



# Biofuels

Opportunities and risks for developing countries



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## Foreword

The rising worldwide demand for non-food agricultural products and renewable energies presents a major opportunity for rural regions in developing countries. But good intentions are not enough to guarantee good outcomes. Well-meant but superficial “eco-romanticism” in Germany can cause hunger, forced displacement and even death in developing countries.

Many of our partner countries still lack the political settings that would be needed to make best use of development opportunities and eliminate attendant risks such as the clearance of rainforest or displacement of communities. Furthermore, many producers in those countries have insufficient know-how and means of production to reap any benefit from the rising demand in the agricultural markets.

We have reformulated our position on biofuels in order to respond appropriately to the dynamics currently at work in this area. Past discourse on biofuels has been very contentious and emotionally charged. Let me therefore make one point quite clear: where conflict arises, an adequate food supply is always our priority before seeking additional resources for a sustainable energy supply. Yet at the same time, I am convinced that any such goal conflict can be resolved productively; in fact, we need not let it arise in the first place.

Our core message is clear: we want to make resolute use of the opportunities arising for developing countries from the growing worldwide demand for biofuels. At the same time, we want to eliminate possible risks and side-effects. To this end, transparent standards on human rights and social and environmental responsibility must become the touchstone of all action taken. If this can be accomplished – and I am convinced that it can – the cultivation of energy crops becomes a development-policy gain for all involved. In that event, biofuel production and food security will not be at odds – quite the opposite: with

the additional income created, and through general stimulation of rural regions, we will then make a significant contribution both to climate protection and to the fight against hunger!

Poverty and hunger, population growth and migration, climate change, fragile states and unstable markets call for policy responses. Rural regions are very important for sustainable global development: not only do they harbour great development potential, which has gone unpromoted for many years, but these are also the regions in which the greatest numbers of people live in poverty and hunger.

Rural development is a key sector and support focus of German development policy. After more than a decade of declining public and private investment in agriculture and rural regions, this trend has fortunately been reversed due to resolute efforts by the German Federal Government in conjunction with others. In the period from 2010 to 2012, Germany has pledged a total of 3 billion dollars for rural development and food security.

Currently, however, there is also an upturn in private investment in rural regions. This has our strong support. In the past year, the total of all foreign direct investment worldwide amounted to 1,122 billion dollars. More than half of this sum was invested in developing countries and emerging economies – almost five-fold the combined public spending of all donor states on development cooperation in the past year. This ratio demonstrates the thrust of the dynamic on which we must now capitalise.



Hans-Jürgen Beerfeltz  
State Secretary in the Federal Ministry for Economic Cooperation and Development

# 1. Position of German development policy: Biofuels as a contribution to rural development

Biofuels are viewed as pivotal to the attainment of global climate targets and long-term energy security. For that reason, the demand for energy crops is increasing worldwide. Biofuel production can contribute to higher incomes, better access to energy, rehabilitation of degraded land, and hence a general improvement in living conditions. So far, these opportunities have not been sufficiently harnessed for the benefit of developing countries, rural regions and their inhabitants.

Since developing countries, by worldwide comparison, have the greatest potential to boost agricultural production, they can play an important role in the production of biofuels in future. It is therefore right to make rural development a much stronger focus of German development policy once again, after years of neglect, and to support investment in sustainable agriculture projects, taking advantage of the opportunities of energy crop cultivation as appropriate.

However, the production of energy crops also carries environmental and social risks. For example, it can result in over-exploitation of the natural resources of water and soil, threats to biodiversity, possible rises in food prices, the escalation of land conflicts, or a failure to involve the local population in value creation.

The position of the German Federal Ministry for Economic Cooperation and Development (BMZ) is that the opportunities of energy crop production must be grasped where they arise for developing countries, and potential risks must be avoided. In the view of BMZ, investment in the production of energy crops promises to deliver sustained development-policy benefits if the following principles are adhered to:

1. Primacy of the human rights to food and water, by safeguarding local food security and the supply of drinking water
2. Positive greenhouse gas balance, and conservation of biodiversity, soil fertility, water resources and other ecosystem services
3. Compliance with minimum social standards, particularly the ILO Core Labour Standards
4. Involvement of local communities in all decisions concerning them, in accordance with the principle of free, prior and informed consent (FPIC)
5. Respect for existing land and water rights, including informal and traditional rights
6. Participation of the local population in value creation through creation of local employment and other avenues, general stimulation of the rural economy and improved access to energy

Within the responsible international institutions, the BMZ strives to establish the general pre-eminence of these principles. Partner countries in bilateral cooperation are supported in developing framework conditions for sustainable biofuel production in accordance with these principles. The BMZ promotes the development of instruments to ensure respect for human rights and social and environmental standards. Through development partnerships with the private sector it will initiate projects on the ground for sustainable, development-oriented biofuel production.

