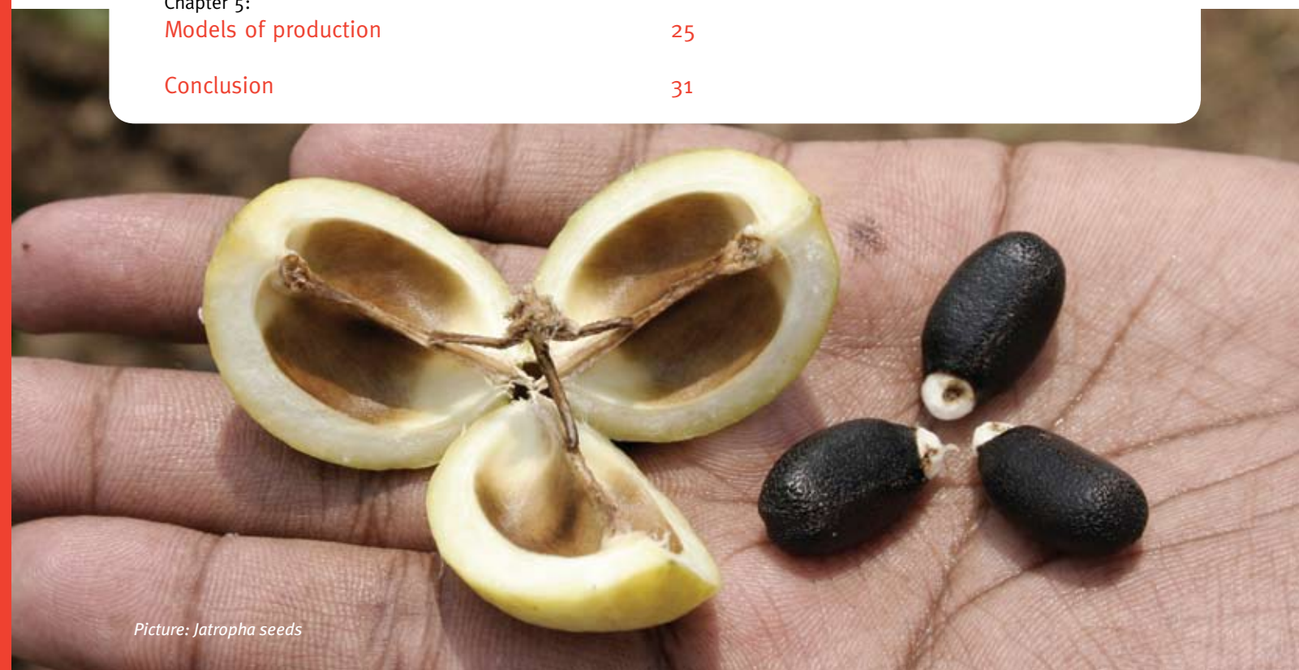
Energy from Agriculture:
The opportunities and risks of biofuels for small producers and their communities

Cordaid

Contents



Picture: Jatropha seeds

Picture: Sugar cane field

Executive Summary

This policy paper looks at biofuels from energy crops: the background at Cordaid, the policy context affecting the development of the sector, and some policy recommendations for donors and decision-makers to keep in mind as they shape or regulate the industry.

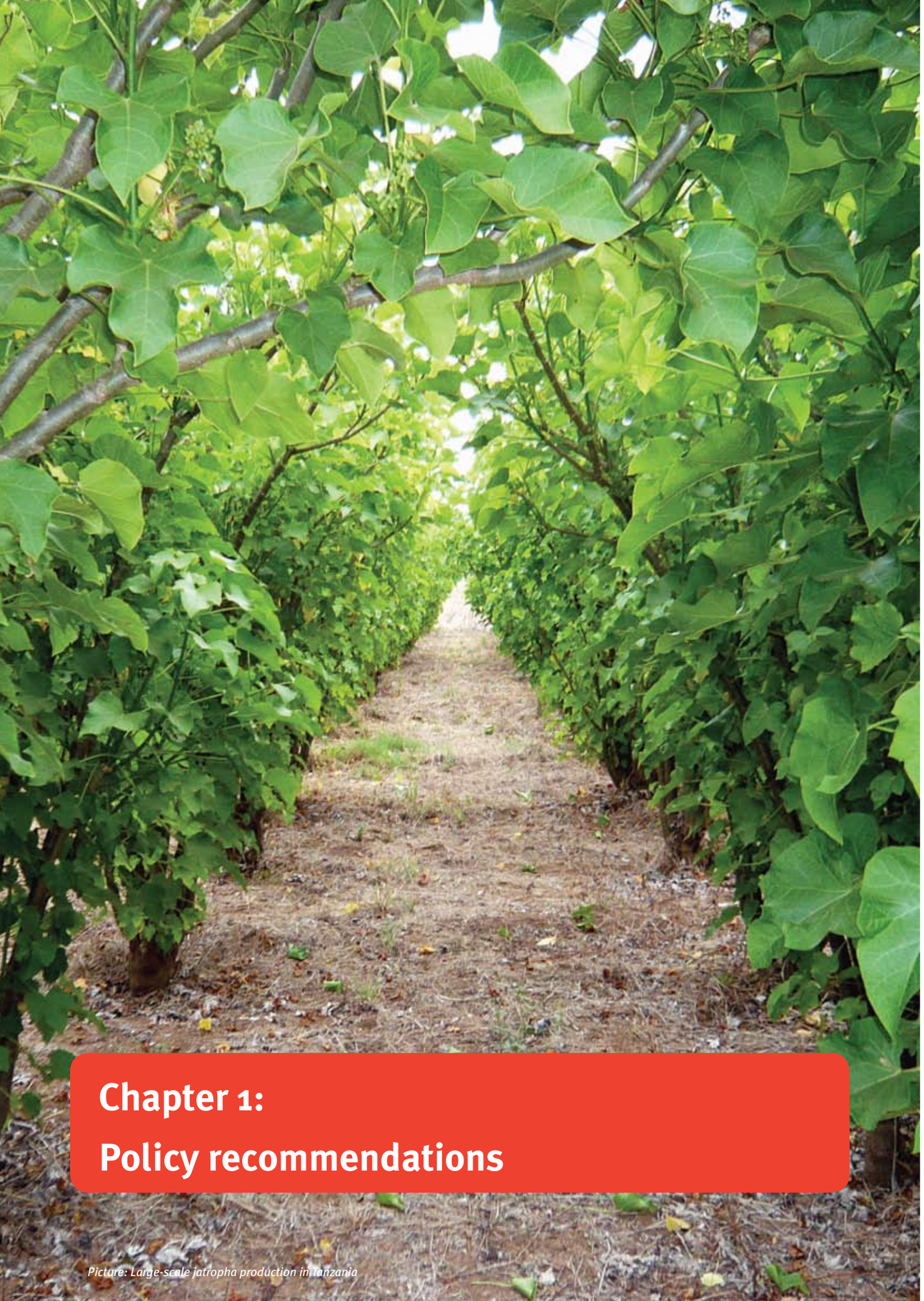
Biofuels burst onto the stage in 2004, growing very fast and attracting a lot of public and media attention. A series of arguments were made in their favour, including that biofuels would reduce dependency on oil imports, reduce greenhouse gas (GHG) emissions, create new demand (and higher prices) for surplus agricultural commodities, and improve air quality. Yet with time, many of the claimed benefits have proved elusive or illusionary. The food crisis of 2007-2008 highlighted dramatically a transition from a world of plentiful food to a world in which scarcity (historically the norm) is once again a primary concern. Biofuels are likely to be part of our energy future, but not in the way (nor to the extent) at one point envisaged by decision-makers in countries across Europe, North America and indeed, across large parts of the developing world as well.

The paper is rooted in the Cordaid sub-program on 'Small Producers and Energy Crops', which started in 2008 and will be strengthened in 2009 and 2010. The sub-program seeks to promote the integration of small producers in value chains, in order to increase their income and to enhance access to local energy. This fits with Cordaid's goal to promote the sustainability of value chains. Strengthening small farmers' position vis-à-vis other chain stakeholders such as processors, traders, retailers and consumers is crucial. The objective is to build chain democracy, transparency, responsibility, power sharing, trust and cooperation.

Whether small producers will benefit from biofuels depends on the model of production and the relative distribution of economic power in the relationships among input suppliers, producers, processors, distributors and final users. Cordaid considers this relationship a value chain, referring to the fact that value is added to many crops in a series of steps that separate producers from final consumers. It is possible to distinguish three broadly distinct models in considering biofuel feedstock production: (1) traditional small producer agriculture, (2) small producer agriculture producing for commercial (and in exceptional cases export) markets, and (3) plantation agriculture. For Cordaid, the right policy interventions by governments could ensure that the second model - one based on small farmers operating in commercial markets outside their immediate region - flourishes. But this is not the production model within which most biofuel feedstock is produced. To work, biofuels policy in developed and developing countries alike will need to undergo considerable revision.

Cordaid sees the considerable challenges involved in getting biofuels production right yet believes it is possible and important, depending on the model of production. While small producer agriculture is not without its challenges, Cordaid considers the model of large-scale export-oriented production of biofuel feedstock (or feed or food, for that matter) to be unsustainable. The model is a failure for economic and social justice, and for ecological sustainability. At the same time, rural communities need vibrant local production and processing industries. Energy is a cornerstone of such economic activity. Cordaid's priority is to support agricultural systems that protect and improve incomes, food security and the natural resource base for small producers and their communities. As long as policy makers are not blinded to the pitfalls, biofuels can be part of that vision.

The paper starts with its policy recommendations. It then provides some background on Cordaid's work on the issue, an introduction to the concept of biofuels and an overview of the policy context at the global and regional levels. Looking at the different agricultural and energy situations in developing countries across Asia, Latin America and Africa, the paper finally discusses different models of production for energy crops and their implications for the vision of small producer agriculture that Cordaid supports with its programmes and advocacy. Cordaid underlines that the actual shape and structure of the industry poses many problems for realizing Cordaid's objectives with regard to poverty eradication, environmental health, and the income and position of small producers in particular. The production model matters to the outcome, especially if the future of small producers is a fundamental priority, as it is for Cordaid.



Chapter 1:
Policy recommendations

Picture: Large-scale jatropha production in Tanzania

Policy recommendations

This section sums up recommendations for Cordaid, other donors, governments, investors and other decision-makers to keep in mind as they develop or regulate the industry. These policy recommendations are designed to maximise the economic potential of biofuels for small producers, to minimise the social and ecological costs, and to protect small producers and their communities against the pitfalls of large-scale monoculture production. The recommendations build on the discussions and outcomes of a consultation last October 2008 with Cordaid partners from Africa, Asia and Latin America.

Any biofuel policy should make a priority of sustainable production systems that also improve the condition of small producers and their communities. Cordaid believes all agriculture should be practiced sustainably, whether the harvest is destined for use as fuel, feed, food, or for industrial uses such as soap or cosmetics.

Biofuels production for international markets requires strict sustainability standards and criteria (described more fully below), together with strong monitoring and verification schemes, to make mainstream production and trade more just and more sustainable. In turn, however, this can create problems for small producers, as applying standards is expensive. Lessons can be learned from fair trade and organic certification schemes that have successfully integrated small farmer ownership and control.

