150MW[312] - which would mean Congo requires around 450MW additional capacity.

This development could spell good news for the approximately 75% of the population who currently have no secure electricity access. The country "is very poorly supplied with electrical energy", with power plants that either do not function or function "sporadically[313]. Overall, "a deficient and very old grid" and a "low level of electrification in the countryside" are fundamental impediments to ensuring an adequate energy supply to Congo's citizens[314]. Other problems include poor performance of the public operator (SNE) and insufficient use of renewable energies[315]. Local sources also highlighted the lack of grid coverage, stating that there is no low voltage transmission in place in rural areas, while only parts of the main cities (Pointe Noire and Brazzaville) are covered[316]. For these very reasons, it is unclear to what extent the electricity produced by the CEC will improve the lives of individual consumers in Congo, as well as benefiting industrial customers such as Magpotasses.

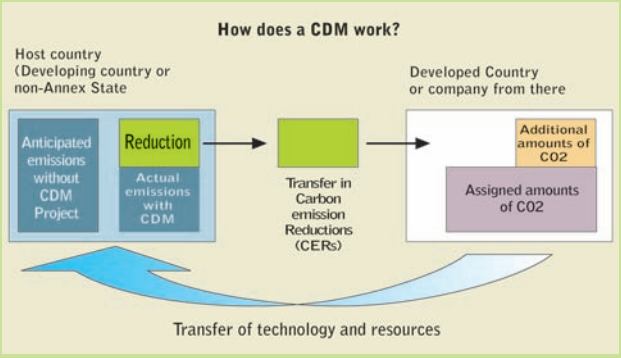
In response to these concerns, Eni replied that "the necessary Power Purchase Agreements would be finalized by

2009"[317], and that it is "rehabilitating the High Tension Line from Pointe-Noire to Brazzaville and the substations along the route [and] cooperating with Congo in building two new substations in the Pointe-Noire and M'Boundi area"[318]. Although the reference to new sub-stations is encouraging, this does not mean the new infrastructure will improve electricity access, particularly in rural areas. Eni stressed rightly that "an Oil Company cannot interfere with the Government power distribution plan"[319]. The Congolese authorities have published no plans in relation to provision of electricity by the CEC to consumers.

If the new electricity plant investment will stop flaring, it should be welcomed, but the benefits it will bring to Congo's energy-deprived citizens, communities and local businesses, still need to be demonstrated. Equally, the project should be urgently de-linked from the potentially environmentally and socially damaging tar sands project.

7.1 The Clean Development Mechanism

The Clean Development Mechanism (CDM) is a market-based mechanism set up through the UN Framework Convention on Climate Change (UNFCCC) to assist the implementation of the Kyoto Protocol. CDM channels investments from industrialised countries to activities that reduce or avoid greenhouse gas (GHG) emissions in developing countries. Its main promoter is the World Bank, a major broker of carbon credits through funds valued at over US$2 billion[320].



Source: Benecke, G., Friberg, L., Schroeder, M., 2008. ***From PPP to market**: The Clean Development Mechanism as new mode of governance in climate protection.*[321]

The project developers receive so-called certified emission reduction rights (CERs) that count towards their Kyoto obligations and hence industrialised countries or companies can make cost-efficient reductions that are cheaper mitigation options than similar activities at home.

The CDM has a multi-level and multi-stakeholder procedure designed to ensure its integrity[322]. The ultimate authority lies with the Executive Board of the UNFCCC that registers project activities and issues respective revenues. Once a project has been devised, then all people affected by the activity planned must be consulted and host country approval obtained. For this purpose, the host government must establish a designated national authority (DNA). After projects are validated, they are open for global public viewing on the UNFCCC website before being submitted for registration. Project activities are monitored, verified and certified by Designated Operational Entities (DOEs) - private bodies approved by the UNFCCC - to ensure criteria like "additionality" and "sustainable development" are met.

"Additionality" means the CDM project has to be "additional" to any activity to reduce emissions that would take place if it did not exist[323]. It must also contribute to sustainable development, in terms of its economic and environmental impacts, and effect on disadvantaged groups. Whether a project qualifies as sustainable development is determined by the host government[324].

However, the development contribution of the CDM remains unproven, as well as its capacity to contribute to emission reductions. According to one analysis, the World Bank has admitted that progress has been limited, with less than 10% of funds collected through the CDM invested in renewable energy projects[325]. In fact, up to 85% of the Bank's carbon credit portfolio has been directed to the chemical, steel and coal sectors[326].

Stakeholders also stress the high transaction costs flowing from bureaucratic approval procedures that impede developing party participation. Another criticism concerns CDM's governance, which is delegated to the DOEs and has led to corruption and improper procedures[327]. CDM contributions to sustainable development are also questionable, considering the large number of GHG-technology reduction projects with minimal local involvement. There is also an uneven regional distribution with more than two thirds of project activities concentrated in China, India and Brazil[328]. Lastly, CDM's credibility is undermined by doubts about the effectiveness of stakeholder participation. Key to the whole process is the robustness of local and global stakeholder participation and the strength of its governance institutions and instruments. Many civil society commentators argue for a profound revision of CDM in the upcoming UNFCC negotiations in Copenhagen.