In July 2013 the BMZ will report on the implementation of its "Biofuels" position paper, and on the success of its commitment to sustainable, development-oriented production of energy crops in developing countries.

## 2. Future German development-policy engagement

In order to optimally exploit the opportunities presented by investments in sustainable agricultural projects and to mitigate the risks of biofuel production in developing countries, anticipatory steering of policy is necessary. This is primarily the task of the target countries for investment and their governments. German development policy can provide support with this in the following areas:

### **POLICY DIALOGUE AND INTERNATIONAL FRAMEWORK-SETTING**

Within national and international policy processes, German development policy will actively work to ensure that the manufacture and use of biofuels is carried out in a manner that is sustainable and conducive to development. In order to ensure the sustainability of investment in energy crops, the EU Member States have already agreed, in the Renewable Energy Directive, on binding environmental sustainability standards as a precondition for support. On social aspects, the only mechanism provided so far under the Directive is a reporting regime, but this has not been made an eligibility condition for the crediting of biofuels towards the blending quota. The BMZ will press for appropriate consideration of social aspects in the further elaboration of the Directive. On the international level, in the context of the Global Bioenergy Partnership (GBEP), the BMZ supports the development and application of indicators for sustainable bioenergy policies. This partnership was initiated by the G8 in 2005 and brings public, private and civil-society institutions together to promote sustainable bioenergy. The BMZ will advance this process by organising a conference of international experts on the subject of relevant capacity-building in developing countries.

### **SUPPORTING PARTNER COUNTRIES IN BILATERAL DEVELOPMENT COOPERATION**

As in the past, so too in future, German development cooperation will continue to support its partner countries in developing the framework conditions for sustainable agricultural production, and for biofuel production in particular. This includes supporting national and regional biomass strategies, e.g. by analysing the given biomass potential, by providing training on strategic environmental assessment, and by setting up consultation processes between decision-makers. Furthermore, biofuel producers will be supported in increasing their productivity sustainably, and thus reducing their relative pressure on natural resources such as soil and water. Measures will also be supported for the conservation and sustainable use of biodiversity, forests and other ecosystems, and their integration into biofuel projects. Partner countries will receive ongoing support in the detailed elaboration of food security strategies and the realisation of the human right to food, not least in order to prevent any risk of competition between biofuel production and food production. German development cooperation contributes to safeguarding land-use rights through its advisory work on national soil policies, land-use planning, land registration and ecological rehabilitation. The prime concern here is to counteract the risks of land conflicts and displacement of the local population.

## COOPERATING WITH THE PRIVATE SECTOR

Systems of standards are an important instrument for safeguarding human-rights, social and environmental criteria in international value chains. They enable consumers to choose to buy sustainably manufactured products, and provide farmers and companies with the means to structure their production to satisfy that demand and ultimately to sell more profitably. However, the relevant requirements must not disadvantage small farmers. Therefore German development policy supports approaches which take account of their needs. In the context of promoting systems of standards for sustainable agriculture, the BMZ works closely with the International Social and Environmental Accreditation and Labelling Alliance (ISEAL), the umbrella organisation of the most important standards initiatives. This also covers farmed feedstocks used for energy generation.

The BMZ pursues the general goal of enabling small farmers to access markets by means of “inclusive” business models which integrate them into regional and, if appropriate, global production and value-creation chains. Among these models are, for instance, contract farming (contractually agreed cooperation between farmers and biofuel feedstock purchasers), lease agreements which include profit-sharing with the landowners, and management contracts whereby a company manages the land on behalf of the small farmers and the landowner. These and similar forms of cooperation – formalised through development partnerships and strategic alliances with the private sector – will continue to be applied to future measures in the field of biofuels. In these processes, some general principles to be adhered to include an emphasis on long-term business relationships, cooperation based on trust and fairness between actors in the production chain, as well

as resource efficiency, conservation of ecosystems and respect for consumers’ interests.

## INSISTING ON SUSTAINABILITY

Now and in future, the BMZ will only approve bilateral development cooperation projects on biofuel production and grant support to private investment in this area if the development-policy benefit of the measure and its respect for human rights and environmental and social standards are demonstrated beyond doubt.

Through its contracting procedure, the BMZ ensures that bilateral development cooperation projects supported via the implementing organisations of Technical and Financial Cooperation are in alignment with the Ministry’s strategies. In particular, the positions set out in the present paper are in line with the binding strategy papers *Rural development and its contribution to food security* and *Human rights in German development policy*. BMZ strategy papers serve as a guideline for the own-account business of KfW Entwicklungsbank, DEG Deutsche Investitions- und Entwicklungsgesellschaft mbH and GIZ GmbH with its International Services division.

