FORMULATION OF A NATIONAL SUSTAINABILITY SCHEME FOR BIOFUELS IN MALI

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ABSTRACT: During recent years the Government of Mali as well as the civil society in Mali has shown considerable interest in the development of a strong and sustainable biofuels sector. Primary policy drivers for biofuels development in Mali include security of energy supply, a reduction of the foreign exchange burden, environmental benefits, and socio-economic development by rural electrification in remote regions. On the other hand, concerns exist with respect to increasing competition over land and water resources, rising food prices, as well as potential negative social impacts such as land ownership conflicts and displacement of rural communities. It is widely acknowledged that sound legal and regulatory frameworks for biofuels are needed in African countries to ensure environmentally, economically and socially sustainable production, promotion and use of biofuels. In the framework of the project 'Mainstreaming Sustainability in the Biofuel Sector in Mali', coordinated by Mali-Folkecenter and co-funded by the Dutch Global Sustainable Biomass Fund (administered by NL Agency, the Ministry of Economic Affairs, Agriculture and Innovation, the Netherlands), national sustainability criteria are being developed. This national sustainability scheme in Mali will be developed and implemented under the guidance of the National Agency for the Development of Biofuels (ANADEB), legally established in 2009 as the implementing agency of the National Strategy on Biofuels in Mali.

Keywords: biofuels, sustainability, certification schemes, international cooperation, bio-energy policy, Mali

1 INTRODUCTION

During recent years the Government of Mali as well as the civil society in Mali has shown considerable interest in the development of a strong and sustainable biofuels sector. This development is embedded in several policy documents of the Government of Mali such as the Poverty Reduction Strategy with the following three main objectives for the period 2007-2011:

- Development of infrastructures and the productive sector
- Pursuance and consolidation of structural reforms
- Strengthening of the social sector (education, health, water access)

The achievement of these objectives addresses several priority areas of which three are closely interlinked with the development of a sustainable biofuels sector:

- Food security and rural development
- Development of small and medium size enterprises
- Protection and sustainable management of natural resources

In 2006 the National Strategy on Renewable Energy was published by the Ministry of Energy and Water (MEE) stating the targets of 10% reduction in fossil fuel imports by 2014, 15% by 2019, and 20% by 2024. This strategy includes the following main objectives:

- Improve access to energy especially from renewable sources
- Rationalise the use of existing energy sources
- Increase efficiency of the use of existing natural resources to produce energy
- Promote the sustainable use of biomass resources through the conservation and protection of forests
- Strengthen government capacity and streamline administrative procedures within the energy sector

Biofuels are foreseen to play a major role to achieve the objectives of the National Strategy on Renewable Energy. The National Agency for the Development of Biofuels (ANADEB), legally established on 5th June 2009, is the implementing agency of the National Strategy on Biofuels. The main responsibilities of ANADEB include:

- Establishment of a centralized and harmonized framework for biofuel promotion
- Increase of the number of professionals working in the biofuels field
- Enacting of production licensing requirements and technical quality standards for biofuels
- Creation of a dialogue between main public and private actors in the field
- Promotion of trade between international partners in biofuels

Thereby, the National Strategy on Biofuels states the importance of ensuring the environmental, economic and social sustainability of the development of the biofuels sector in Mali, and ANADEB is currently involved in the elaboration of national sustainability criteria and a biofuel certification scheme suitable for the specific framework conditions in Mali. This activity is strongly

supported by the project Mainstreaming Sustainability in the Biofuel Sector in Mali, which also serves to build capacity and expertise within ANADEB in the field of sustainable biofuels production. This project is coordinated by Mali-Folkecenter and co-funded by the Dutch Global Sustainable Biomass Fund (administered by NL Agency, the Ministry of Economic Affairs, Agriculture and Innovation, the Netherlands).

2 BIOFUEL SUSTAINABILITY CONCERNS IN MALI

The main motivations for the development of a biofuels sector in Mali, as in many other countries worldwide, are to contribute to national energy security and to address the important problem of high and increasing crude oil prices which place pressure on the country's trade balance. Further objectives are the contribution to improved energy access and the creation of employment opportunities and significant revenues especially for the rural population.

The following paragraphs underline specific framework conditions important for considerations on ensuring sustainability of the biofuels sector in Mali [1].

(a) Food security

An important sustainability criterion for Mali is to avoid the conflict of agricultural production for food and biofuels. Thereby, it needs to be ensured that the development of the biofuels sector in Mali does not have any negative impact on food production. On the contrary, investments in the agricultural sector triggered by biofuels production should lead to an increase of food production.