7.2 ENI's CDM Project in Congo

It seems uncertain that Eni's electricity plant project would or should qualify for carbon credits. Firstly, the existence of an anti-flaring law puts its additionality in question. Secondly, unless the Congolese government registers a DNA with the UNFCCC to approve the project, ENI cannot apply for CDM status[329]. Thirdly, no meaningful public stakeholder consultation process with local communities has taken place, even though the electricity plant is almost complete. This makes it even more difficult for Eni to apply for credits on the grounds the plant would not have been constructed without the support of the CDM funding.

Finally, the project can be criticised concerning its overall integrity, given the potential negative environmental and development impacts of Eni's related investments. Unfortunately, the CDM currently disregards wider impacts beyond the concrete CDM activity so the potentially harmful impacts of project-associated activities are not considered.

A wider argument can also made against gas flaring reduction projects *per se* being accepted. In the Nigerian case, the Courts found that flaring is a breach of national law and of human rights. If CDM credits are granted for activities that are violations of human rights, they are given for not engaging in activities that should have been avoided in the first place, effectively rewarding compliance with the law and bringing the CDM into disrepute[330].

8 Impacts of Eni's activities on local communities

"We are not informed when the companies set up in our local areas. We find out about everything from somewhere else and often the company starts its activities before we are even informed[….] That's the case with the gas pipeline and the new electricity plant that is going to be built [….] The village chief is often in the know, but not the people. In the Parliament, I wonder if such things are discussed. To talk about oil, that's to touch directly the President of the country and his entourage. Everything happens between the companies and the power in place in Brazzaville."
Farmer from Dionga area, near M'Boukou village, interviewed in March 2009.

Until recently, most oil company operations in Congo were conducted offshore[331]. In 2007, Eni took over operatorship of Congo's largest onshore oil field, M'Boundi, in which it holds an 80% stake. M'Boundi currently produces around 40,000 barrels daily[332] and onshore activity has become "a major aspect of Congo's energy sector"[333]. Eni's commitments to mitigating the impacts of its activities on local communities and the environment are laid out in its policies on human rights and environmental protection (see Section 8.4). Management of such impacts is supposed to run throughout all aspects of its operations.

Unfortunately, testimonies gathered by local human rights organisations and field interviews with communities living near M'Boundi and the nearby oil capital of Pointe-Noir reveal considerable and widespread anger about current oil company activities and their impacts. Regrettably, neither Eni nor the government's approach seems to have improved in relation to the new investments. Overall, the testimonies gathered revealed practices which run counter to the company's own guidelines and suggest they are not being implemented in either letter or spirit - an experience which appears to echo that of other countries.

Concerns raised by local people ranged from lack of compensation for land lost to oil developments and for destruction of trees or crops, through lack of local employment opportunities, to concerns over water[334] and air pollution[335]. The ongoing health impacts and pollution caused by gas flaring from the Mboundi field are of particular concern (see below)[336]. A further concern raised by the field researchers was how the water injection used to increase production levels at M'Boundi is impacting water resources in the area[337]. Eni states a hydrogeological study of underground water resources is underway and the preliminary project for production and meteoric water management is being revised[338]. However, in principle, the hydrogeology should already be publicly available and readily accessible for local people to understand.

Eni states that it continues to "mak[e] efforts in order to build relationships and consult the local population"[339]. In support of this view, the company cited a roundtable held in December 2008 with local human rights organizations Rencontre pour la paix et les droits de l'homme (RPDH) and the Justice and Peace Commission of the Catholic Church, Pointe-Noire (JPC-PN) and a survey of community needs undertaken at the M'boundi site in March-April 2009[340]. The latter evaluation was, in fact, commissioned by JPC-PN, with Eni accepting its conclusions[341].

Compensation is a particularly contentious issue for local communities. According to Eni: "procedures for acquiring land, compensation (expropriation procedure) and/or compensation for damage to crops are regulated by law 970/1986". Investigations on compensation issues are carried out by "Eni Congo along with officials from the Ministry of Agriculture" with "the village chief (local representative of the State) as guarantor of the uprightness of any procedures"[342]. The company rejected local people's claims about compensation not being forthcoming[343].

Local people and NGOs point out that the existence of a compensation law does not mean that local people are informed about it, that it is properly implemented, nor that the compensation regime is fair. Finally, the involvement of actors in consultation and compensation processes that are trusted by the communities is essential, given that often community interests are "represented" by village chiefs who, as Eni admits, are state agents.

Building the new gas pipeline from M'Boundi to Djeno.
© Elena Gerebizza

In addition, Law 970/1986 relates only to compensation for damage to agricultural crops. Land expropriation for "public" use – e.g. for building an oil pipeline - is regulated by another law (11/2004, 20 March 2004). According to civil society sources in Congo, Eni does not compensate for loss of land to oil developments[344]. This is partly the result of a legal confusion arising from the fact that companies granted concessions by the government do not become the owners of the land on which their operations take place. In turn, the government only compensates for land lost to oil developments in cases where it can be proved to be in use. This is often difficult to prove in rural communities[345]. While this not an issue for Eni to resolve alone, if the result is that Congolese citizens are left without compensation for the impacts of oil developments on their livelihoods, this will inevitably impact on the relationship between oil companies such as Eni and the communities.