The World Bank and regional development banks each apply their own standards to the assessment of biofuel projects. Thus, a set of policies known as Safeguards are applied to all IBRD/IDA projects, while Performance Standards are applied to all IFC/MIGA projects. The BMZ takes an active role in the ongoing development of these banks’ respective conditions and standards, and urges them to make human rights, environmental and social principles fundamental preconditions of their projects. Furthermore the BMZ is involved in the development of country and sector strategies by the development banks, which in turn lay foundations for the orientation of

concrete projects. If, for example, project proposals are referred to the Board due to the political sensitivity of the situation or the high volume of the credit,

in future the BMZ will continue to assert its position in specific terms when individual projects are under discussion.

## 3. Context

### BIOFUELS: CLARIFICATION OF TERMINOLOGY

Biofuels<sup>1</sup> are fuels in liquid or gaseous form which are used in combustion engines, predominantly in the transport sector, but also for power and heat generation (e.g. in small-scale combined heat and power units). They account for just a small share of bioenergy, a term which encompasses all solid, liquid and gaseous energy sources made from wood, agricultural crop plants and organic residues and wastes. The term “first generation” biofuels refers to liquid fuels made from plant-based oils and starches, i.e. bioethanol on the basis of sugarcane, grain and sugar beet, and biodiesel made from oil palm, rape, soya and other oil crops. So far these are the only widely used renewable energy sources, since the technology is now tried and tested. Second generation biofuels (biomass to liquid/BtL, cellulose ethanol) are liquid and gaseous fuels from lignocellulosic feedstocks (e.g. wood, grasses, woody wastes

and residues). These are not yet market-ready, and their technical requirements rule them out for widespread use in developing countries in the near future. Third generation biofuels are extracted from algae and other photosynthesising micro-organisms; their development is still in its infancy.

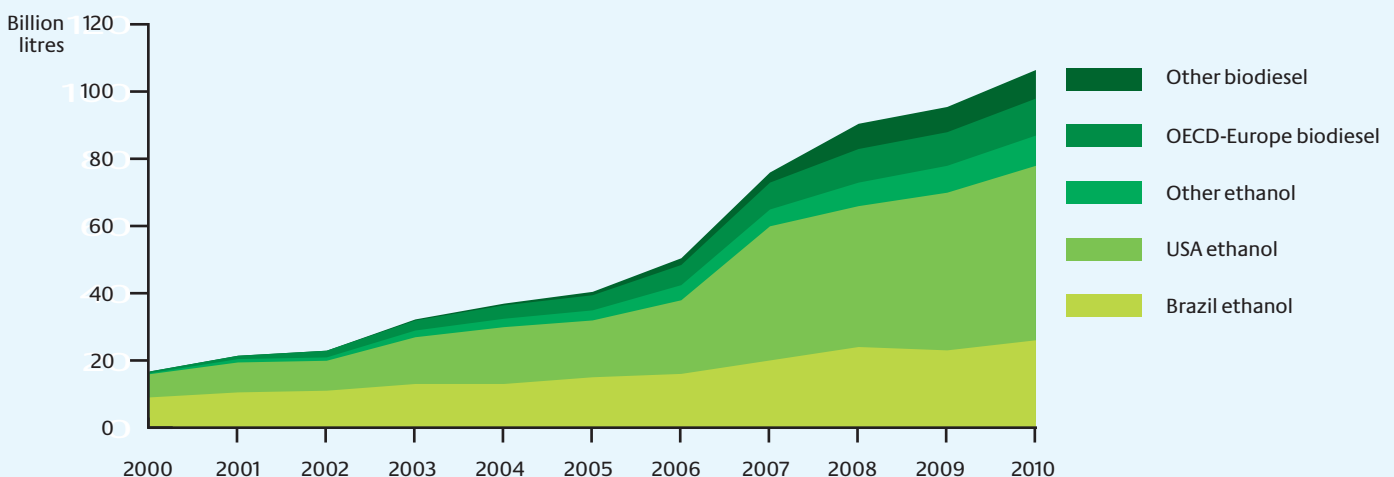
### THE IMPORTANCE OF BIOFUELS

Biofuel production has increased worldwide in recent years. Currently biofuels account for approx. 3 % of global fuel consumption in the transport sector. Global biodiesel production almost trebled between 2006 and 2010, while bioethanol production doubled (see Figure 1). The International Energy Agency projects that the proportion of biofuels in the transport sector may rise to 27 % by 2050, assuming that the anticipated efficiency gains for first generation biofuels are realised and that second generation biofuels attain market-readiness (IEA 2010).

Many industrialised countries promote biofuels in the framework of climate protection programmes as a low-carbon alternative to fossil energy sources.