Food production in Mali has historically been highly variable due to fluctuating rainfall, which also influences river levels and hence irrigated as well as rain-fed agriculture. This variability, combined with a low percentage of total agricultural production entering the market, causes volatile available food quantities as well as fluctuating prices for food products. It is estimated that a fourth of the households in Mali are in a chronic situation of food insecurity with cereal consumption representing around 50% of household expenses.

(b) Access to electricity

In Mali only about 23% of households have access to electricity (58% in urban areas and 11% in rural areas). Biofuels may therefore significantly contribute to rural electrification through the use of straight plant oil (e.g. Jatropha oil) in modified diesel engines for the decentralised production of electricity. Several villages in Mali have already been equipped with Multifunctional Platforms based on Jatropha oil to power agricultural machinery and to provide electricity for household consumption and for the operation of productive units.

(c) Employment and revenue generation

The development of a sustainable biofuels sector in Mali needs to ensure that sufficient revenues and jobs are created for local and national stakeholders including rural communities. This criterion will generally favour the local and national use of biofuels as transport fuels (e.g. as pure biofuels or through blending of biofuels with fossil fuels) or for decentralised small-scale electricity generation. If biofuels or raw materials for biofuels production are exported, mechanisms need to be put in place to guarantee appropriate revenue creation within Mali.

(d) Land tenure

Biofuel production in Mali should not have negative consequences on land tenure. The Malian land tenure is complex and characterised by the co-existence of customary and modern land tenure laws. Customary laws are usually oral, vague, variable, unpublished, and their co-existence with modern law is often still conflictual. Land conflicts which occur on a permanent basis are exacerbated by demographic growth, high urbanisation rate, recurrent drought and poor land management practices.

(e) Water availability

Biofuel production in Mali should not have negative impact on water quality, availability and use. More than 60% of the surface area of Mali is desert or semi-desert (74.8 million ha) and the 43.7 million hectares of land suitable for agriculture and livestock production face a deficit in rainfall, droughts, and irregular water levels. Water access was identified as one of the main barriers for the production of biofuels in Mali.

(f) Soil protection

Soil erosion and degradation can result from the cultivation of energy plants as well as from the extraction of agricultural residues. Therefore, biofuel production in Mali should not lead to a degradation of soils caused for instance by inappropriate agricultural practices and fertiliser use.

The specific sustainability concerns for biofuel development in Mali highlighted above are meant to provide an initial overview and are by no means exhaustive. The development of a concise set of sustainability criteria should be based on extensive stakeholder involvement as foreseen in the framework of the project Mainstreaming Sustainability in the Biofuel Sector in Mali.

3 INTERNATIONAL INITIATIVES AND EXPERTISE

Since the 1990s a variety of sustainability standards have been developed for the production, processing and trade of biomass and agricultural products. More recently, sustainability schemes are introduced which specifically address the production and use of (liquid) biofuels.

Recent overviews of existing sustainability schemes are given in a variety of publications [2,3,4,5,6,7,8].

A detailed description of recent initiatives is presented in the report "Development of Sustainability Criteria for Biofuels – International Initiatives and Expertise" elaborated in the framework of the project Mainstreaming Sustainability in the Biofuel Sector in Mali [9].

Here, only a list of recent initiatives is presented which can serve as guidance for the development of national sustainability criteria suitable in the Malian context.

- EC Renewable Energy Directive (RED) [10]
- International Sustainability and Carbon Certification System (ISCC) [11]
- Sustainability Criteria for Biomass for Energy Purposes (NTA 8080) [12]
- RSB Principles and Criteria for Sustainable Biofuels Production [13]
- RSPO Principles and Criteria for Sustainable Palm Oil Production [14]
- COMPETE Good Practice Assessment for Bioenergy Projects [15]

4 DEVELOPMENT OF NATIONAL SUSTAINABILITY CRITERIA

The following chapter provides recommendations for the development of national sustainability criteria and certification systems to promote sustainability in the future biofuel sector in Mali. Thereby, the development of a Malian biofuel sustainability system should proceed along the following 4 main steps which are briefly discussed in the chapters 4.1 to 4.4:

(1) Identification of potential negative impacts – Stakeholder consultation
(2) Selection of suitable principles and criteria – Stakeholder consultation
(3) Formulation of indicators for proof of compliance
(4) Policy measures – Elaboration of certification scheme

4.1 Identification of potential negative impacts

In the framework of the project Mainstreaming Sustainability in the Biofuel Sector in Mali an intensive stakeholder consultation has been launched with the establishment of the following 4 cross-sector multi-stakeholder working groups on sustainability criteria for biofuels in Mali:

- Parliamentary working group
- State technical services working group
- Private sector working group
- Civil society working group

On 22-23 July 2010 a stakeholder workshop was organised in Bamako in order to discuss the Dutch biomass sustainability scheme NTA 8080 based on the sustainability criteria elaborated in 2007 by a working group under the chairmanship of Jacqueline Cramer. The 48 workshop participants formed thematic groups on social, economic, and environmental aspects and elaborated initial recommendations on the development of a sustainability scheme for Mali.