The issue of adequate compensation remains pressing. Even where the law has been implemented, communities regard the statutory levels of compensation as inadequate. JPC-PN and RPDH highlighted that the sums allowed for under Congolese law are far lower than those in comparable countries, such as Cameroon or Chad. The adequacy of legal-

ly mandated levels of compensation is obviously an issue for the Congolese authorities to address. Nevertheless, Eni has stated that: "it is not enough for the company to be compliant with the National Legal System when International Standards proved [sic] to be higher"[346]. Eni should therefore ensure that compensation is agreed over and above the legal minimum that adequately reflects the impacts of its oil activities as experienced by communities.

Local human rights organizations (JPC-PN and RPDH) confirmed that Eni is showing greater willingness to institute a more inclusive and structured process of consultation with communities. JPC-PN is now part of a committee structure dealing with compensation processes, to ensure impartial treatment of claims[347]. However, it does not appear this approach has yet extended to meaningful engagement with communities about the company's new investments. Nor has the company tackled the issue of most pressing concern to communities living in the vicinity of the M'Boundi field, the impacts of gas flaring on their health and livelihoods (see below).

8.1 Engagement of local communities over Eni's new projects

Regrettably, research shows that Eni has not engaged local communities about the design or implementation of its new investments, including about their (potentially very serious) impacts. Field research in Congo in January-April 2009 revealed an almost total lack of public awareness of Eni's overall investment[348]. In terms of the tar sands development, some villagers interviewed were aware of the tar sands existence where bitumen is visible on the surface and because of Eni Congo's sampling programme in the Dionga forest area near M'Boukou (see map on pp. 20-21). The impacts of sampling were clear to the field researchers, and reported as significant for the farmers who had lost land to the bulldozers used to clear access routes to sampling sites. An unknown number of farmers have lost land in this way. Four farmers who were interviewed stated that they (and others) were not consulted prior to the destruction of their land and crops, and that no compensation has been paid[349].

Eni responded to these claims by stating that: "Eni has been sampling in a few spots, mostly in an already known quarried area" and that "any disturbance to the community has been appropriately legally and previously agreed with the community and compensated accordingly and under the supervision of the Ministry"[350]. This statement does not concord with information gathered for this report and, again, the agreement of the local authorities or the village chief does not equate to communities and individual farmers being informed, let alone meaningfully consulted, about oil development activities. In the case of Eni's bitumen sampling activities, land has effectively been expropriated and crops destroyed without compensation, although Eni stated in July 2009 that compensation processes are ongoing[351].

On the issue of community consultation in relation to the tar sands project, Eni stated that: "A formal and official consultation with the local communities has not been carried out yet [….] *The community consultation will be carried out, according to Eni's procedures, during the implementation phase of the full ESIA Report*"[352]. Research confirmed that in mid-2008 Eni had commissioned social and environmental baseline studies. However, the terms of reference (TOR) for these baseline studies are not public, they are not on Eni's website and none of the local people interviewed had seen them.

When interviewed in March 2009, Eni's local contractor, 'Environnement Plus' (EP) did not provide any details of EP's work[353]. According to the chief and former chief of MBoukou village, EP staff stayed for 3 days in the village and, in addition, "white people came to take samples of the sand". EP staff spoke with the Chief of the village, and asked the villagers to show them where their water sources were located[354]. In March-April, no Congolese villager interviewed across the communities visited had received any information from Eni Congo or their contractors concerning the proposed tar sands project[355].

Further information from Congo at the time of writing states that Eni began a campaign to collect core samples in mid-July. The company has informed the affected communities that this work is taking place and some villagers are employed in unskilled work as part of these activities[356]. However, this does not equate to the communities being fully apprised of all the potential implications and impacts arising either from the sampling campaign, or from Eni's overall project. It would surely be in the best interests of all stakeholders that any ESIA activities are carried out to the highest international standards – ideally with communities giving their free, prior and informed consent before projects are undertaken (see Section 8.4) – but, at the least, involved from the phase of baseline studies onwards in ESIA processes.

In July 2009, Eni stated that once an ESIA had been finalized and approved by "the competent Authorities", a Public Hearing is scheduled. The Public Hearing involves "community members, public and non-governmental organisation representatives, local authorities and is held for all the projects which could directly impact environment and/or public health". In addition, the company "ensures that individuals who could be affected by company operations are properly identified, advertised and involved into consultation and impact assessment processes"[357].

The meaning of the last statement is unclear. However, the above suggests that consultation with communities and other stakeholders only occurs *after* the full ESIA has been approved by the authorities. Local sources said that genuine public consultation did not generally occur, even in the form of a hearing, expressing the view that any consultation is limited to heads of local government, other elites, and village chiefs[358]. This view appears to be supported by Eni's practice in the case of construction of the new electricity plant infrastructure (see below).