Recommendations for Cordaid

Cordaid supports employment creation, crop diversification and, in areas where plantations are the dominant production model, revenue sharing by plantation owners or large company traders with small producers. Cordaid also supports organisations that advocate for national biofuels policies in developing countries that respect land rights and other rights of small producers and local communities, including the importance of prior informed consent of affected communities before any new investment and development.

Small producers and their organisations need financial services (including but not limited to credit) to participate effectively in biofuel value chains.

Finance needs to target bottlenecks identified through value chain analysis. These could include support for producer organizations so they can improve their legal and commercial position; or support for NGOs and business development services that offer technical assistance to small producers and their organizations. Business models such as contract farming or outgrower-schemes, if carefully designed, can connect small producers to national, regional and international markets on terms that are not exploitative.

Research and pilot projects are needed to identify possibilities for small producers to create and/or participate in local value chains built on energy crops. Strong producer organisations are a precondition for small producers to benefit from the potential energy crops offer to generate income and to strengthen their position in local and national food and agriculture systems.

Cordaid supports local organisations that engage with policy makers to advocate against the expansion of large-scale monoculture production because of the associated social and environmental costs.

Cordaid fights to stop the displacement of small producers and local communities, the loss of employment, pollution of soil and water, and the destruction of local habitats and biodiversity.

Recommendations for public policy makers

Change must also come from within rich countries. As a Dutch CSO, Cordaid takes an active role in advocacy with the Dutch and European governments, complementing the work of our partners. Cordaid's policy advocacy objectives are to promote more sustainable models of production, processing and trade; to enhance opportunities for small producers and their communities; to reduce the negative social and environmental impacts of large-scale export oriented production of energy crops; and, to minimise investments that threaten small producer agriculture and food security in developing counties.
Developed countries must reduce their energy consumption and increase their energy efficiency. Much greater investment in alternative and sustainable energy-efficient technologies is needed, including wind and solar energy.[1] Biofuels alone are not the answer to industrialized countries' energy needs.

[1] In the Netherlands, Cordaid is a member of the HIER! climate campaign. Cordaid also participates in the international Climate Justice campaign of CIDSE.

Cordaid has been involved in the ongoing discussions criteria and minimum standards for sustainable production, including the so-called “Cramer Criteria” for sustainable biomass for energy purposes. Cordaid will continue to engage in the ongoing debate around enforceable criteria for sustainable production of biofuels. Such a debate would need to build on important principles and starting points, such as:[2]

1. *Biofuels should contribute to an overall reduction in energy use and more sustainable use of natural resources. Biofuels cannot and should not replace fossil fuels; rather, they should contribute to an evolution towards more sustainable energy use and more sustainable agricultural production models.*
2. *Biofuels cannot be allowed to jeopardize food security. Crop choices, production models, biofuel technologies and energy demands all can and must be weighed to minimize the competition for scarce arable land and water.*
3. *Local communities must have a decisive voice in any decision to use biomass for energy production. Biofuel production should not be at the expense of marginalized communities in developing countries. Land rights (traditional and legal), cultural food preferences, non-cultivated food sources, livelihoods dependent on forests or other sensitive areas must all be upheld and protected.*
4. *Local or national energy needs and priorities should have precedence over global demands.*
5. *Small producers and their communities should benefit from energy production through biofuel. Local ownership and local job creation should be priorities of any biofuel strategy.*
6. *Fair wages and decent working conditions must be guaranteed to all workers involved in biofuel production, including farm labourers.*
7. *The full-life cycle of biofuel production must make a significant contribution to GHG emission reduction.*
8. *Biofuel feedstock cultivation must maintain and build soil structure and fertility and conserve water quality and quantity.*
9. *Biofuel feedstock cannot be produced at the expense of biologically and environmentally sensitive lands, such as virgin forest, peat bogs, or other scarce and fragile ecosystems.*
10. *Expansion of agriculture in fragile ecosystems such as the Cerrado or the Amazon should not be possible without unbiased research that proves the socio-environmental viability and is carried out with full and open consultation with affected communities.*
11. *Biofuel production must contribute to the conservation and promotion of biological diversity.*
12. *Biofuel production should refrain from the use of dangerous agrochemicals, whether harmful to the soil, water or the women and men who produce the crops.*

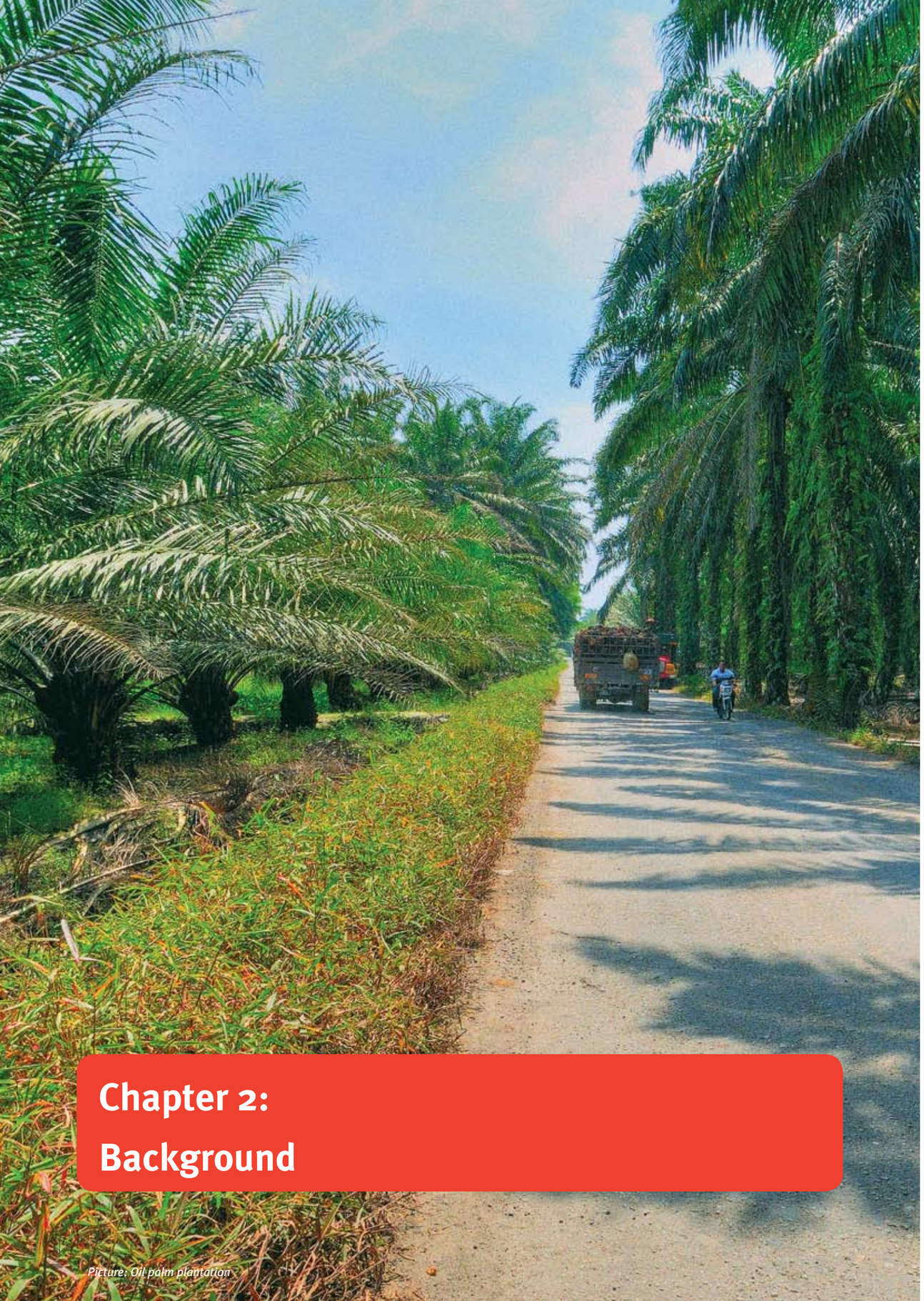
Overall, a successful national biofuels strategy in developing countries will contribute to:

- promoting employment and growth, especially in rural areas
- accelerating transfer of technology and innovation
- attracting new investment
- providing new end markets for agricultural products in developing countries
- increasing value-added via development of capacity to process raw materials

Biofuels and biofuel feedstock imported into the EU should be required to meet strict sustainability standards, based on social and environmental criteria, agreed by both the value chain stakeholders and the trading country governments. Such a system would have a beneficial effect on choices of production models in producer countries. Without such standards, in place and enforced, the targets set for minimum use of biofuels in total liquid fuel consumption for transportation are a hazard, putting at risk developing country producers and workers, as well as the world’s already stretched ecosystems.

[2] These are adapted from discussions with Cordaid partners and work by IATP on possible standards for biofuels development, in collaboration with some other concerned NGOs.