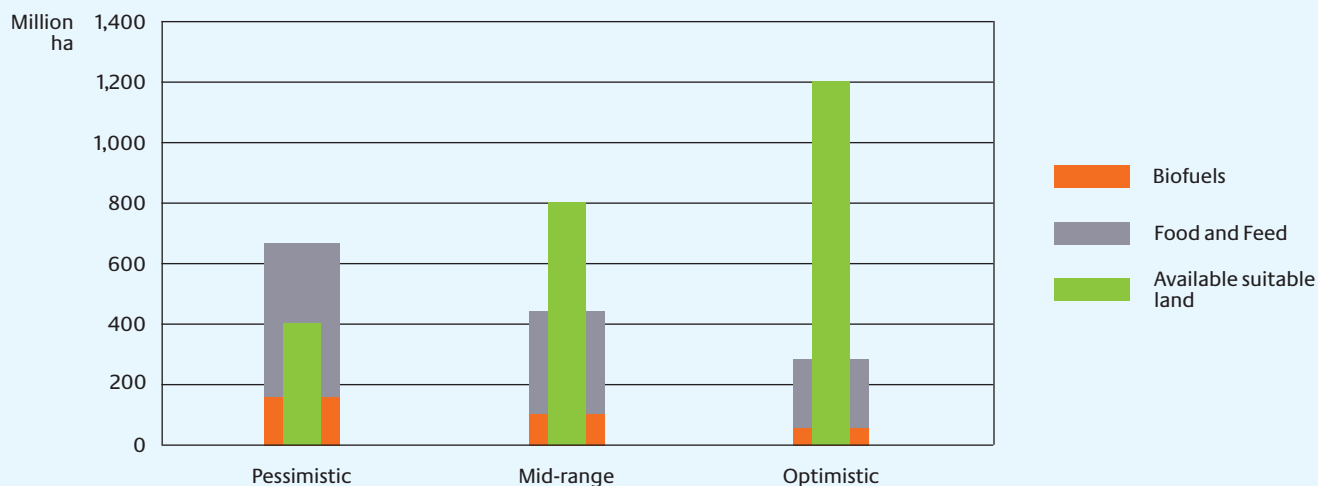
<sup>1</sup> Biofuels are fuels made from biomass. Their designation does not imply that these fuels are “green” in the sense of environmentally friendly per se.

Figure 1: Global biofuel production in the years 2000 to 2010



Source: IEA (2010)



**Figure 2: Global land availability and requirements in the year 2020**

Source: RFA (2008)

Supplementary objectives are to improve energy security in the context of increasingly scarce crude-oil reserves, and promote domestic agriculture. For instance, in its Renewable Energy Directive (2009/28/EC), the EU set itself the objective of meeting 20 % of its total energy demand and 10 % of its transport-energy demand from renewable energies by 2020. Linked with that, the Directive on Fuel Quality (2009/30/EC) provides for a 6 % reduction of greenhouse gas emissions in the transport sector during the same period. Three key objectives come to the fore in the promotion of biofuels for developing countries and emerging economies: reducing dependency on imported fossil energy sources and improving the balance of trade; raising incomes by means of new marketing channels for agriculture as a contribution to sustainable rural development; and reducing the widespread energy poverty, particularly in rural regions. Brazil is leading the way: thanks to decades of state subsidy programmes, it now meets half of its fuel demand in the transport sector with bioethanol and ranks as one of the world's largest ethanol exporters. Since 2005, targeted income opportunities for small agricultural producers have been created in the framework of

the Brazilian biodiesel programme: biodiesel companies receive tax concessions for making use of oil produced by small farmers.

### INFLUENCE OF BIOFUELS ON LAND AVAILABILITY AND AGRICULTURAL PRICES

According to FAO data, at present 1 – 2 % of the worldwide area of agricultural land is used for the production of biofuels – and the trend points upwards. At the same time, the land requirement for food and feedstuff production is also increasing. Currently 5 % of the global grain harvest is used to produce biofuels. The largest share (40 – 50 %), however, is fed to livestock. Projections of future demand and land availability are not unequivocally clear<sup>2</sup> (see Figure 2).

<sup>2</sup> Forecasts of global land requirement and availability for energy crop production, and the consequent scenarios for agricultural price trends, vary greatly because the external variables (such as choice of energy crop, energy and agricultural market development, technological progress, impacts of climate change and framework policies) differ very considerably. If co-products of biofuel production (especially feedstuffs but also residues for subsequent use in energy production) are taken into consideration, land requirements are generally reduced by 10 – 25 %. If the availability of second generation biofuels is assumed, the land requirement in the models normally drops by 30 – 40 %.

Depending on scenario, an additional 0.8 – 6.9 million ha of land will be necessary to realise the EU's 10 % target for biofuels.<sup>3</sup> The expansion of settlement areas with attendant paving-over of land, the land degradation caused by unsustainable arable farming and overgrazing, and the negative consequences of climate change will give rise to even greater pressure on soil and other natural resources like water, forests and biodiversity<sup>4</sup> in the long-term.

Both the increase in conflicts over use of land and water resources and the rising demand for agricultural inputs like seed and fertilisers cause agricultural prices to escalate. The impacts of biofuel production on the level and volatility of food prices has been the subject of numerous studies.