Eni's own guidelines on respecting the rights of local communities do not mention "prior" consultation, although they do mention free, informed and continuous consultation of communities, and over project design not just project implementation. This should mean community involvement from the baseline studies onwards, not just after approval of an ESIA by the authorities. Overall, it is clear that the letter and spirit of Eni's Human Rights Guidelines have not been fully implemented. To date, none of the local communities has been meaningfully engaged or fully informed about Eni Congo's plans to develop tar sands, nor about the oil palm project[359].

Eni's lack of communication with local people could be attributed to internal uncertainty over the status of the tar sands development. When asked if Eni would communicate about the project to communities, Eni Congo's Business

Development Director replied: "What can I tell them when we do not know if the project will go ahead and what shape it could be?"[360]. However, local people are already aware of – if not informed about – a sampling programme and social and environmental studies, while Eni is continuing its exploration activities in the vicinity of local communities.

Moreover, the wish to avoid miscommunication about an investment that is uncertain cannot be applied in the case of the electricity plant. Eni states that, before construction of the new gas pipeline from M'Boundi to the new plant, an ESIA was conducted in 2007-08 and approved by the State[361]. The pipeline "crosses a variety of environments (mainly swamps and eucalyptus cultivations, as well as areas in proximity to the city of Pointe-Noire) in a 50m wide existing corridor that was expropriated by the State in order to allow the construction of the oil, gas and water pipes from M'boundi to the Djeno area"[362].

Overall, Eni says that three ESIAs have been undertaken: one on the Mongo Kamba sub-station and route of the high tension electricity line in Pointe-Noire; one on the new power plant, "including social impacts and health of the local people" (December 2007); and one on the Mboundi-Djeno pipeline and 25W extension to the electricity plant at Djeno (October 2007)[363]. It is interesting to note that these ESIAs were undertaken before Eni signed agreements with the Congolese government in May 2008.

Lands expropriated for the pipeline corridor that were under use at the time, notably in the Pointe-Noire area, were compensated by the Congolese state, according to a local source[364]. None of the ESIAs and other studies related to the new electricity plant infrastructure and extension of the existing plant appear to be in the public domain.

If Eni undertook three ESIAs and all were approved by the state, when and with which communities did they consult? When were the ESIAs published and public hearings held? What were the results of the HIA? If consultation did not occur, given that the pipeline and plant extension has now been completed, Eni is in violation of its own guidelines. Finally, Eni and Mag industries are reported to be constructing a further pipeline from Djeno to the Mag potassium plant: is an ESIA being carried out for this project and what kind of stakeholder engagement is envisaged?

Eni's credibility on community engagement is undermined by the conduct of the ESIA process for the electricity projects. The company should by now have begun a comprehensive dialogue with stakeholders, including all local communities potentially affected, on all the elements of its new investment package.

MAG Industries' potassium mine design process may serve as an interesting comparison. According to a company representative, an ESIA was carried out between October 2005 and 2009 with the community impact evaluation carried out by an international consultancy[365]. Significantly, a compensation plan was designed for land assets lost to the mine that, according to Mag's representative, "cost us more than the compensation to paid out". This was regarded as "money well spent if it avoids issues in future"[366]. Mag's Stakeholder Engagement Plan, which is based on adherence to IFC Performance Standards, has as its first goal: "to achieve free prior and informed consultation (and consent where possible) and broad community support for the Project"[367]. Moreover, the consultation process began with the ESIA-scoping activities[368].

It not within the scope of this report to verify the extent, or quality, of implementation of Mag's stakeholder engagement. However, the comparison with the apparent total lack of community engagement by Eni over its new investments is telling.

8.2 Gas flaring – a health, climate and energy hazard

Gas flaring occurs when "associated gas" - gas produced as a by-product of oil extraction - is burnt as waste, often in open pits. It is recognized as a significant health hazard, a huge waste of potential energy resources and a significant contributor to greenhouse gas emissions.

For these reasons, the World Bank has sponsored the Global Gas Flaring Reduction (GGFR) Initiative, which brings together producer governments and oil companies (state and private-sector) to share best practices[369]. Eni is a member of the GGFR, but Congo is not.

According to the GGFR, "over 150 billion cubic meters" of gas are being flared and vented (released into the air) annually, which equates to 30% of the EU's gas consumption[370]. In Africa alone, the annual amount of gas flared "is equivalent to half of that continent's power consumption"[371]. In addition, GGRF calculates that flaring has "a global impact on climate change by adding about 350 million tons of CO2 in annual emissions"[372] – or approximately the annual CO2 emissions of Spain from burning fossil fuels[373].

Flaring's impacts on human health have also been documented. A 2005 report describes flares in the Niger Delta as containing "a cocktail of toxins that affect the health and livelihood of local communities[374]". The report cites the United States Environmental Protection Agency (U.S. EPA)'s assessment that: "Many scientific studies have linked breathing particulate matter [released in flares] to a series of significant health problems, including: aggravated asthma, increases in respiratory symptoms like coughing and difficult or painful breathing, chronic bronchitis, decreased lung function, and premature death"[375].