Picture: Fresh sugar cane



Chapter 2: Background

Picture: Oil palm plantation

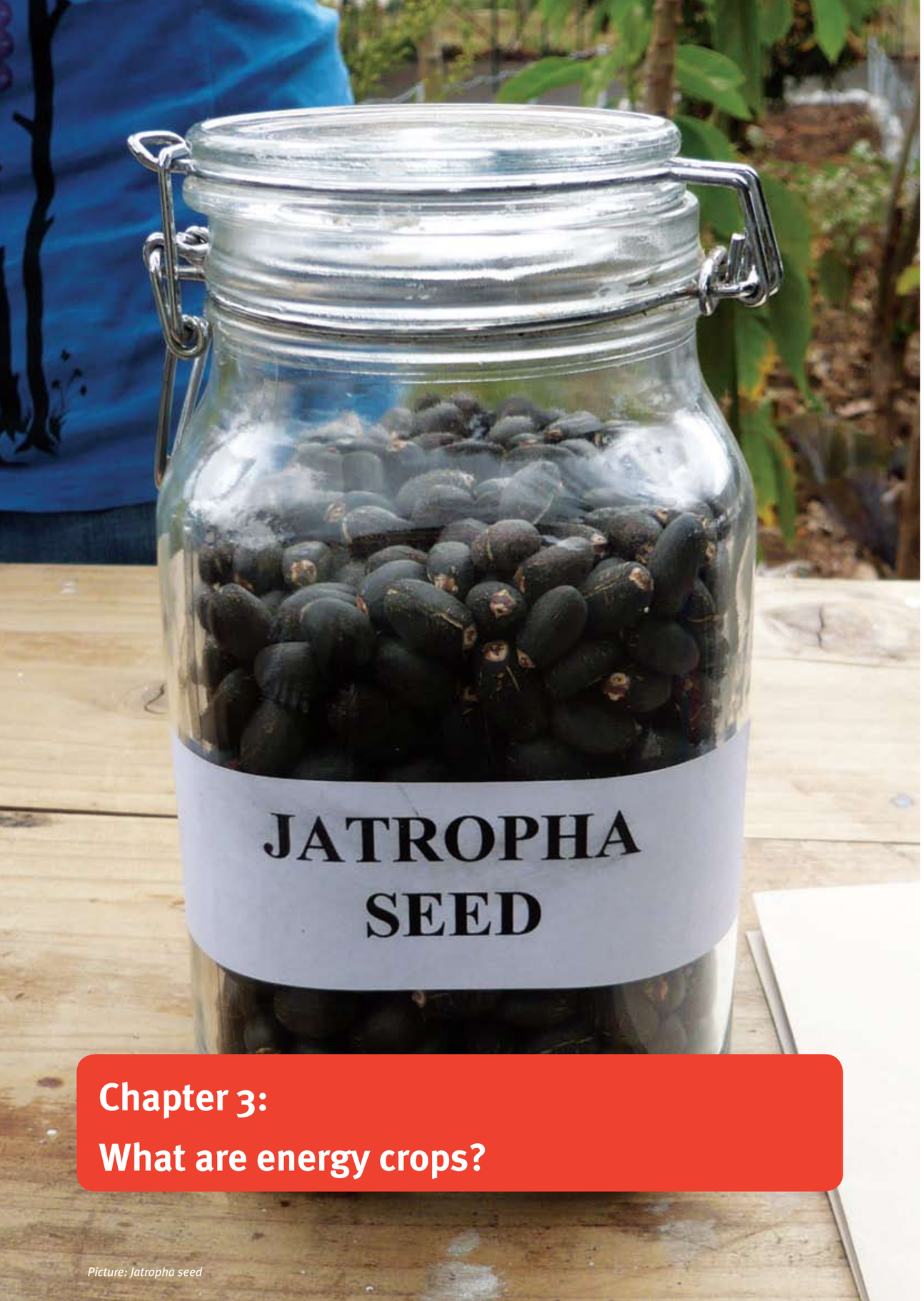
Background

From 6-10 October 2008, Cordaid organised a partner consultation on small producers and energy crops in the Netherlands. Eleven partners from Africa, Latin America and Asia participated. The partner consultation was intended to shape Cordaid's programme work related to biofuels, including advocacy positions in both national and international debates and the priorities for cooperation with partners in Asia, Latin America and Africa in this area. The consultation focused on how small producers can benefit from the opportunities that energy crops offer and how the risks can be reduced, particularly the damaging impacts of investment in large-scale monoculture crop production that often marginalizes smallholders. Participants at the consultation also discussed emerging national and international debates on the role of biofuels (as problem or solution) in relation to agricultural development, rural entrepreneurship, high and volatile food and energy prices, food insecurity, land conflicts, GHG emission levels and climate change.

This policy paper builds on these discussions. It is rooted in the Cordaid sub-programme on 'Small Producers and Energy Crops', which started in 2008 and will be strengthened in 2009 and 2010. The subprogram fits within Cordaid's programme on small producers. This broader programme on small producers aims to realize structural improvements in the position of small producers within their societies, including higher incomes so as to reduce poverty and promote economic justice. The programme seeks to promote the integration of small producers in value chains and on strengthening their position vis-à-vis other chain stakeholders such as processors, traders, retailers and consumers is crucial. The objective is to build chain democracy, transparency, responsibility, power sharing, trust and cooperation.

At a time when new international and national regulatory frameworks, as well as private sector standards for agricultural practices, are increasing demands for product quality, uniformity and hygiene, small producers are finding it ever harder to participate in value chains. In addition, market liberalisation and bilateral trade deals such as the Economic Partnership Agreements between a number of developing countries and the EU open up developing country markets to unfair competition with Europe's heavily subsidised processed agricultural products. Economic liberalisation is at the same time limiting the policy space available to developing country governments to manage foreign investment in ways that support small producers, local employment and positive returns to rural communities.

The policy paper also links to and builds on Cordaid's ongoing work on soy in Latin America and on non-timber forest products (NTFPs) in Asia. This ongoing work, along with the high political interest in biofuels in Europe and the Netherlands, and the complex interrelationship between agricultural and rural development policies, food- and energy security policies and climate change mitigation policies persuaded Cordaid to start and develop this sub programme on 'Small Producers and Energy Crops'.



Chapter 3:
What are energy crops?

Picture: Jatropha seed

What are energy crops?

Energy crops are crops that can be processed for use as liquid fuel in engines, or to generate electricity or heat. The most important energy crops are palm oil, sugar cane, maize (called corn in the U.S.), rapeseed (also called canola), sunflower, soy and jatropha. Liquid fuels made from agricultural commodities are known as biofuels or agrofuels.[3] Pure plant oils are the most common form of liquid biofuels. Liquid biofuels are used for heating, cooking, lighting, transport and power generation.

In the transport sector, there are two main types of biofuels: ethanol and biodiesel. Ethanol is produced by distilling sugar cane, sugar beet, or grain crops such as maize. It can be used as pure liquid in car engines, or blended with petrol. Brazil and the United States are the main consumers and producers of ethanol. Biodiesel is produced from oil seeds which can be used on its own or blended with diesel fuel. Biodiesel can also be made from oils, such as used cooking fat. Germany, Italy and France are the main producers and consumers of biodiesel.

Bioenergy can also be derived from other forms of biomass, such as solid plant matter or agricultural waste materials. Two of the most widely used forms of biomass are wood chips (for burning) and bagasse (the fibre remaining when sugar cane is crushed to remove the cane juice for sugar production). Bagasse has been used for decades to generate electricity at sugar mills. The excess power can be sold to the national power grid. Gaseous biofuels include biogas, which is produced by digesting organic waste and is generally used for cooking, lighting and power generation at the village level. Cordaid is at this stage primarily concerned with liquid fuels used for transport and energy, but will in the future also consider other forms of bioenergy.

The impact of biofuels on crop use is already substantial: the U.S. uses some 30% of its maize production to make ethanol. The EU uses 60% of its rapeseed production to make biodiesel. Worldwide, ethanol production used 4.49% of the global grains supply in 2007, and biodiesel used 7.63% of the combined global supply of soybeans, rapeseed and palm oil.[4] All commodities are affected by the new demand because the prices for crops that are not used to make biofuels often rise as consumers look for substitutes for the maize and other crops now diverted into biofuel production. The livestock sector is the largest direct competitor with biofuels for crops such as maize and soy; many of the commodities used for biofuel feedstock are otherwise used to make animal feed.

The biofuels industry distinguishes between first and second (and now third) generation biofuels. This paper looks at first generation biofuels, which are the only biofuels in commercial use at this time. First generation technology uses oils, sugars and starch from common crops. Except in the case of jatropha, most first generation biofuels rely on crops that are produced for food or livestock feed. Second generation biofuels will use the cellulose in plants and can be derived from many non-food crops, including wood, crop residues, and industrial waste. The science suggests the second generation of biofuels will compete less with food production for arable land and water, and will do more to reduce carbon dioxide (CO_2) emissions. First generation biofuels have proved disappointing in that they make little difference to total CO_2 emissions, especially when the emissions generated from producing the crops in industrial agricultural systems are included. There are mixed views on how soon second generation biofuels can become commercially viable: 5-10 years is a common estimate. The third generation is looking at using algae to create fuel. Cordaid will in the future also consider the benefits and disadvantages of biofuels produced using these newer technologies.[5]

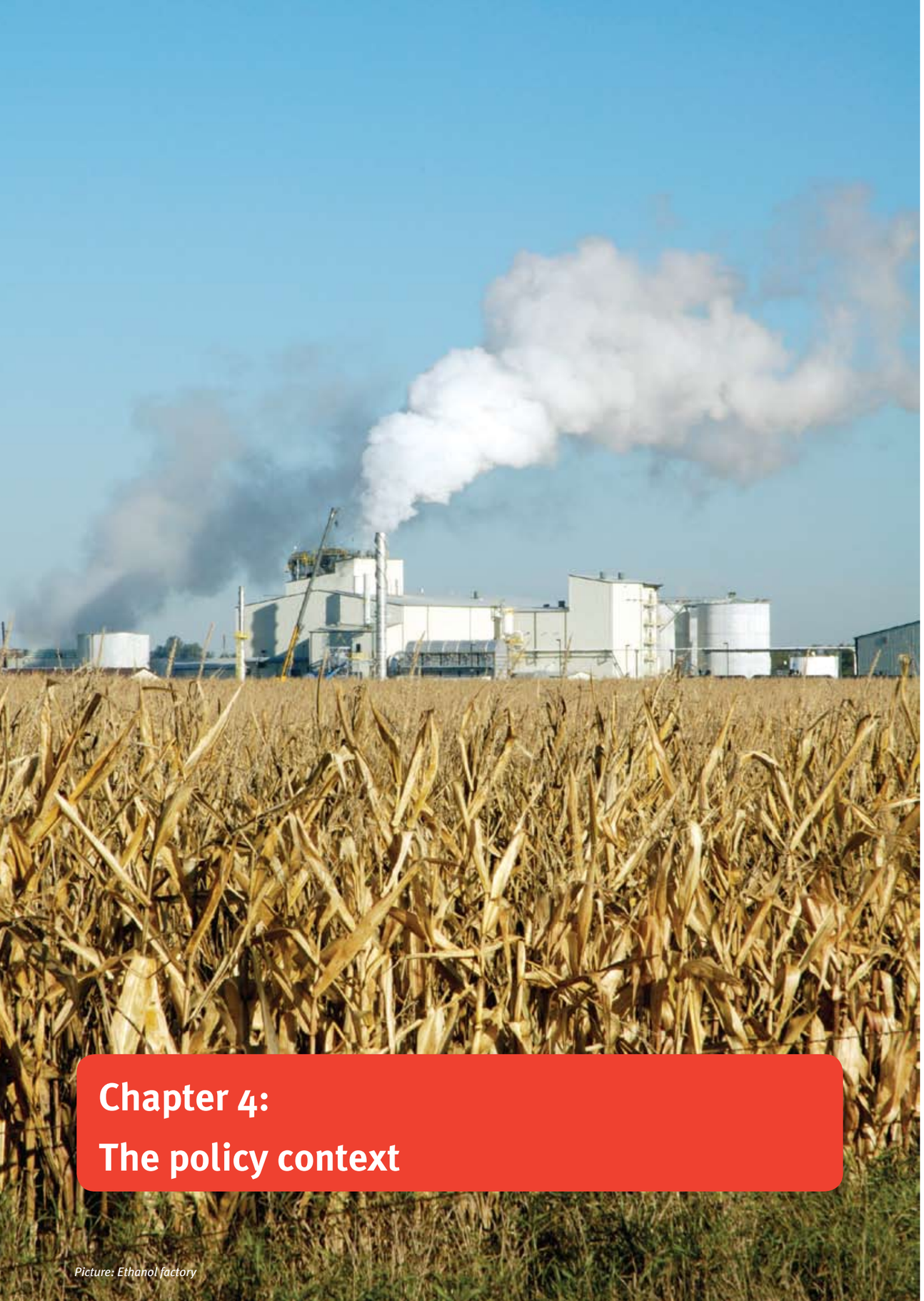
In several countries, the use of ethanol or biodiesel in the transport sector has increased rapidly in the past five years. For example, all petrol in Sweden now contains at least 5% ethanol, about 200,000 cars in Germany run on 100% biodiesel (not a blend), and in France, Austria, and the United States ethanol and biodiesel use in public transport has become commonplace. Virtually all newer cars in Brazil are so-called flex-fuel vehicles, able to run on pure ethanol and various different blends of petrol and ethanol as well.[6] As a result, the demand for biofuel feedstock crops has risen significantly, expanding international trade in biofuels and biofuel feedstock.