It is now undisputed that the additional demand for farmed feedstocks stimulated by targeted support policies in the USA and the EU, coupled with other factors (harvest losses, financial speculation, climate change), have already contributed to raising the prices of agricultural commodities. Forecasts indicate that retention of these support policies for biofuels will result in price rises of 3 % to 13 % for grain and of 6 % to 30 % for oil seeds.<sup>5</sup>

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<sup>3</sup> Source: [http://www.ieep.eu/assets/750/Policy\\_briefing\\_ILUC\\_21\\_01\\_2011\\_FINAL.pdf](http://www.ieep.eu/assets/750/Policy_briefing_ILUC_21_01_2011_FINAL.pdf). The forecasts are based on different reference periods and different underlying assumptions. See also footnote 2.

<sup>4</sup> Forest areas are currently the most significant reserves of land, and are therefore subject to high pressure for conversion. This is jeopardising the attainment of global climate and environmental targets (principally the reduction of greenhouse gas emissions and conservation of biodiversity) and local environmental quality (principally water availability, water quality, erosion protection and climate adaptation capacity).

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<sup>5</sup> Source: <http://publications.jrc.ec.europa.eu/repository/bitstream/11111111/15287/1/jrc58484.pdf>. The forecasts are based on different reference periods and different underlying assumptions. See also footnote 2.

## 4. Assessment

### OPPORTUNITIES AND RISKS FOR DEVELOPING COUNTRIES

Biofuels are not good or bad per se. Their production and use entail both opportunities and risks. The economic, social, environmental and human-rights impacts of biofuel production for the local population in the region depend heavily on the given regulatory framework, the detailed formulation of contracts, and their implementation. If investment is directed to sustainably-designed projects in rural areas, the living situation of the local population can be improved. If the detailed design is inappropriate, however, there is a risk that the investment will fail to deliver commensurate benefits to the local population.

**Food security:** The impacts of biofuel production on food security must be considered in a differentiated way. Generally, the broad-scale cultivation of energy crops puts increased pressure on natural resources by heightening the demand for land and water, and for agricultural inputs; this in turn affects global markets and plays a part in inflating agricultural product prices. For agricultural producers who produce more than they consume themselves (known as net producers), higher (stable) agricultural prices are the basis for any improvement to their living situation since they earn a higher income for their products, which they can then spend on better food, their children's schooling, or investment in their farms. For poor – mainly urban but in some cases landless rural – population groups, who are dependent on buying affordable food (known as net consumers), food-price rises only exacerbate the issue of hunger. Social compensatory measures are essential here. In the short term, the decline in supply can be compensated by trade, and in the medium-term by increased productivity.

The widespread opinion that it is better per se to cultivate non-food than food crops for biofuel produc-

tion is too short-sighted. In fact, the cultivation of food plants which can be used as energy feedstocks, such as maize, cassava, sugarcane or palm oil, creates the option to rely on them for subsistence in the event of food shortages. In other words, they can act as a buffer against negative trends affecting the food supply.<sup>6</sup> To reduce the risk of competition between biofuel production and food production, energy crops can be produced in coordinated rotation cycles or in mixed cropping systems with food crops. Although the possibilities and limitations have not been fully researched, there are some energy crops that can be cultivated on marginal land that is unsuited to food crops. For instance, cultivation of jatropha is possible on eroded land and can even help to improve soil quality in the best cases. Nevertheless, the yields are very low. Therefore such a plantation is only worthwhile if, in addition to the oil yield, other services such as improving soil fertility or reducing erosion are taken into account.

**Employment and income situation:** Investments in biofuel production can create additional employment and income opportunities. They are most effective in promoting development when they are not aimed solely at large-scale plantations but promote the inclusion of (small-scale) farm production. Fair business models are a prerequisite for pro-poor growth: in this way, strategies such as contract farming, along with recognised systems of certification and standards, can open up access to advice, innovations, appropriate technologies, infrastructure, services, inputs and sales markets for the farmers involved. Access to these benefits must be guaranteed for marginalised population groups in particular. This not only helps to ensure the production and sale of energy crops at appropriate prices but also makes it possible to raise productivity throughout

<sup>6</sup> In the case of multipurpose crops, market mechanisms or state interventions can steer the choice of utilisation relatively promptly: for instance, Brazilian bioethanol production has declined sharply due to the current high sugar prices.

the agricultural sector, which can also work to the advantage of food production. By promoting systems of certification and standards (such as the Roundtable for Sustainable Palm Oil – RSPO, Roundtable for Responsible Soy – RTRS and the Roundtable for Sustainable Biofuels – RSB), new market segments can be opened up, leading to the creation of local jobs. Local producers can achieve better prices by entering into partnerships with investors to raise their product quality so that it will sell at higher prices. Beyond this, the application of social and environmental production criteria can lead to an improvement in working conditions.