A recent report by Amnesty International argues that the environmental degradation caused by oil production in the Niger Delta, including flaring, constitutes a violation of Article 12.1 of the UN Covenant on ESC Rights, which guarantees "the right of everyone to the enjoyment of the highest attainable standard of physical and mental health"[376]. In 2005 the Nigerian High Court found that gas flaring was a "violation of the consitutionally guaranteed rights to life and dignity"[377]. Moreover, states that are parties to the UN Charter have an obligation for "prevention and reduction of the population's exposure to harmful substances […] or other detrimental environmental conditions that directly or indirectly impact upon human health"[378]. This means that the Nigerian government is obliged to "investigate and monitor the possible health impacts of gas flaring"[379].

8.3 Gas flaring in Congo

Residents in villages near the M'Boundi oilfield mentioned fallout from the flares as damaging to their rainwater catchments and crops and reported periodic severe skin infections[380]. Testimonies were also gathered during fieldwork of bronchitis, breathing problems, headaches and other diseases that could be linked to as yet unidentified pollutants in the gas flares[381].

Congo has acceded to the UN Charter on ESC Rights and the African Charter on Human and Peoples' Rights is incor-

porated into its 2002 Constitution[382]. According to Article 30 of the Constitution, the state must guarantee public health; Article 35 guarantees the right to a healthy and sustainable environment, which the state must protect; and Article 36 states that "any pollution or destruction resulting from an economic activity gives rise to compensation"[383].

For its part, Eni has stated that it "pursues a worldwide zero flaring policy"[384] and aims in Congo to reduce emissions to zero by 2012[385]. Regarding the current level of flaring at M'Boundi, Eni confirmed that just under 3 million cubic meters of gas is flared daily, adding that it had "worked very hard" to cut this from 5 million m^3 under the previous operatorship of French company Maurel & Prom. However, this still means that M'Boundi flares over 1 billion cubic meters of gas annually from a production of 40,000 barrels of oil per day. By way of comparison, per 1,000 barrels, M'Boundi flares just over 24 million m^3 of gas per year, vastly outweighing Angola's 1.98 million m3 and even Nigeria's 7.14 million m^3 [386].

Eni claims that the composition of the flared gas from M'Boundi contains "no compounds dangerous for the environment such as cyclopentane or dimethylbutane" and "there is no trace of hydrogen sulphide, methyl mercaptan or ethyl mercaptan". The company further states that Eni has "prepared an HIA (Health Impact Assessment) for the M'boundi area" whose epidemiological data shows that the most common diseases among the population are "those typical of a humid tropical climate". In addition, as regards the impact on health linked to gas emissions, "mitigation measures are planned, above all for pathologies classified as Chronic Obstructive Pulmonary Disease (COPD)"[387].

The HIA is not in the public domain, but it has revealed the need for "mitigation measures" in relation to health impacts linked to gas emissions. The findings of the HIA and any other studies, including all underlying epidemiological data on cases of COPD and associated pathologies and the specific mitigation measures Eni is planning, must now be disclosed. In addition, Eni should answer the following further questions related to the gas flaring at M'Boundi:

- **What atmospheric concentration of VOCs (BTEX and others), fine particulates (PM10 and below) and PAHs are generated by the flaring downwind of the flares?**
- **What atmospheric concentrations of acid gases (SO2, NO2) are generated downwind of the flares?**
- **What impacts do the flares have on chemical quality of the rainwater and surface waters in the vicinity?**
- **What impacts do the flares have on soil quality in their vicinity?**

Two years ago, the Congolese Government passed a decree outlawing flaring, unless a company has special authorization[388]. Any company requesting such a permit is required to justify the flaring and its duration and submit a study of its environmental impacts[389]. State agencies must then carry out an enquiry into the public utility of ongoing flaring[390].

Companies "who today have authorization to burn gas" must submit a plan to eliminate flaring within 12 months and implement the plan within 5 years[391]. In May 2009, President Sassou further warned oil companies that "they have not more than two years of the three awarded to them to stop burning gas"[392].

The decree is a step forward but it is unclear why, despite decades of oil operations - including levels of flaring reaching 5 million m3 per day at Congo's main onshore field - the authorities only prohibited flaring by law in 2007. It appears that (some or all?) companies have been flaring for years with the permission of the state. Have all oil companies operating in the country now applied for, and been granted, special exemptions to continue flaring until May 2012? If so, public interest evaluations should have been performed on all these requests, outlining the grounds for awarding the permits. These evaluations do not appear to be in the public domain.

More fundamentally, given that flaring can be considered a violation of the right to health and the state has a constitutional obligation to protect this right, it can be argued that it is not legal for governments to make agreements that effectively sanction the continuation of human rights violations and run contrary to their obligations under national and international law[393].