[3] Critics of the technology most often use the latter term. The critics object that "bio" is a common prefix in languages other than English for crops that are produced using organic standards. Their concern is that the term biofuels might suggest to the public that the fuel is sustainably produced. Cordaid uses the terms energy crops, biofuels and agrofuels. In this paper, the term 'biofuels' is used for reasons of clarity.

[4] F.O.Lichts, World Ethanol and Biofuels Report, April 9, 2008. Vol. 6, No. 15.Agra Informa Ltd. UK

[5] Though fossil fuel reserves may deplete within a few decades, by that time 2nd and 3rd generation biofuels will have taken over. So, we're talking about a temporary opportunity for agricultural small producers as the medium term demand for 1st generation biofuels is uncertain.

[6] More than 90% of cars that have been sold in Brazil are flex-fuel – but many cars on the road were built before the creation of flex-fuel technology, in 2003



Chapter 4:
The policy context

Picture: Ethanol factory

The policy context

Biofuels burst onto the stage in 2004, growing very fast and attracting a lot of public and media attention. A series of arguments were made in their favour, including that biofuels would reduce dependency on oil imports, reduce greenhouse gas (GHG) emissions, create new demand (and higher prices) for surplus agricultural commodities, and improve air quality. Since the first enthusiasm, many of the environmental benefits claimed by advocates of biofuels have proved elusive.

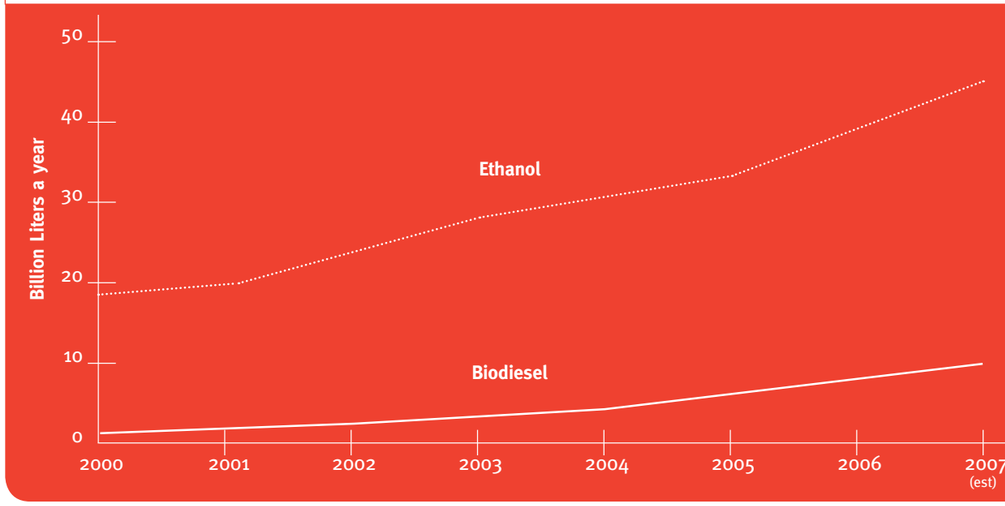
To give a rough sense of the difference in energy output, oil is estimated to provide 20 times the energy used for its extraction and refining into usable fuel. Sugar cane provides more like eight times the energy, and, at best, maize is estimated to provide four times the energy (with many scientists suggesting the actual ratio is 2:1 or less). In any case, the measurement of the energy efficiency of biofuels is a controversial science. Much depends on the assumptions that go into the models: crop yields vary significantly according to soil fertility, growing conditions, availability of water, quality of the seeds, and more. No biofuel is close to the energy efficiency of fossil fuels but fossil fuels are a finite resource. On the other hand, the tremendous environmental (and health) costs of fossil fuels have still hardly begun to be paid for.

Biofuels were also promoted for their positive contribution to lessening GHG emissions. Again, estimates of this contribution vary significantly. In brief, because the industrial agriculture systems within which most feedstocks are produced are a significant source of greenhouse gases, the GHG emission gains from biofuel are small and in many cases non-existent if a full life-cycle analysis is used for the assessment.

Convincing or not, arguments that biofuels can make a positive contribution to controlling climate change have weighed heavily in the policy debate, particularly in Europe. In recent years, biofuels have occupied centre stage of the energy agenda in most developed and many developing countries, as well as in international policy debates.[7] Seventeen countries have national policies and at least 36 states or provinces also have minimum targets for the use of vehicle fuels that blend petrol and biofuels.[8]

The price of fossil fuels is increasingly volatile and widely expected to rise again, as it did, exorbitantly, over 2007 and the first half of 2008. Governments have been pushed to diversify energy sources so as to reduce both dependency on energy imports and their cost. Biofuels are one of the solutions under consideration to these problems and the production of biofuels to replace oil and natural gas is in active development. Although the contribution that biofuels

Figure I Ethanol and Biodiesel production, 2000-2007



[7] The first diesel engine developed in 1898 ran on peanut oil, and in the 1920s, some 25% of oil sales were non-petroleum based. Biofuels disappeared after the Second World War and returned in the late seventies due to the oil crisis. Outside of Brazil, large-scale production took off only in the 1990s.

[8] Renewable Energy Policy Network for the 21st Century (2007), Renewables 2007: Global Status Report. p.27. http://www.ren21.net/pdf/RE2007_Global_Status_Report.pdf

can make remains modest (fossil fuels are an essential part of the commercial production and use of most biofuels), the technology leap is small, making it an attractive option.

European Union and the Netherlands

In the EU, the biofuel directive of 2003 has become a major driver for imports of biofuel feedstock. The directive promotes biofuel consumption and lowers the import duties to encourage trade. The promotion of biofuel consumption is accompanied by the obligation on EU member states to inform the European Commission how they intend to reach the agreed targets (2% of total fuel consumption to be biofuels by 2005, 5.75% by 2010, and 10% in 2020). In the Netherlands, these targets mean an increase from 3 million hectolitres of biofuel in 2005 to 9 million hectolitres in 2010. In October 2008, concerned about the possible harmful consequences of a rapid expansion of large-scale production in developing countries, the Dutch government decided to lower the 2010 target to 4%.

The Netherlands were amongst the first countries to develop a set of sustainability criteria regarding biomass for energy purposes (the so called 'Cramer Criteria'). In 2007, the Dutch 'Cramer Commission' developed criteria that deal with six themes: carbon emissions, competition with food and other local uses, biodiversity, environment, wellbeing and welfare. The criteria have since then been transformed into voluntary minimum standards, to be applied for decision making regarding subsidy applications.[9]

The Cramer Criteria have also played an important role in informing the European debate on sustainability criteria for imported biomass. This was linked to a review of two EU directives that have an impact on biofuels, namely the Renewable Energy Directive (RED) and the Fuel Quality Directive (FQD). The European criteria arrived at late 2008 are mostly related to environmental issues such as the value reduction of carbon emissions.[10] A few social criteria have also been derived. They address whether value is added to the local economy where feedstock is produced, conditions for the hire of personnel, working conditions on plantations (these refer to ILO principles), human rights (referring to the UN declaration), property rights and compensation where the local population loses, for instance access to land. The Dutch and EU processes show that strict criteria for decent standards have been difficult to agree and even more difficult to put in practice, to monitor and verify.

United States

In December 2007, the U.S. Congress passed the Energy Independence and Security Act. The legislation established targets to boost domestic biofuel consumption. The programme specifically limits the contribution that can come from ethanol made from maize so as to encourage the commercialization of newer, more efficient technologies. The proposals in the legislation would lead to biofuels providing 20% of total liquid fuel consumption by 2022.[11]

A renewed focus on agriculture

Agricultural interests are also part of the politics of biofuels. Both the European Union and the United States changed their agricultural policies over the 1990s, bringing them more into conformity with global trade rules. Their governments no longer pay much for public storage programmes and they avoid price floor mechanisms, preferring to compensate farmers for lost income when market prices are too low instead. When grain prices fell steeply between 1998 and 2002, the cost of such farm income support programmes to public treasuries was significant.

In developing countries, the context for biofuels is also driven by agriculture and the search for export revenues as much as energy needs or environmental concerns, although rising oil prices and the large number of rural people without access to reliable energy supplies are important factors. The economic development needs and possibilities for rural areas have recently risen again to the top of national development agendas, after twenty years of disinvestment and neglect.[12] Donors are showing renewed interest in the potential of agricultural and rural development strategies to reduce poverty, create jobs, and improve food security. The Dutch government has initiated a new aid policy that aims to increase productivity and to organise producers, with the goals of making markets work for poor farmers, building sustainable value chains and strengthening food security.[13] The policy paper outlining the approach has a special emphasis on Africa and relates to the new EC comprehensive policy titled 'Advancing African Agriculture'.

In addition to the interest of development agencies, there is also renewed attention to agriculture in developing country governments who are hungry for foreign direct investment. Countries such as China, as well private investors see agriculture as a profitable sector in which to invest their money.

Rising food prices

Biofuels were proposed at a period when global food supplies were a low public policy priority, apparently answered by the steady and impressive productivity gains made possible by hybrid seeds, inorganic fertilizers and powerful pesticides and herbicides. However, it is clear that while world population continues to rise, and while changing income patterns have significantly increased the demands on the food system as the number of people eating meat and processed foods, productivity gains from existing technologies have not kept pace. Emerging concerns over unsustainable use of water, depleted soils, diminishing returns to the use of fertilizers, growing resistance to the herbicides and pesticides in use have all come into play. At the same time, the move from a system of publically held stocks to ensure sufficient supply and demand to reliance on transnational grain companies to get food where it is needed when it is needed added significance to important failures in global commodity markets. Prices were slow to rise when supplies started to drop, and when finally the market caught on, prices rose very rapidly, creating food shortages, spreading panic among food importers and significantly increasing the number of people in the world suffering from hunger. Overall, economic liberalisation has limited the policy space available to developing country governments to respond effectively in ways that support small producers, local employment and positive returns to rural communities.

The food crisis of 2007-2008 created a shift in public opinion against biofuels. Estimates of the extent demand for biofuels was to blame for dramatic increases in most agricultural commodity prices varied from 3% (the U.S. Department of Agriculture's claim) to 75% (in an unpublished but widely leaked document authored by a World Bank official). However, no one disputes the assertion that biofuels were a factor,[14] and many see the demand for biofuels feedstock to be the largest immediate cause (a sudden new source of demand on already low reserves). In 2000, some 18 million tonnes of grain were used for industrial production. By 2008, that level had increased five-fold to reach 100 million tonnes. In addition to this new demand, optimism about higher future demand is also a significant factor in driving new investment and in shifting production towards energy crops.

The goal for Cordaid is that this renewed interest in agriculture and rural development translates into production models that are sustainable and that maximise the potential benefits for small producers. Higher agricultural prices are desirable because they are an essential component of improving livelihoods of rural producers and the economic viability of rural communities. Properly structured, agriculture remains the most powerful engine for development in many developing countries, as FAO and others continue to document.[16] Higher prices attract new investment, which under the right conditions is urgently needed in much of the rural South.