However, if international investors exclusively employ their own workforces or make use of highly mechanised production techniques without training local workers in their use, the local population may be deprived of employment opportunities. Wages and working conditions must comply with national legislation or, where appropriate, with the ILO Core Labour Standards, the OECD Guidelines for Multinational Enterprises, the UN Global Compact or other voluntary standards. If the local population is – de jure or de facto – dispossessed or deprived of the basis of its livelihood without compensation, these people descend into absolute poverty.

**Impacts on climate and the environment:** Essentially due to the prevailing conditions in which they are cultivated, farmed feedstocks from the tropics and subtropics (e.g. ethanol from sugar cane and biodiesel from palm oil) have better net greenhouse gas (GHG) and energy balances than those from non-tropical regions. In order to really utilise this potential, however, and to ensure that their fundamental advantage is not counteracted by inappropriate forms and methods of production, clear conditions must be imposed on agricultural production practices.

Biofuel production based on wastes and residues has the best GHG and environmental balance. All other biofuel production paths inevitably have land-use impacts. Expansion in the land area devoted to biofuel production always means a direct change in land use. In addition, it can entail further indirect changes in land use, if the previous use (e.g. food or feedstuff production) is “crowded out” and shifted onto other land. A complete evaluation of the impact of any energy crop production project on climate and the environment must therefore take account of the effects of direct land-use change and possible further effects of indirect land-use change.<sup>7</sup>

Positive effects on climate and the environment can most reliably be achieved by rehabilitating areas of degraded land for biofuel production. Crop cover can stem the erosion of these soils and improve their capacity to store water and carbon. Moreover, the rehabilitated areas can be used as eco-corridors to link up existing ecosystems, which supports the conservation of biodiversity.

It will also be critical in future to increase biomass production yields by making more efficient use of agricultural land. The production of biofuels needs to expand on the strength of higher yields rather than additional land-take, so that no overall expansion in agricultural land area occurs. This will minimise the risks of adverse climate and environmental impacts like the clearance of virgin forests to gain land for biofuel production or the displacement of previous farming uses into traditional pasture lands or into forested areas. Harmful impacts on the climate occur particularly when ecosystems with a high capacity to sequester carbon (e.g. forests, bogs and mires) are converted into arable land. This kind

<sup>7</sup> Whereas the effects of direct land-use changes on the given productive land can be verified relatively clearly, the complex interaction of land availability, yield increases, changes in demand etc. make it difficult to ascribe indirect land-use changes to particular geographical localities and impossible to gather complete data.

of conversion releases CO<sub>2</sub> in such large amounts that it outweighs by many times the total of carbon emissions saved by not burning fossil fuels.

**Energy supply:** Locally produced and used biofuels can reduce the widespread energy poverty in rural regions. For developing countries, they open up an alternative to importing fossil energy sources and thus the possibility of saving foreign currency. A prerequisite is the existence of a local or national biofuel market and appropriate energy infrastructure and services. The subsidisation of fossil fuels is a barrier to the establishment of national biofuel markets in many developing countries. At the same time the end users, e.g. possible users of a village-run vegetable oil generator, are only willing or able to pay for energy if it is supplied reliably and enables higher value creation. Their willingness to pay, in turn, is pivotal in determining whether it is worthwhile for local producers to supply adequate volumes of biomass. From the viewpoint of a developing country, it can certainly make sense to produce biofuels for established (high-paying) export markets at first, and subsequently to make use of the income and technology transfer to develop the domestic biofuel market. Establishing local biofuel value-creation chains calls for a comprehensive sustainability strategy and coherent public promotion across sector boundaries. In contrast, by making use of wastes and residues (e.g. bagasse from sugarcane, oil palm wastes) inputs to the local electricity supply can be realised comparatively easily.

**Land conflicts, rural exodus, uncompensated resettlement or displacement:** The cultivation of energy crops can lead to the escalation of land conflicts, intensified rural-urban migration, uncompensated resettlement and displacement of communities. In many places it can be observed that large areas of land are being bought or leased for biofuel production. If land ownership and land-use rights in the affected territories (e.g. rights to grazing, rights

of way, water rights and rights to gather products such as firewood and medicinal plants) have no basis in formal law, are only inadequately documented or are not sufficiently enforced by the state, the local population is often exposed to the above risks without any protection. These formal bases are crucial for securing people's involvement in negotiations at an early stage and, if applicable, stipulating compensation. The inhabitants of areas with traditional land ownership and land-use rights, particularly vulnerable groups like indigenous peoples, migrants and widows, are more severely affected, particularly because land is usually the only resource from which they can derive their livelihood. Where there are few fall-back areas and population density is high, the risk is especially great that they will be forced onto degraded land. Particularly in countries which suffer corruption and a lack of legal certainty, large-scale land purchases and leases can lead to human-rights violations such as forced resettlements, or exacerbate these in countries already affected by conflict. In such situations such land transactions can pose a threat to stability and peace in a region or country.