Given the risks associated with gas flaring and the waste of resources it represents, Eni's project to turn flared gas into electricity by building its new plant should be welcomed. Eni has only recently become M'Boundi's operator and, without the power plant, it is not clear whether the legal prohibition on flaring would have been introduced. President Sassou's recent statement specifically links cutting flaring to such projects, stating that henceforth gas "will have to be used to produce electricity"[394]. The deadline for the flaring ban is 2012, the same as Eni's projected target.

Eni intends to submit the electricity plant project to the UN's Clean Development Mechanism to gain credits, because it will reduce the emissions produced by flaring (see Section 7.1). It is unlikely that this project could or should be awarded such credits. Moreover, this does not remove the need to disclose all data relating to the current health and environmental pollution impacts of flaring on local communities especially as Eni has committed to respect the right to health (see Section 8.4).

Eni should also facilitate independent analysis of the data and begin discussions with communities on mitigation and compensation processes. Eni's credibility on addressing this issue in Congo is not helped by its record (along with other oil companies) on remediating the damage caused by its operations in Nigeria (see Section 8.4). If the company is committed to breaking with past practice and building a new relationship with local communities, then action to address the flaring impacts from M'Boundi is essential.

Gas flaring at M'Boundi. © Chris Walker

8.4 Eni's social and environmental policies – theory and practice

Managing Risk
Eni's *Sustainability Report 2008* states: "A solid business reputation, whereby the image communicated to the stakeholders is a true reflection of the Company's identity, is the basic factor contributing to risk management"[395]. Eni states that it assesses various forms of risk, firstly, **country and sectoral risks,** with the aim of obtaining independent certification[396]. Secondly, the **health and social risks** of its activities are evaluated, including "Health Impact Assessments (HIA)" for local communities[397], and all risks "deriving from both local context and social impact of Eni's operational activities"[398].

Human Rights: *Protection and promotion of Human Rights Guidelines* have to be applied to operations of Eni and its subsidiaries, " either directly or indirectly owned"[399]. Eni's *Guidelines* of April 2007 state the following:

Land acquisition, resettlement and indigenous peoples' rights
Guarantee that land acquisition is carried out and compensated in accordance with local laws and practices and that land owners receive proper information prior to acquisition; Consider the resettlement of people as the very last solution and engage in free, prior and informed consultation with the interested people with the objective of reaching an agreement; Protect the special rights of indigenous and tribal peoples.


Congolese villagers living near M'Boundi © Chris Walker

Rights of local communities
Respect the right of local communities to participate in development by promoting forms [of] free, informed and continuous consultation by taking into consideration their legitimate expectations in the design and conduct of business activities and by supporting adequate revenue sharing schemes; Respect cultural, economic and social rights and, where possible, contribute to their fulfilment with particular reference to the rights to adequate food and drinking water, the highest attainable standard of physical and mental health, adequate housing, education and refrain from actions which could obstruct or impede the fulfilment of these rights[400].

Management of relationships with local communities: Eni states that in "cooperation with local authorities" it involves the community pro-actively "through open dialog and direct consultations with primary stakeholders in order to promote and share responsible behaviours while supporting independent development"[401].

The main tool for this, apart from its HIAs, are the **Environmental and Social Impact Assessments (ESIAs)**. Any ESIA must "take into account all human rights impacts and all rights holders affected" and pay particular attention to "minimizing the impact on the environment". An ESIA process is "mandatory for all project stages […] in all sites where the company operates". Along with compliance with "local legislations", ESIAs undertake a "full appraisal of ecological and biodiversity issues related to projects or site operations through the identification and assessment of all potential impacts (primary, secondary, cumulative and perceived), at all relevant levels of biodiversity (e.g. ecosystem, habitat, species and genetic level), looking at different spatial-temporal scales and considering ecological, social and economic changes at the same time".

Once it is finalized the ESIA is given "to the competent Authorities" at provincial and national level for their "green light". Eni states that ESIAs take place even if they are not required by national regulation and "at scales normally much larger than those directly involved in the project"[402].

Eni mentions "free" and "informed" consultation with communities, and **Free, Prior Informed, Consent** (FPIC) for projects involving resettlement, but FPIC is not the basis for its overall approach to project investment. FPIC can be defined as "the right of communities to exercise control, to the extent possible, over their own economic, social and cultural development"[403]. FPIC requires that "consent be freely given, obtained prior to final authorization and implementation of activities, and founded upon an understanding of the full range of issues implicated by the activity or decision in question"[404].

In contrast to consultation, FPIC processes "allow host communities to meaningfully participate in decision-making processes, negotiate fair and enforceable outcomes, and withhold their consent to a project if their needs, priorities, and concerns are not adequately addressed"[405].

FPIC is increasingly seen not just as an ethical or normative requirement, but an integral and fundamental cornerstone of business risk management, for both companies and shareholders[406].

8.5 Eni's social and environmental performance

Eni's current and future activities in Congo raise serious doubts over Eni's compliance with its own guidelines. Eni's record on managing the social and environmental impacts of its energy projects in countries that also have very weak governance and/or countries with highly sensitive ecologies is examined briefly below. This record not bode well for Congo's citizens.