Round-Table Initiatives

A number of multi-stakeholder initiatives (known as "Round Table Initiatives") have been set up to promote more ecologically and more socially responsible production chains using consultations among the various stakeholders in the value chain to decide voluntary standards for the sector. These include the Round Table on Responsible Soy (RTRS), the Round Table on Sustainable Palm Oil (RSPO) and the Round Table on Sustainable Biomass Production – the last one set up in 2007 in Switzerland and sometimes referred to as the Lausanne Group. Multi-stakeholder processes aim to help reach consensus on the definition of criteria for sustainable production but don't address immediate measures to reduce the most urgent negative impact of non-sustainable production. The Round Table processes have struggled to be fully representative and to advance with enough speed.[17] The differences in interests of the parties around the table are enormous, and a number of processes have failed to persuade small producer organizations and the CSOs that work with them that participation is worth the effort.

To regulate the biofuels industry is a huge order because the feedstock, for this generation of technology at least, relies on crops that are grown for all kinds of purposes and that have never been subject to production and processing standards, except for tiny amounts that are traded in the market for organic production. That does not, however, mean it cannot be done. Indeed, it is possible that biofuels could provide the leverage to start a transformation of internationally traded commodity chains towards better social and environmental standards.

Indirect and macro-level effects

Whilst certification schemes are useful at the level of a company, plantation or farm, they do not address so-called indirect effects, such as displacement: the conversion of as yet unploughed land into arable land for food production, or the displacement of food crops for biofuel feedstock production. Water use, soil health, and food security are all concerns that have been raised as the acres devoted to biofuel feedstock have increased, at the expense of both fragile ecosystems and of food production. While little research has been done, a 2008 FAO publication is a first attempt to go beyond the traditional gender and biofuels debate. For example, marginal lands supply essential commodities such as food, fodder, fuelwood, and building materials to rural households. Women have traditionally grown crops for household consumption, rituals and medicinal uses on these marginal lands. Expansion of production of energy crops can cause the partial or total displacement of

[9] See NTA 8080 (Nederlandse Technische Afspraak)

[10] The draft criterion was set at 50% reduction for bio-transport fuels (that to count as a biofuel, the fuel would have to have half or less of the carbon emissions of regular fuel). This has since been changed to 35%, going up to 50% after three years. The carbon emission reduction criterion proposed for palm oil is currently set at 56%, but palm oil is still excluded from the policy due to the complications of treating the large indirect effects created by palm oil plantations.

[11] Renewable Energy Policy Network for the 21st Century (2007), Renewables 2007: Global Status Report. p.28. http://www.ren21.net/pdf/RE2007_Global_Status_Report.pdf

[12] See for instance the World Bank's World Development Report 2008, Agriculture for Development.

[13] Netherlands government, Kabinetsnota landbouw, rurale bedrijvigheid en voedselzekerheid, May 2008

[14] There are several underlying factors, including shifting middle class consumption patterns in Asia and speculation in commodity markets.

[15] Chakrabortty, A. "Fields of gold," The Guardian (UK), 16 April 2008.

[16] De la Torre Ugarte, D. & Murphy, S. (2008), "The Global Food Crisis: Creating an Opportunity for Fairer and More Sustainable Food and Agriculture Systems Worldwide," EcoFair Dialogue Discussion Paper No. 11. Germany.

[17] Letter of the Dutch Soy Coalition to the Dutch government about the failings of the Round Table on Responsible Soy (RTRS), 20 February 2009

women's agricultural activities towards increasingly marginal lands. Cultivation of unploughed land threatens poor rural households' access to wild edible plants which women are usually responsible for collecting and preparing and which play a key role in the food security of rural households. Grazing lands may also be compromised, further threatening ruminant production and therefore men's traditional contribution to household food security.[18]

Furthermore, certification schemes do not address indirect effects such as rising food prices at the macro-level. As noted earlier, there is a clear link between the rise in food prices and the growing demand for biofuels. Higher prices for crops such as maize, soy and sugar cane are usually good news for small producers. Small producers, however, often do not get their fair share of the higher prices consumers pay, while they suffer from higher prices for inputs (seeds, fertilizer, etc.) and energy. For poor consumers and net-food purchasers, (especially female-headed households) high food prices are potentially a disaster, as they spend roughly 80% of their income on food.

High food prices, partly caused by the biofuel boom, have caused problems for developing country governments, especially in net food-importing developing countries. In many of the 37 countries hardest hit by the food price crisis, food riots have occurred. Since mid-2008, world prices for a number of agricultural commodities have started to fall again, but the FAO and many other commentators expect prices to remain above the prices prevalent in recent decades, especially in local markets in developing countries.

In addition to this global context, it is essential to understand how biofuels are playing out at the regional and national levels. Cordaid works with partners across the globe, in Asia, Latin America and Africa. The following sections review some of the trends and developments in each of these regions, focused in particular on the countries where Cordaid has partners in its small producer programme. It provides a snapshot rather than a comprehensive look at some of the peculiarities of different national contexts.

4.1 Asia

The expansion of large-scale palm oil plantations started some 25 years ago, primarily in Malaysia and Indonesia.[19] Whilst this was initially due to an interest in palm oil as an ingredient in processed food and to make cosmetics, the demand for biofuels has added an important new source of interest in palm oil. International financial institutions and donors, such as the Asian Development Bank and the International Finance Corporation (IFC, a window of the World Bank), actively promoted this development by providing grants or loans to improve the physical infrastructure needed to facilitate an export-oriented production model.

Pricture: Deforestation in Malaysia

In Indonesia, palm oil plantations have proved economically profitable for investors and increase in local and global demand for palm oil has caused expansion of plantations at 400.000 hectares a year. Yet the plantations are also monocultures strongly associated with human rights violations of local and indigenous peoples, with environmental and socio-cultural destruction and with the break down of traditional livelihoods and food security of millions of people. Some of the key environmental problems caused by palm oil plantations in Indonesia include deforestation and destruction of carbon-rich peat bogs; biodiversity loss; soil erosion; and, water pollution in local streams and rivers due to over-use of fertilizers and pesticides. The local communities are in a bad bargaining position when it comes to conversion of their land into plantation areas. Without consideration of traditional rights or local traditions (which includes shifting cultivation systems and semi-natural forests), the central government allocates their land for conversion to palm oil by large plantation companies. The people who worked that land lose access and control over their productive resources and have to move elsewhere. Land conflicts result.

In the 1980s, the World Bank played a key role in the introduction of the Nucleus – Plasma Estate (smallholders) System, particularly in Indonesia. The model has been modified several times but essentially allocates 2 hectares of land to each smallholder family whose land is developed by the company, who itself also develops a large corporate estate in the same area. The smallholder is tied to the company through a loan (for land clearing by the company, seedlings and agrochemical inputs) and through the compulsory sale of fresh fruit bunches to the company's crude palm oil mill. The loans are expected to be paid off in a single first rotation (25 years), after which replanting is required. The smallholder only then obtains a land ownership certificate, and is free to sell of Fresh Fruit Bunches to any interested party though few areas have alternative crude palm oil (CPO) mills within an economically viable range.

[18] Andrea Rossi and Yianna Lambrou, Gender and Equity Issues in Liquid Biofuels Production: Minimizing the Risks to Maximize the Opportunities. Food and Agriculture Organization of the United Nations. April, 2008. ftp://ftp.fao.org/docrep/fao/010/ai503e/ai503e00.pdf.

[19] There are three big palm oil producers worldwide: Indonesia, Malaysia and Nigeria. Among them they produced some 83% of the global total in 2007 (based on FAO statistics).

Due to fundamental flaws in the smallholder system and implementation that is often incomplete or unfair the companies benefit more than the smallholders, especially where the crop is not familiar to the producers. Cordaid partners from Asia argue that the smallholder schemes are not beneficial to smallholders mainly because the smallholders lose their land, become burdened by debt, become highly dependant on the company that purchases their palm oil and sells agricultural inputs and is unable to replant due to lack of access to credits. Where there are many CPO mills in consolidated landscapes (long-established plantations), and where farmers have planted palm oil on their own land (as smallholders) the income from palm oil can be good as the balance of power is more equally divided. In remoter areas, however, farmers are much better off with diversified rubber gardens.

Indonesia recently made it compulsory for oil companies to sell a 5% biodiesel blend, which is primarily palm oil based. This policy is unlikely to trigger strong and effective resistance since nearly everyone depends on the heavily subsidized fuels now that Indonesia's own mineral oil reserves have now been as good as depleted. The export of CPO or biofuel is nevertheless strongly opposed by Indonesian NGOs.

Indonesia's social and environmental NGOs generally oppose oil palm expansion and utilize three different approaches to counter the powerful expansion drive. The first strategy is to strengthen local communities, primarily organizationally, so that they can defend their land. The second is to engage with industry through the Roundtable on Sustainable Palm Oil (RSPO), and thereby strengthen the negotiation position of communities affected by plantations owned by RSPO members. The RSPO introduced a Smallholder Task Force to promote smallholder involvement. The third strategy is to develop economic alternatives to oil palm (whereby the alternatives are usually non-timber forest products already produced by communities).

Within Asia, the Philippines is a leader in actively pursuing a biofuels strategy to meet energy needs. With the strong support of President Macapagal-Arroyo, the Philippine Congress passed the Biofuels Act in 2006. The legislation prescribed a minimum use target of 1% biodiesel blend within three months after the signing of the law and 5% bioethanol blend within two years in all diesel and gasoline fuels distributed and sold in the country.

The Biofuels Act's stated objectives are to reduce the nation's dependence on imported fossil fuels, to save hundreds of millions of dollars in foreign exchange annually, to cut GHG emissions and to revive national sugar and coconut industries. In practice, however, critics argue the biofuels program is endangering national food security and harming the environment.[20] The legislation is pressuring the conversion of hundreds of thousands of hectares of arable land from food crops to biofuel crops, risking food shortages and creating pressure to farm marginal (often ecologically sensitive) land, as well as to cultivate untouched land.