**Economic and structural-policy impacts:** Positive impacts on the economy arise through higher economic output from rural regions and an overall uplift in tax revenues. Above all, when this tax is applied to measures which improve production, employment and income, and is spent on establishing and extending basic social services in rural regions, comprehensive rural development can be set in motion. In this way the promotion of biofuels is a structural and regional policy intervention in favour of the rural areas which have been neglected for decades. Whether these effects are achieved via the export of biofuels and/or the establishment of local biofuel markets depends on the given conditions in the country (e.g. access to and costs of fossil energy sources, infrastructure).

However, ambitious promotion targets for biofuel expansion – in conjunction with overall rising demand for farmed feedstocks, harvest losses due to climate change and financial speculation – may contribute not just to price increases but also to higher price volatility in agricultural markets. These are detrimental to both producers and consumers of agricultural goods, and therefore weaken the economy as a whole. A further risk is that in the context of biofuel investment incentive programmes, governments make very high financial concessions to investors (tax relief, trading preferences, unduly low water costs) and thereby counteract the expected positive impacts in the form of jobs, tax receipts and technology transfer. Moreover, any non-sustainable use of land for biofuel expansion causes the loss of important ecosystem services (e.g. water catchment, biodiversity conservation); these need to be given greater weight in macro-economic cost-benefit analysis.<sup>8</sup>

## UTILISING OPPORTUNITIES, MINIMISING RISKS: SIX BASIC PRINCIPLES

German development policy is convinced that the following basic principles must be adhered to in biofuel production as a precondition for realising the development potential of investment in sustainable agricultural projects and for managing the risks successfully:

### 1. Primacy of the human rights to food and water:

The food security of the local and national population, as well as their supply of drinking water and

water for agricultural production have absolute priority. The availability of and access to food and water must be guaranteed for all population groups. This merits particular attention when agricultural land is planted exclusively with crops for use in energy production or when the water balance in the region is influenced on a broad scale by large volumes of extraction (from watercourses and aquifers).

### 2. Positive GHG balance, and conservation of biodiversity, soil fertility, water resources and other ecosystem services:

In order to attain a positive greenhouse gas and environmental balance, preference should be given to methods of production and use which lay claim to as little additional land area as possible and make sparing use of water resources. By raising agricultural productivity and selecting suitable rotation and multi-cropping systems, further gains in land productivity can be achieved. Soil fertility must be maintained with sustainable and soil-conserving techniques and appropriate fertilisation. Furthermore the discharge of harmful substances into soil and water must be reduced as far as possible. Adherence to sustainability standards and principles and performance of strategic environmental impact assessments are important instruments for ensuring the sustainability of production.

### 3. Compliance with minimum social standards, particularly the ILO Core Labour Standards:

Social standards such as the prohibition of child labour and forced labour, equal pay, freedom of association, minimum age and prohibition of all types of discrimination must be upheld in biofuel production. Therefore the ILO Core Labour Standards, the OECD Guidelines for Multinational Enterprises, the UN Global Compact and other voluntary standards must be incorporated into contracts, and steps taken to ensure that they are applied in practice.

<sup>8</sup> The BMZ examines the economic assessment of non-sustainable use of agricultural land in the study "The Economics of Land Degradation" (publication in 2012). The potential for capturing the value of ecosystem services is highlighted by, for example, the international initiative "The Economics of Ecosystems and Biodiversity" (TEEB): <http://www.teebweb.org/>.

#### **4. Involvement of local communities in all decisions concerning them, in accordance with the principle of free, prior and informed consent (FPIC):**

The local population should be involved as early and as comprehensively as possible, i.e. at the stage of preparing soil policies and land-use plans, but especially in the planning of specific agricultural projects. Contract negotiations are to be conducted transparently and with systematic involvement of the relevant stakeholders, including civil society and, most particularly, local land users. Above all, population groups who are frequently disadvantaged in decision-making processes (women, for instance, who are often in relationships of dependency where access to land and water are concerned, and do not therefore have the same negotiating position as men), should have a say in the negotiations. The decision as to whether and under what conditions land is sold or leased to an investor can only be taken with free, prior and informed consent from the people affected. In order to safeguard the political participation of the people concerned, important considerations are the establishment of administrations close to the communities they serve, the efficient provision of municipal services and infrastructure, and the promotion of capacity development measures on the subject of accountability.

#### **5. Respect for existing land and water rights, including informal and traditional rights:**

Existing land rights must be acknowledged and harmonised; that is the foundation for the design of binding regulations for land sales and leases in connection with biofuel production. The challenge is becoming especially clear in Africa: whereas de jure the land claimed for a concession is often state land, de facto it will have been in use by local arable and livestock farmers for generations under customary law. That means that informal and traditional land ownership and land-use rights are also to be respected, with guarantees to the population incor-

porated into contracts. Since women are frequently disadvantaged both in modern and in traditional land law, particularly with regard to questions of ownership, it is crucial that equal access to land is guaranteed, irrespective of the legal form. To this end, the registration of communal and individual land rights is a central element which is, in turn, fundamental to the formulation and implementation of land policies and land-use plans.