8.5.1 Kazakhstan – management of impacts from the Kashagan project

Kashagan is a gigantic offshore field[407] discovered in 2000 in the North Caspian Sea, one of the most fragile ecosystems on earth[408]. A final investment agreement (the North Caspian Sea Production Sharing Agreement) was signed in October 2008[409]. Eni was the sole operator up to 2009, and now holds a 16.8% share in the new joint operating company[410].

The Kashagan project is very technically complex, mostly due to its depth, the extreme weather conditions and the high toxicity of its oil[411]. Field construction has suffered delays and spiralling costs and start-up is now projected for the end of 2012[412].

In terms of community engagement, according to international NGOs supporting local communities, minimal information about the project and its potential impacts has been disclosed by Eni and the operating consortium[413]. This is despite several requests for disclosure, which should be provided in compliance with international conventions signed by Italy, Eni's key shareholder, and other European governments, namely the Aarhus Convention[414]. The Environmental Impact Assessment (EIA) for the project is still not published on Eni's subsidiary's website, and Kazakh and Russian-language versions have not been made available to the local population[415].

One of the main concerns is over the field's expected production of sulphur. Storage of sulphur unprotected from atmospheric agents in the extreme temperatures of the region could lead to changes in its chemical structure, and the threat of acid rains over the region, making the field a contributer to climate change[416]. This could also have major health and environmental impacts[417]. Overall, the Northern Caspian PSA contains no provisions for long-term sustainable treatment and storage of the sulphur that will produced from the Kashagan field[418]. Given evidence of the current environmental and health impacts of sulphur emissions from existing oil operatins, there are calls for urgent, independent investigation of the field's extraction technology[419]. Finally, local communities are concerned about the health impacts of the gas that will be flared as part of the operations[420].

Although the project is still under construction, environmental and social impacts from the development are already visible in the vicinity of Kashagan[421]. These include an alarming decrease in marine biodiversity in the Caspian Sea since the onset of oil exploration[422]. A sharp decline in fish stocks has been observed, including of the endangered Caspian sturgeon[423], with high rates of observed deaths of marine mammals, raising concerns about the Caspian Seal, an endangered species for which the Northern Caspian Sea serves as whelping ground[424]. The Sea is also at risk of biological death given the high level of toxic pollutants in Kashagan oil[425].

In terms of social impacts, Kashagan may lead to relocation of local communities, especially if sustainable management of emissions and safe storage of sulphur are not implemented[426]. This has already happened to villages around the existing Tengiz oil field, where relocation is also being planned for the city of Kulsari (60,000 inhabitants)[427]. According to research by Kazakh NGOs, since the start of major oil operations the region has not experienced any sustained economic and employment growth. In fact, poverty and inequality in income distribution remains worse in oil-producing regions of Kazakhstan than in non-oil regions[428].

8.5.2 Social and environmental devastation in Nigeria

Eni's activity in Nigeria dates back to 1962, with a net oil production in 2008 amounting to 122,000 barrels of oil equivalent per day[429]. In June 2009, Amnesty International published a report which claimed that: "[t]he oil industry in the Niger Delta of Nigeria has brought impoverishment, conflict, human rights abuses and despair to the majority of the people in the oil-producing areas"; and that "pollution and environmental damage caused by the oil industry have resulted in violations of the rights to health and a healthy environment, the right to an adequate standard of living (including the right to food and water) and the right to gain a living through work for hundreds of thousands of people"[430].

In light of this, Amnesty called on all oil companies operating in Nigeria to implement several recommendations. Among these was to:

- **Allow independent review of the company's environmental management processes and publish the results;**
- **Fully overhaul community engagement and consultation practices and ensure there is robust oversight of the community engagement process;**
- **Prior to engaging in any project, ensure that the community is fully aware of the project, is able to participate in a social and human rights impact assessment, and is given full information on the project any other relevant data held by the company[431].**

In June 2009, Amnesty International Italy wrote to Eni's CEO, Paolo Scaroni, expressing concern about the findings of the report and the fact that "ENI has not adopted effective measures to deal with the social impacts of its operations in the Delta"[432]. In light of this, Amnesty Italy asked Eni to:

- **Start a complete clean-up of all sites polluted by oil while consulting affected communities and regularly informing them about the outcome of the action;**
- **Make public full information about the impact on human rights and the environment of activities associated with oil development, including environmental impact assessments and any other studies carried out by ENI on the impact of its operations on communities and the environment in the Niger Delta[433].**

ENI replied that they were "already implementing these two recommendations"[434]. AI Italy asked ENI to implement the other recommendations of Amnesty's report in a timely, transparent and measurable fashion. If Eni has disclosed all information about the human rights impacts of its Nigerian operations, including EIAs and any other study, it should immediately disclose the same level of information for its Congo operations. It should also implement Amnesty's recommendations in full for its Congolese operations, especially carrying out an independent review of environmental management for its new investments in tar sands, palm oil and electricity and fully overhauling its community engagement practices with immediate application to its planned investments.