Palawan as a major site of biofuel production.[21]

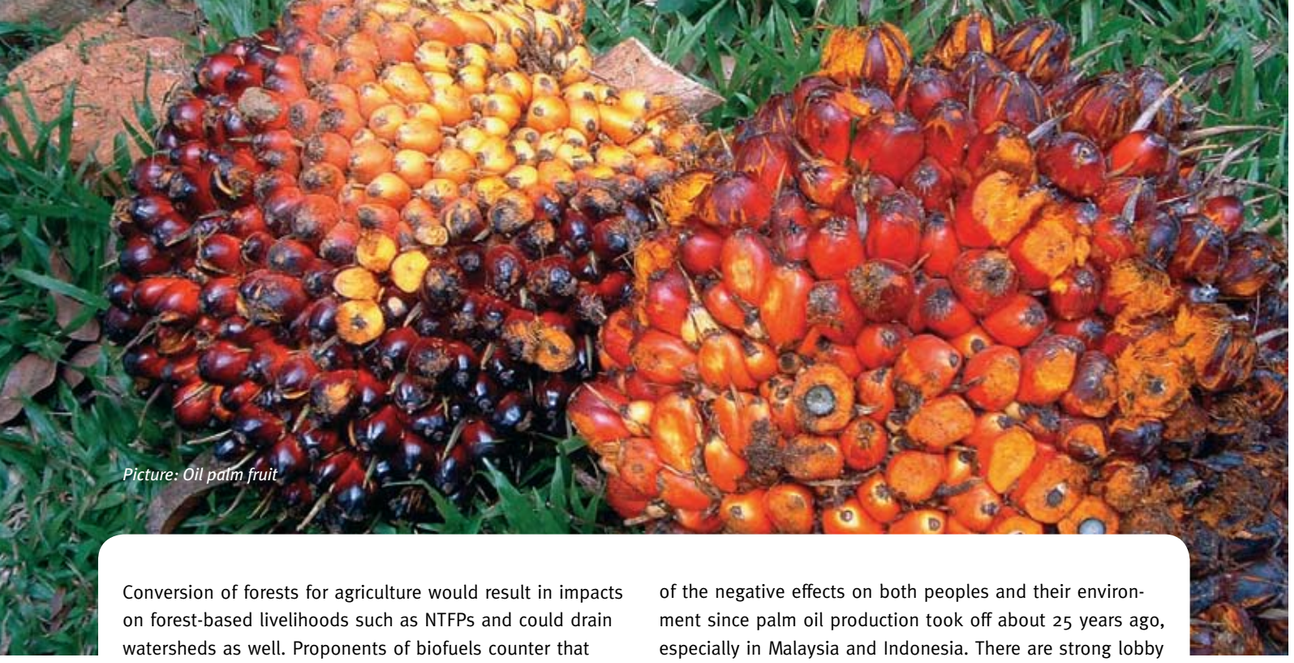
The Province of Palawan has been identified as one of the major players in the ongoing rush to biofuels. In January 2007, the Palawan Bioenergy Development Corporation and China's CAMCE Engineering Co., Ltd. signed a memorandum of agreement (MOA) to develop a bioethanol plant for the province. In December of the same year, Spain's Bionor Transformacion committed to invest $200-million in Palawan for jatropha cultivation, for use as a biofuel feedstock.

Despite criticism of biofuel policies in the country, the provincial government of Palawan signed a memorandum of understanding (MOU) with the Philippine National Oil Corporation-Alternative Fuels Corporation (PNOC-AFC) in March 2007. The provincial government thereby agreed to set aside an initial 10,000 hectares of land for jatropha nurseries and declared in public that an additional 300,000 hectares would be available for cultivation.

The province has a total land area of 1,489,655 hectares. About 690,000 hectares are old growth and secondary growth forests. Already, 664,000 hectares of land are part of various stages of mining operations. Overlaid with different legal instruments for land tenure, it is difficult to conceive how declarations of public officials can be possible without significantly altering the current land uses. It bears noting that Republic Act 7611 (also called the Strategic Environmental Plan) includes Palawan. The legislation uses Environmentally Critical Areas Network (ECAN) zoning as an overarching framework. ECAN is a zoning scheme designed to protect critical ecosystems and habitats while allowing sustainable economic development to take place. Yet to fulfill its contractual obligations to investors, the government will have to encroach on farmlands, convert forestlands, clear ancestral territories, thereby throwing the ECAN zoning in terrible disarray.

[20] Alternate Forum for Research in Mindanao (AFRIM, Inc.), an NGO involved in research and advocacy on socioeconomic and cultural issues affecting peace and development of Mindanao in Southern Philippines

[21] The information on Palawan is based on information provided by Environmental Legal Assistance Center (ELAC).



Picture: Oil palm fruit

Conversion of forests for agriculture would result in impacts on forest-based livelihoods such as NTFPs and could drain watersheds as well. Proponents of biofuels counter that ethanol from sugar cane neither hurts food security (it is not a food crop) nor does it take new land, as there are large plantations already established. However, sugar is being used in food production and there is not an infinite supply!

By the end of 2007, there was roughly €570 million worth of proposed investments related to biofuel production in the Philippines, involving 15 firms from Australia, Japan, the United States, China, the United Kingdom, Germany and India. Taken together, these projects would use about 725,300 hectares of land, which would be planted with sugarcane, cassava, jatropha, corn, palm oil and coconut. Of the total amount, roughly 60% is set aside for the cultivation of crops while the remaining 40% is allocated for ethanol distilleries, biodiesel refineries and related facilities. With this scenario, food sovereignty advocates in the Philippines are pushing first for a food first policy and second to achieve a more modest biofuels production target in the legislation. The issue of food versus biofuel feedstock needs to consider the availability of land, the national food situation, and the possible environmental and social benefits of each.

Mindanao, designated as the agribusiness hub of the Philippines is another major target for the cultivation of energy crops. Around two million hectares have been allotted by the Arroyo administration for the expansion of plantations planted with high-value export crops like oil palm, Cavendish bananas, pineapple, and asparagus. With the the Biofuels Act, some one million hectares of mostly ancestral land is allotted for the cultivation of energy crops.

Asian farmers and civil society organisations are mostly suspicious of biofuel production policies. This is because of the negative effects on both peoples and their environment since palm oil production took off about 25 years ago, especially in Malaysia and Indonesia. There are strong lobby and monitoring activities to strengthen the position of small producers in the existing (and expanding) trade, which have reached the European and Dutch policy-makers. Some civil society organisations see potential for small-scale production, mainly using other crops like neem, jatropha, or second-generation biofuels (or biogas), to increase local energy production and use. As the competition between food and fuel crops is very relevant for many Asian countries (where arable land is relatively scarce), most civil society organisations try to offer other, more sustainable, production opportunities for small producers, such as non-traditional forest products, rubber or diversification of food crops.

4.2 Latin America

Latin America is home to the most advanced producer and user of biofuels: Brazil. In the 1970s, Brazil adopted ethanol with its ProAlcool programme, making a virtue of the country's abundant sugar cane production to create an alternative source of transportation fuel. Despite ups and downs in the past thirty years, the programme has not only made Brazil one of the biggest producers and consumers of biofuels, but also a leader in the technologies associated with biofuel production and use.

Latin America's commitment to biofuels is not limited to Brazil, of course. Argentina and Colombia are perhaps the next most active: Colombia passed a law in 2001 requiring that all petrol be blended with 10% ethanol by 2009, rising to 25% by 2021. Minimum thresholds for biodiesel (made from palm oil) were made law in 2004. Argentina passed a law in 2006 that requires 5% blends in both petrol and diesel by January 2010. An economist for the National Biofuels Programme said this would imply using 8% of the domestic soybean crop and 3% of the maize crop for fuel.[22] The Inter-American Development Bank (IDB) is providing investment loans (so-called "green loans") and technical assistance for biofuel production. In 2007, the IDB provided some US$ 300 million for various renewable energy initiatives in the region.

Latin American farmers and civil society organisations have mixed opinions on biofuels. Some view this development as an opportunity to increase their income, and to increase the supply of local electricity and transport fuel. Others are critical of biofuel production because it attracts foreign investment that is disrespectful of local communities, labour rights and the environment. In countries where land holdings are anyway unequal and local communities are not given a voice in decision-making (and existing land policies not implemented), the pressure of biofuels demand and investment has exacerbated already tense situations.

The following examples look at Brazil and Peru in more detail.

Brazil:

Some of the problems documented in Brazil with the pressure to expand the production of agricultural commodities include deforestation of the Amazon and Cerrado (a savannah ecosystem), destruction in biomes such as Caatinga and Mata Atlântica, and pesticide contamination, threats to the food security and income of small farmers, and increased concentration of land ownership. In its series of papers entitled, "Brazil of Biofuels – Impacts of Crops over Land, Environment and Society,"[23] the Cordaid partner Repórter Brasil reports on the expansion of palm oil, sugar cane, cotton, soy, castor bean, maize and jatropha in different regions of Brazil, including in the Amazon, the Cerrado areas of midwest and northeast Brazil. Repórter Brasil documents the negative effects this expansion has had on local communities, smallholder incomes and livelihoods, the working conditions of rural labourers, and the state of the environment. These effects are not unique to the production of biofuel feedstocks -far from it - but the sudden and significant growth in global demand for biofuels has increased pressure on the land significantly.

In recent years, the main driver for soy expansion has been the demand for animal feed from Europe and China, and from the growing meat industry in Brazil. Public policies to encourage the production of biodiesel are also a factor, but the main link to biofuels is indirect: the increased demand for maize-based ethanol in the U.S. has reduced soy acreage there, while global demand for feedgrains has risen. Brazil is on track to overtake the United States as the world's largest exporter of the crop in the next few years. Brazil's pre-eminent position as a soy grower and exporter is clearly a source of wealth for many producers, and provides an important stream of foreign exchange for the government. It also serves the interests of the major global firms in the grains business: Bunge, Cargill and Archer Daniels Midland (ADM). On the other hand, the new push for increased soy production has intensified deforestation, pollution of rivers, concentration of land ownership, and worker exploitation. This is especially true in the Cerrado and Amazon regions.

Brazil's recent push to add biodiesel to its existing ethanol production has created an additional driver to expand soybean production. To meet Brazil's mandate for increased biodiesel consumption (for which soybeans would be the main feedstock) requires some 3.5 million tonnes of soy as feedstock. The pressure to grow more soy has led directly to planting on ecologically sensitive land, to the pollution of rivers, and to the appropriation of land that belongs by law to indigenous peoples. For example, there are illegal plantations in the Xavante's Maraiwatsede indigenous lands, in Mato Grosso and in various areas acknowledged as traditionally occupied by the Guarani-Kaiowá, in South Mato Grosso. The grains sector, including soy production, accounted for some 5.2% of the cases of slave labour documented by the Brazilian Work and Employment Ministry in 2007.[24]

The Brazilian government is also investing in several other energy crops, including castor oil, which is traditionally a small producer crop. Despite some political fanfare, however, renewed interest in castor bean production has not yet brought concrete results for small farmers, especially in the poorer states of northeast Brazil. The production chain is still too tied to private sector interests in the biofuel industry and not enough to the needs and interests of family agriculture. But there are exceptions, where organized farmers have been able to exercise a stronger voice in the castor oil production chain. And the Brazilian government has changed its biodiesel policy, giving more power to Petrobras in the biodiesel production chain. In the last months of 2008, Petrobras inaugurated three biodiesel mills in three poor rural areas of country (areas in the states of Minas Gerais, Ceará and Bahia).

Brazil's sugar cane sector, much like the rest of the world's, has a brutal history. It was founded using slave labour imported from West Africa and it is still today a place where workers have little protection, wages are very low and the pressure to continually extract more production is enormous. In the last two decades, the sector has seen huge investments and has expanded into protected and previously unused areas, including the Pantanal, which is one of

[22] Osava, M., ENERGY-LATIN AMERICA: Biofuel Boom Sparks Environmental Fears. 22 Sept. 2006. IPS newswire. http://ipsnews.net/news.asp?idnews=34845

[23] Reports by Reporter Brasil and the Biofuel Watch Center are available in Portuguese and English on www.biofuelbrazil.org

[24] Idem

the world's biggest environmental assets.[25] Mechanisation of the harvesting process has led to job losses in the state of Sao Paulo. In the coming years until 2014, some 180,000 more workers in the sugar sector are expected to lose their (low paid, hazardous) jobs, without employment of training programs that bring alternative employment opportunities. In Sao Paulo, some 2,553 people were liberated from slavery working for sugar-alcohol farms and companies in 2008, about half of the number of slaves freed last year.[26] When food prices started to climb in 2008 (the price of a basic food basket in Brazil rose 16%), the companies, suffering from the international financial crisis which dried up their access to credit, chose to delay investments, to fire workers and refused to raise wages to keep up with inflation. The resulting decrease in purchasing power encouraged strikes that were often violently repressed by the police.