#### **6. Participation of the local population in value creation through creation of local employment and other avenues, general stimulation of the rural economy and improved access to energy:**

In order to ensure that the local population benefits from biofuel production, it is essential that the detailed formulation of contracts should be development-oriented, pro-poor and compatible with human rights. Since jobs represent an important mechanism for participation of the local population, the contracts should make clear stipulations about a minimum number of jobs and on the prioritisation of local over foreign workers. In addition, the involvement of the local economy should be secured by means of links with local suppliers and local processors. Participation of the local population in the returns from investment can be achieved, for example, by means of equity participation in which a farmers' union or another local organisation exchanges its land-use rights for shares in the company, or by collective profit-sharing arrangements with the local population. Both job-allocation and profit-sharing mechanisms should be designed with gender equity in mind.

## REALISTIC ASSESSMENT OF OPPORTUNITIES AND RISKS IS VITAL

To make a realistic appraisal of the opportunities and risks, analysis of the economic and structural-policy benefits should be undertaken beforehand, particularly before the realisation of a large-scale energy crop plantation for biofuel production. An objective assessment of respect for human rights and socio-economic and environmental sustainability should also be carried out.<sup>9</sup> Evidence of sustainability should be demonstrated and communicated continuously by means of certification systems.

Results of assessments and evaluations should be accessible not only to investors and policy-makers but also to the affected population and the general public in an appropriate form. The role of civil society is an important one, both with regard to information about the opportunities and risks of biofuel production, and in relation to monitoring contract negotiations, contract implementation and the impacts of investment. Representatives of civil society, particularly the affected people themselves, should be actively involved in the contract negotiations and, where necessary, actively supported in exercising their monitoring function. Attention must be paid to equitable representation of the affected population groups, and of both genders in particular. The assessment of a large-scale energy crop plantation for biofuel extraction must be informed by existing international law. This includes respect for human rights, ILO conventions, obligations under investment agreements, and international trade agreements.

<sup>9</sup> Effective instruments for this purpose are Environmental and Social Impact Assessment, Human Rights Impact Assessment, and Poverty and Social Impact Assessment. The due diligence obligations associated with corporate human rights responsibilities are set out in the UN Framework for Business and Human Rights “Protect, Respect, Remedy”, which should be consulted as an important reference.

## BIOFUEL PRODUCTION AS A SHORT-TERM AND MEDIUM-TERM STRATEGY

In the short to medium term, the use of farmed feedstocks for energy production is an additional marketing opportunity and source of potential income for agriculture. Initial estimates indicate, however, that from the year 2020 the agricultural land available for bioenergy and other non-food agricultural products could become scarce due to the combined effects of population growth, if it reaches the projected levels, along with changed consumption patterns and climate-related impacts on yields. The BMZ supports its partner countries in adapting agricultural production to climate change, raising agricultural productivity and minimising post-harvest losses. Nevertheless land-take is going to rise. Therefore the BMZ views first generation biofuels as a transitional technology for use as a substitute for fossil energy sources, before more efficient transport technologies like electric vehicles or the use of second and third generation biofuels attain market-readiness. Where possible, the use of co-products should be promoted (e.g. use of process residues from palm oil and sugar cane production for generation of the local energy supply).

## EXTENDING SUSTAINABILITY STANDARDS TO THE WHOLE OF BIOMASS PRODUCTION

The risks mentioned are not specific to biofuels but concern the whole of food and feedstuff production as well as biomass production for feedstock uses in industry (i.e. the materials, pulp, chemical, textiles, pharmaceutical and cosmetics industries and others). However, biofuels differ from other agricultural products in that they are the object of targeted policy incentives. This special status creates the immediate necessity to institute sustainable structures in this market first of all. Furthermore, the debate must urgently be broadened to cover the whole of biomass



production and other agricultural products.<sup>10</sup> Discussion about biofuels is already observably advancing the general sustainability debate in agriculture. The most effective option for preventing adverse impacts from the production of farmed feedstocks is to implement appropriate framework policies and production standards geared towards the sustainability of the entire agriculture and forestry sector.

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<sup>10</sup>The BMZ has commissioned a study on the environmental and socio-economic implications of exporting non-food agricultural products from developing countries for use as feedstocks in Germany and the rest of Europe: the study "Nachwachsende Rohstoffe für die stoffliche Nutzung – Auswirkungen für Entwicklungs- und Schwellenländer" (Non-food agricultural products for industrial feedstocks – implications for developing countries and emerging economies) will be published soon online.

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