9 Social Development Projects

It is not clear why Eni announced its €8.5 million investment in infant healthcare in 2008, as this amount was already pledged through its "Salissa Mwana" programme launched in 2007[435]. Eni sees this programme as part of a more general effort to "put in place a sustainable development policy to the benefit of the communities"[436].

Such efforts are laudable but they cannot substitute for effective remedies to address the long-term impacts of the oil operations on communities. Moreover, the extent to which local communities are meaningfully involved in programme design and monitoring; how programme effectiveness is evaluated; and what independent auditing occurs, are all open to question.

The Eni Foundation stated that 44 communities had been involved in activities in 2008 and that "local authorities, village chiefs and informal community leaders set up Health Committees to assess local needs, promote awareness of the project and get support for its activities"[437]. In terms of monitoring effectiveness and expenditure, a Monitoring Committee, comprising "Ministry of Health, FCA [Fondation Congo Assistance], Eni Foundation and Eni Congo" is tasked with this, including approving the financial planning and allocation of funds[438]. There is no independent oversight of the programme and no independent representatives of community interests sit on the Monitoring Committee. However, "an independent company" will carry out an evalution two years after project completion[439].

Lack of independent monitoring of funds channelled via Eni's partner, Fondation Congo Assistance (FCA) is a concern. These amount to "just over € 200,000" in total, with € 20,000 disbursed in 2008 and "in the range of € 70,000 for 2009"[440]. FCA was set up on 7 May 1984, "on the initiative of Madame Antoinette SASSOU NGUESSO, wife of the Congolese head of state."[441].

There is a clear need for Eni to avoid any potential conflict of interest by ensuring independent oversight of its relationship with FCA. FCA states that its finances "are controlled by an external auditor", but no details of funding sources or expenditures are disclosed on its website and its audited accounts do not appear to be in the public domain[442].

10 Conclusion

Eni's current and future activities are a matter of serious concern for local communities. Firstly, the company needs to listen to Congolese citizens living in the vicinity of its M'Boundi field whose livelihoods and health are impacted by flaring, which constitutes a violation of their human rights, and begin serious mitigation and compensation activities.

Viewed as a method to reduce Eni's carbon footprint at M'Boundi, the electricity project deserves encouragement. However, it must be de-linked from any highly environmentally damaging tar sands project. In addition, both Eni and the Congolese authorities must ensure that the project provides not just for industrial customers, but is also integrated into a national plan for improving access to electricity for all Congo's citizens, especially in rural areas. Nothing less will prove the commitment of both actors to promoting Congo's economic and human development.

Overall, research suggests that Eni needs to review urgently the environmental management of all its operations and its relationship with communities in Congo – as is the case with its operations in Nigeria. Engagement with local communities must be meaningful and aimed at gaining their free, prior and informed consent to any investments. This has clearly not occurred in the case of the electricity, tar sands and oil palm developments.

In the latter two cases, the potential for local environmental and social damage, and global damage to the climate through increased emissions, makes these investments inherently high-risk. The risks are heightened by the current lack of transparency about the projects' potential impacts and its fiscal implications and the lack of meaningful engagement with local communities to date.

Unless it can be proved that their risks can be fully mitigated, the projects should not proceed. Given their scale, likely impacts, the ecological sensitivity of their location and the country's notorious governance deficit, it seems highly doubtful that Eni and the government can produce a credible risk management plan. They also raise the wider issue of whether such export-driven projects represent a wise use of Congo's energy, water and land resources, viewed through the lens of the country's development needs.

The Congolese government's collaboration with these projects undermines the credibility of its bid to steward the resources of the Congo Basin. In Eni's case, the clear failure to consider their inherent high risks before undertaking the projects undermines the company's claim to increasingly base its actions on "contributing to the development and well-being of the communities with which it works, protecting the environment […] as well as mitigating the risks of climate change".

Finally, the Italian government as the company's key shareholder has not played an effective oversight role. There is a clear responsibility to ensure that Eni's investments involve due consideration of their potential developmental, human rights and environmental impacts, in line with the Italian government's international commitments.

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5.3 Tar sands exploration zone

Great Egret. The Kouilou basin is designated an important bird area
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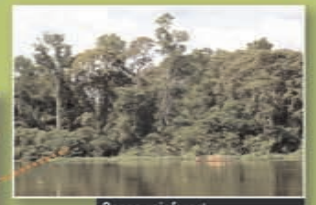

Congo rainforest
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Conakouati-Douli National Park is "the most ecologically diverse habitat in Congo" and home to many threatened species such as chimpanzees and gorillas.
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Villagers living in the vicinity of M'Boundi © Chris Walker

The coastline near the Conakouati-Douli National Park is important for nesting turtles, including the critically endangered Leatherbacks and endangered Olive Ridleys Leatherback turtle. © Dr Matthew Witt, University of Exeter.

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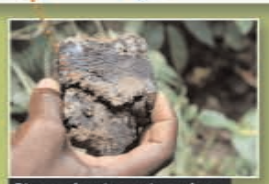

Bitumen found near the surface, near MBoukou, Dionga, Congo
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Flaring at Eni's M'Boundi field.
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