Peru:

Peru was another relatively early adopter of biofuel technology: in 2002, the government declared its intention to export ethanol (primarily to the United States). By 2010, petrol in Peru will be required to contain 7.8% ethanol and diesel 5% of biodiesel. Meeting the ethanol target is not as much of a challenge to local supplies because Peru is a big sugar producer. Biodiesel is more difficult. According to the Ministry of Agriculture, to reach the interim target of a 2% blend for biodiesel in 2009 will require 80,000 hectares of land; yet only 20,000 hectares are in production for oil seeds at this time. The government envisages biodiesel will be derived from a number of crops including canola, jatropha and palm oil. The latter is at the moment by far the most economically attractive.

Two companies, Heaven Petroleum Operators and Pure Biofuels, have built processing plants and plan to increasingly use local feedstock, such as jatropha and palm oil. Heaven Petroleum has made arrangements with small jatropha producers in the regions San Martin and Lambayeque. Whether these arrangements been favorable to small producers still has to be assessed. Some smaller companies have shown interest in working together with farmers as well. In the coming two years the areas destined for the production of energy crops will be increased, and the question is if and how small scale farmers can take advantage of these opportunities.

4.3 Africa

The active interest and investment in developing energy crops has not by-passed Africa. There are some long-standing programmes, as well as dozens of new initiatives, although the number of large-scale plantations is relatively small for now. Cordaid's work in the region is of more recent date and the issues confronting partners in the region are only emerging. Much of the debate on biofuels in Africa centres on a crop few had heard of five years ago: jatropha.

For all the apparently miraculous properties of jatropha (see box above), the crop has disadvantages as well. First, there are limits on how much can be expected if the crop is confined to marginal land: if a biofuel industry is proposed, the scale of production must be increased and good land given over to raise output. Nature does not offer something for nothing: better soils, reliable water and more land is necessary if the scale of production is increased. The commercial firms that have started to invest in jatropha production in Africa are looking for large-scale production so as to export much of the resulting feedstock or fuel. The potential gains for local communities under these circumstances are minimal. Jatropha is also not indigenous to many of the areas where it is being introduced. Local communities are not familiar with the plant and have to be trained in its cultivation, while a series of challenges, from local pests, to possible effects on neighbouring plants and livestock, to the plants' performance in new conditions all have yet to be thoroughly tested and resolved. The Jatropha Platform, an industry-based effort to disseminate information about jatropha and how to cultivate the plant in a sustainable way, has a series of case studies on its website that illustrate some of these problems.[27]

What is jatropha?

Jatropha Curcas is a drought-resistant perennial crop that grows well in marginal soils and dry climates. Jatropha is a wild species that originated in Central America. It is now found in Africa and Asia as well. It is often used as a living fence between fields. The shrub can be used to limit erosion and it improves soil health in the long term. It is easy to establish, it grows relatively quickly (producing oil-rich seeds in only 2–5 years) and is productive for about 50 years. The seeds contain 30% oil, which can be combusted as fuel without requiring further refinement. The oil can be used to power simple diesel engines (vehicles or electric generators) and also in oil lamps and cooking stoves. Jatropha oil is also a basic ingredient in soap making, creating opportunities in a sector in which women predominate. The oil contains an insecticide (curcasin). The cake left once the oil is extracted is rich in nitrogen, phosphorous and potassium, making it a good fertilizer. The cake can also be used for biogas production for cooking or in briquettes as a cooking fuel.

Jatropha appeals to a number of investors because it attracts money associated with the Clean Development Mechanism (CDM), which was established to help mitigate climate change. Replacing soy or sugar cane with jatropha can be combined with CDM revenues of 10 Euro per tonne CO_2 due to the positive land use change. Grown as a buffer crop, however, jatropha cannot be measured for its contribution to CO_2 emissions as compared to an equivalent amount of fossil fuels; the necessary data about inputs required, yields, carbon savings, etc. require cultivation under more controlled conditions.

The volatile and relatively low oil prices of recent months have dampened investors' interest in jatropha as a monoculture. Though jatropha can survive droughts and soils that are poor in nutrients, it requires better land and consistent water to produce a bigger yield. Nevertheless, several investors and oil companies have invested in large-scale plantations in Tanzania and other African countries, although whether mostly for public relations purposes or because they see large-scale farming of jatropha as a commercially viably enterprise is not yet clear.[28]

Other energy crops that are being developed for biofuel production in Africa include sugar cane, sorghum, sweet potato and palm oil. Malawi instituted a bioethanol programme as far back as 1982 and produces a blended fuel with 10-20% ethanol. Malawi imports 80-90 million litres of petrol per year. More recently, the private sector in Malawi has become involved in developing biodiesel production from jatropha. UNCTAD reports the expansion of this project has been hampered by the concern from farmers that there will not be sufficient processing capacity to generate adequate demand, while the industry is holding back further investment until they see a more stable supply ensured.[29] At the same time, overall land scarcity and persistent food insecurity makes it important to protect land for food crops, avoiding pressure on labour, land and water. It will also need to raise income of rural populations and improve access and affordability of energy in rural areas. The Government of Malawi is also using financial incentives to promote alternatives to firewood and charcoal, biomass briquettes, biogas, as well as biofuels.

Although Malawi has one of the most comprehensive policy and legal frameworks for the energy sector among African countries, it still lacks a policy and legal framework with standards and guidelines for biofuels specifically. This has meant that the current interest and participation of the private sector in biofuel research, development and trade is not properly regulated. A strong policy framework, with provision for legal enforcement, is essential to protect small producer interests and to protect workers' rights, traditional land rights, and food security.

Sugarcane is one of the major commercial crops of Malawi. It is grown both by smallholder farmers and the company, Illovo Sugar. Smallholder farmers grow sugarcanes in dambos (seasonal marshes or wetlands) and along river banks across Malawi for domestic consumption and sale. There are several varieties of sugarcanes in Malawi that do well in very specific geographical locations depending on soil type, weather and rainfall.

The Illovo Sugar Company grows its sugarcane at Nchalo and Dwangwa Sugar Estates in Chikwawa and Nkhotakota Districts respectively. Apart from Illovo's own plantations, the company sources sugar under contract from the Dwangwa Sugarcane Growers Association and the Shire Valley Cane Growers Trust managed by the Kasinthula Cane Growers Limited.

Malawi has also been growing jatropha for some time: it is estimated that more than one million jatropha trees have been planted in the country since 2003. A few organizations such as the Bio Energy Resources Ltd (BERL) and Environment Africa are promoting the growing of jatropha at community level. BERL works with the Dutch company TNT, and subcontracts small farmers to grow jatropha. BERL provides seeds and technical assistance to the farmers, which in turn agree to sell their seeds to BERL.

[26] Figures from CPT, quoted in Reporter Brazil, Sugarcane (2009)

[25] Similar experiences are reported from Cordaid partners in Bolivia, where also protected areas are being used.

[27] The platform is a project of the Global Exchange for Social Investment (GEXSI). On-line at http://www.jatropha-platform.org

[28] Bioshape Netherlands has bought 80,000 hectares of land in the south-east coastal area

[29] UNCTAD (2006), The Emerging Biofuels Market: Regulatory, Trade and Development Implications, UN, New York & Geneva

Chapter 5:
Models of production

Picture: Jatropha herbal soap, Tanzania

Models of production

Whether small producers will benefit from biofuels depends on the model of production and the relative distribution of economic power in the relationships among input suppliers, producers, processors, distributors and final users. Cordaid considers this relationship a value chain, referring to the fact that value is added to many crops in a series of steps that separate producers from final consumers. It is possible to distinguish three broadly distinct models in considering energy crop production: traditional small producer agriculture (small scale), small producer agriculture producing for commercial - in exceptional cases also export - markets (medium scale) and plantation agriculture mainly for export purposes (large scale). This section reviews each of the three models.

A summary of public policy priorities necessitated by each of the three production models is shown below:

Small-scale:
sustainable family production for local use or market

Production oriented:
- For local energy use or sales
- Mixed farming systems
- Village processing
- Cooperatives/producers' organizations

Medium-scale:
up-scaling of local models maintaining sustainability

Market oriented:
- Trading and processing
- Contract farming
- Cooperatives/ producers' organizations
- Trade finance/ credit
- Small producers increase their power within the value chain and improve their position

Large-scale:
unsustainable production. Small producers excluded

Rights oriented:
- Reduce negative social and ecological impacts
- Respect for land rights labour rights
- Advocacy and lobby

Picture: Jatropha seed

Small-scale production

It is possible to envisage a simple closed-loop model for biofuel production, in which a farm (of any size) grows its own energy, for instance by recycling cooking fat to power a bio-diesel engine, or by growing a certain quantity of maize, or jatropha or any other biofuel feedstock and perhaps sharing the costs of processing with other neighbouring farms. Such a model can help small producers access energy in a sustainable and economically independent way, saving them important costs. Simple technologies exist to meet heating and electricity needs as well, using organic matter that is readily available on-farm. Variations on such a relatively simple model would fit into traditional small producer agriculture, perhaps extending to village level or even to providing energy for a collection of villages, depending on population density and the availability of biomass for conversion to fuel.

The policy emphasis in this model is to capacitate farmers and local processors with training and technical assistance on planting, harvesting and post-harvest processing at the village level. Farmers need also support for self-organisation. Inter-cropping is the preferred production system, ensuring both food security, higher incomes and increased access to energy and local electricity.

An example of small-scale production: ITDG/Practical Action in Peru.

The small scale production of biodiesel for local energy consumption implies that the value chain (from the production of raw material to the pressing of vegetable oil and processing of biodiesel) is being controlled by the community itself. Production and pressing are relatively easy steps in the production process, but pure plant oil must be processed at an esterification plant, for which investment and technical knowledge is required. It difficult to do this at small-scale and village or farmer level. In different regions, pilot projects are being set up to develop viable ways of processing in small plants intended for use by the community itself. Cordaid supports such such pilot projects in several countries. In Peru, ITDG/ Practical Action works together with some hundred small scale oil palm planters, associated in the Asociación Agropecuaria Nuevo Tiwinsa in the Ucayali region. For domestic energy consumption for households and communities, just 2% of their annual palm nut production is needed. In other words, this would not lead to a significant drop in income from selling palm nuts to traders and enterprises. The project foresees to extract oil from the palm nut kernels and thereafter the esterization in a small plant designed by technicians from ITDG/ Practical Action and technicians of the University of Agriculture (UNALM).This project will look at several impacts:

- Economic and technical viability: the production model should deliver biodiesel at a price equal or lower than the fossil fuel, with a transferable technology.
- Environmental viability: the biodiesel should not cause any damage to the environment
- Social viability: a production and management model must be validated which allows the farmer group to administrate autonomously the generation of energy.

The outcomes of this project will be important because it gives insight on how and under which conditions sustainable small scale biodiesel production is possible.

Medium-scale production

The medium-scale production model is based on small producer agriculture, using domestic production to generate energy and electricity for local use but not eschewing opportunities to market surpluses. The model is preferably not centred on export markets, but might include some element of export as one of the marketing channels. For the export marketing channel to work, the local traders and processors need a link to the export market that allows the local interests (producers and processors) to secure a decent return from the sales. Examples of commodities where such exchanges work include coffee, tea, chocolate, cotton and rice. There are real expenses associated with setting up the market to protect the small producers and local traders and processors from the market power of transnational companies, which dominate the trade in almost every agricultural commodity, including most of the commodities used as biofuel feedstock. The gains for the communities involved in producing the commodities, however, can be significant.

The policy emphasis in this model is to secure and enforce appropriate legal frameworks to allow contract farming from which producers can benefit; to organise small producers into larger collectives that can better negotiate terms with more powerful buyers that leave small producers vulnerable; and to look at financial tools to allow small producer access to the capital and other resources they need to keep up with demands for both quality and quantity.

Multiple outlets are crucial for small producers: without access to a choice of markets, farmers cannot afford not to accept whatever conditions demanded by the company they sell to. The barriers for small producers to enter export markets, in the relatively few cases where their participation is encouraged, are considerable. Such production requires numerous costly inputs and resources like land, water, chemical fertilizers, herbicides and pesticides which are traditionally beyond the reach of small producers (particularly women).

Example of medium-scale production of jatropha for biodiesel in Tanzania

An example of medium-scale production of raw material for biodiesel processing is the project implemented by Jatropha Products Tanzania. Initially, way before jatropha oil was considered as an option for the processing of biodiesel, a Tanzanian organisation for technology development Kakute found that pure plant oil from jatropha was suitable for use as lamp oil and as the basic ingredient for soap production. There was no real promotion of jatropha production as a cash crop, but youth and women groups were encouraged to gather the nuts from the jatropha trees which grow everywhere on the savannah. The tree is also used to protect the boma's where the pastoralists live. When the demand for jatropha oil increased, both for soap production and biodiesel processing, an NGO was founded out of Kakute to promote the production of jatropha at a bigger scale. In this promotion care is taken that especially the supposed advantages of the jatropha growing are exploited, i.e. that jatropha also grows on soils that are not suitable for food crops, can be used as hedge rows serving as protection from animals, wind and sunlight. JPTL also promotes farmer groups to extract the oil from the nuts to obtain added value. International companies are looking at the Arusha region, because it may become interesting to establish huge plantations to secure the supply of jatropha nuts; however jatropha is still only a promising alternative. At the moment only JPTL and the Dutch medium scale enterprise Diligent are active in the purchasing and processing of jatropha nuts. The latter has also a biodiesel plant, but purchases the nuts from small scale farmers. Should the demand for jatropha oil drop, because other alternatives are more attractive, then the existing jatropha oil can still be used for own energy consumption and for soap making.

Picture: Generation of community electricity using jathropha oil, Tanzania

Large-scale production

The production model most common for energy crops grown on a commercial scale is large-scale plantation agriculture. There is a long-standing and well-documented history of problems associated with plantation agriculture. Plantations are generally part of an agro-export model, relying on hired labour with either a company or a large landowner in control. Working conditions are often exploitative and even hazardous and abuses are common. Women workers are particularly vulnerable as landowners often find it easier to pay women less than male workers and exploit them in other ways.

Those who benefit from the model are large investors (banks, agri-businesses, commodity traders and large landowners). Small farmers too often find themselves dispossessed of their land and left in penury, with no option but migration to an urban centre (and a tenuous livelihood in the informal sector) or working for wages on the plantation. Brazil and other countries have documented cases of land expulsions, including of indigenous peoples whose culture and livelihood (often based on non timber forest products such as honey and rattan) are threatened through the expansion of large-scale plantations.

Developing country governments are, however, often attracted to plantations, and other models that promote export sales. As 1.6 billion people lack access to electricity and 2.4 billion people lack access to modern fuels for cooking and heating, many governments, as well as private investors, stress the important international commercial opportunities that biofuels offer. They are interested in the income opportunities, both through the investment of foreign companies and the potential for earning foreign exchange. This has attracted foreign investors (grain multinationals and energy companies, as well as banks and private investors) to match the ambitious demand created by targets in the United States and Europe with production in tropical and semi-tropical developing countries. The investors often promise new technology and even infrastructure to modernize agricultural production. They also promise to create employment.

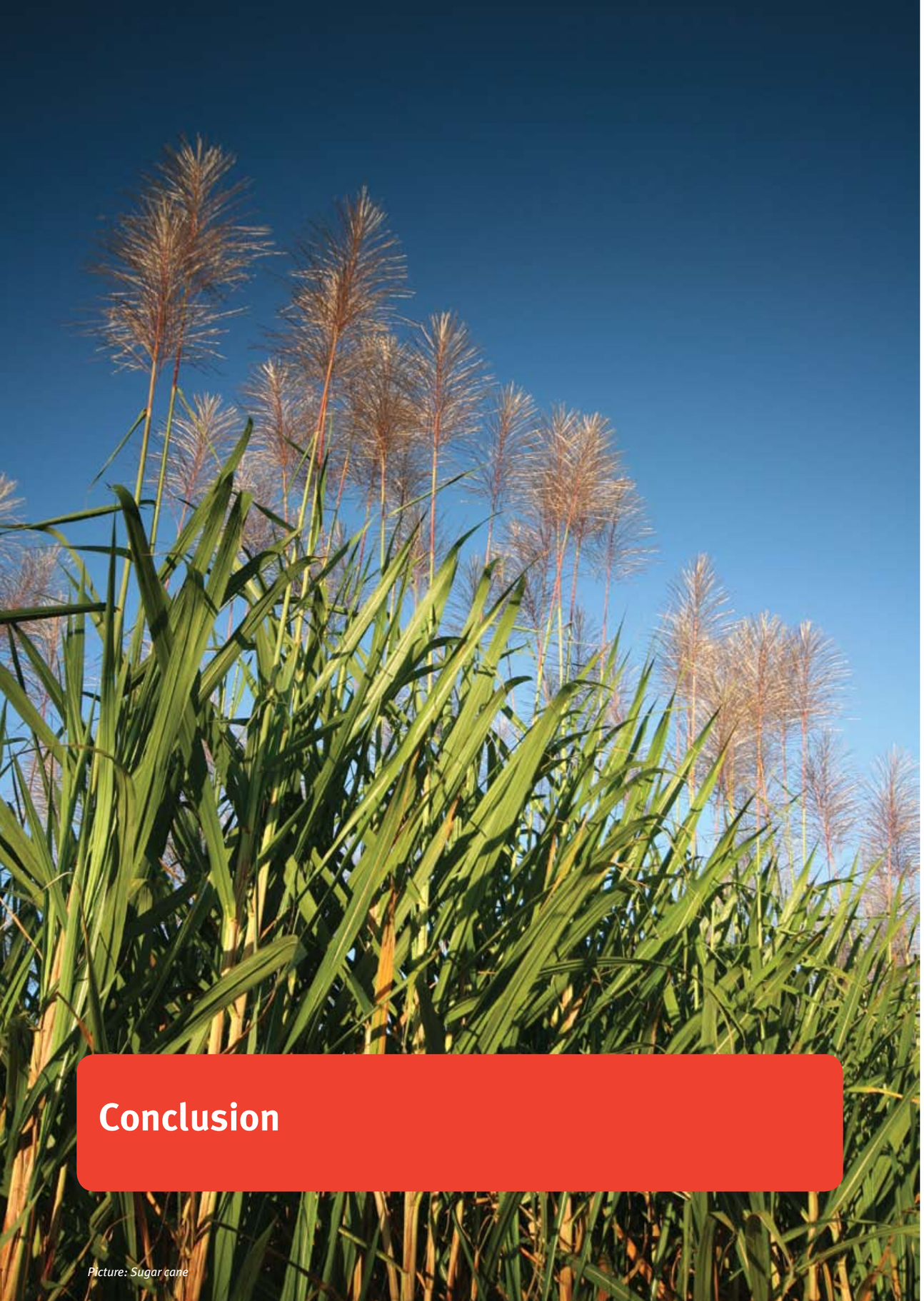
There's however little evidence that this model of production creates employment. For example, a modern soy company in Brazil typically farms from 1,000 to 10,000 ha, with some as big as 50,000 ha. With mechanized production, the larger the area farmed, the smaller the costs per hectare because so few farm workers are needed. Driving the combines and flying the planes for spraying only create one or two jobs per 400 ha, compared to small-scale farming where the same 400 ha in Northern Brazil would create enough work for 80 people.[30]

Example large-scale production of palm oil in Indonesia

In Indonesia biofuel production is mainly coming from large scale palmoil plantations (also used for food and cosmetic purposes).Large scale production means that hundreds of hectares of former rainforest of peatland have been converted to monoculture production of palmoil. Ownership and profit is mainly in the hands of international companies, although around 30% of the production is coming from small producers. These producers however are clearly linked to the companies as in most cases companies have claimed/taken or bought the land of the former owner, giving 2 hectares back (planted with palmoil) for each 6-8 hectares gained. This is often called the nucleus plasma scheme. The small producers do have their own plot but are dependent for the company to get the investments, insecticides ánd for the mill. The fruits need to be pressed within 24 hours of harvesting and no small holder does have its own mill, but companies do. This often leads to a position where small holders are in depth with the companies.
Some of the involved companies have joined of the Roundtable of Sustainable Palm Oil (RSPO), but this does not fully guarantee that their behavior on the ground is in line with the standards and criteria of the RSPO. Therefore Cordaid supports the Palm Oil Monitoring Initiative which is a network of local organizations monitoring the actual practice of some of the companies. This information is used in lobby to improve the performance of the companies in relation to human right violations etc.
The voice of the small holders is divers and not fully represented in the RSPO. The criteria formulated by RSPO could however also affect the production and sales opportunities of the small holders. Therefore Cordaid support the voice of the small holders by providing support to the Task Force on Smallholders within the RSPO. In 2009 this taskforce launched the idea to start a dispute settlement facility so that disputes can be taken care of through mediation and hopefully be solved sooner, instead of the long way through official processes when putting an official complaint at the RSPO.

[30] Soy: big business, big responsibility, page 27. Dutch Soy Coalition, 2008.

Picture: Peat land conversion



Conclusion

Picture: Sugar cane

Conclusion

Cordaid acknowledges that the actual shape and structure of the biofuels sector poses many problems for realizing Cordaid's objectives with regard to poverty eradication, environmental health, and the income and position of small producers and their communities in particular. Cordaid sees the considerable challenges involved in getting biofuels production right yet believes it is possible and important. The production model matters to the outcome, especially if the future of small producers is a fundamental priority, as it is for Cordaid. While small-scale production is not without its challenges, Cordaid considers the model of large-scale plantation production of energy crops to be unsustainable.

The model is a failure for economic and social justice, and for ecological sustainability. At the same time, rural communities need vibrant local production and processing industries. Energy is a cornerstone of such economic activity.

Cordaid's priority is to support agricultural systems that protect and improve incomes, food security and the natural resource base for small producers and their communities. As long as policy makers are not blinded to the pitfalls, biofuels can be part of that vision.

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