It was recommended to establish a committee within the National Agency for the Development of Biofuels (ANADEB) responsible for the coordination of stakeholder contributions for the formulation of the Malian sustainability scheme.

Further important steps to be taken include the identification and prioritisation of potential negative impacts of the development of a biofuels sector in Mali within the 4 multi-stakeholder working groups. This process shall be guided and overseen by ANADEB and lead to a concise list of sustainability concerns which need to be addressed to guarantee the sustainability of the biofuels sector in Mali (see chapter 2).

4.2 Selection of suitable principles and criteria

Based on the identified sustainability concerns, a set of suitable sustainability principles and criteria needs to be elaborated in close consultation with the 4 multi-stakeholder working groups. These principles and criteria constitute the core and integral part of the Malian national sustainability scheme. Guidance for the selection of principles and criteria for Mali can be provided by existing international initiatives, standards and certification schemes.

As an example (non-exhaustive list), principles and criteria of the sustainability schemes presented in chapter 3 are identified which address the initial set of sustainability concerns elaborated in chapter 2.

(a) Food security

- NTA 8080 Principle 3: The production of biomass for energy must not endanger the food supply and local biomass applications (energy supply, medicines, building materials)
- RSB Principle 6: Biofuel operations shall ensure the human right to adequate food and improve food security in food insecure regions
- COMPETE Principle 3: No land use change that detrimentally affects food security

(b) Access to electricity

- NTA 8080 Principle 9: The production of biomass must contribute towards the social well-being of the employees and the local population
- COMPETE Principle 9: Improvement in services and infrastructure (energy supply, health) and/or reinvestment of revenue within the community

(c) Employment and revenue generation

- NTA 8080 Principle 8: The production of biomass must contribute towards local prosperity
- RSB Principle 5: In regions of poverty, biofuel operations shall contribute to the social and economic development of local, rural and indigenous people and communities
- RSPO Principle 3: Commitment to long-term economic and financial viability
- RSPO Criterion 6.5: Pay and conditions for employees and for employees of contractors always meet at least legal or industry minimum standards and are sufficient to meet basic needs of personnel and to provide some discretionary income
- COMPETE Principle 8: Added value in the community (individual, money, assets, land, co-products)

(d) Land tenure

- ISCC Principle 4: Biomass production shall not violate human rights, labour rights or land rights. It shall promote responsible labour conditions and workers' health, safety and welfare and shall be based on responsible community relations
- NTA 8080 Criteria 9.3: The use of land must not lead to the violation of official property and use, and customary law without the free and prior consent of the sufficiently informed local population

- RSB Principle 12: Biofuel operations shall respect land rights and land use rights
- RSPO Criterion 2.3: Use of the land for oil palm does not diminish the legal rights, or customary rights, of other users, without their free, prior and informed consent
- RSPO Criterion 6.4: Any negotiations concerning compensation for loss of legal or customary rights are dealt with through a documented system that enables indigenous peoples, local communities and other stakeholders to express their views through their own representative institutions
- RSPO Criterion 7.5: No new plantings are established on local peoples' land without their free, prior and informed consent, dealt with through a documented system that enables indigenous peoples, local communities and other stakeholders to express their views through their own representative institutions

(e) Water availability

- ISCC Principle 2: Biomass shall be produced in an environmentally responsible way. This includes the protection of soil, water and air and the application of Good Agricultural Practices
- NTA 8080 Principle 6: In the production and processing of biomass ground and surface water must not be depleted and the water quality must be maintained or improved
- RSB Principle 9: Biofuel operations shall maintain or enhance the quality and quantity of surface and ground water resources, and respect prior formal or customary water rights
- COMPETE Principle 2: Not affecting water supply and quality

(*f) Soil protection*

- ISCC Principle 2: Biomass shall be produced in an environmentally responsible way. This includes the protection of soil, water and air and the application of Good Agricultural Practices
- NTA 8080 Principle 5: In the production and processing of biomass the soil and the soil quality are retained or improved
- RSB Principle 8: Biofuel operations shall implement practices that seek to reverse soil degradation and/or maintain soil health
- RSPO Principle 4: Use of appropriate best practices by growers and millers
- COMPETE Principle 1: Good agro-ecological and forestry practices (biodiversity, soil)

It is obvious from the above initial listing that existing international sustainability schemes provide a large number of sustainability principles and criteria which could either be directly used or adapted to the Malian context.

The sustainability concern on increasing energy access for the rural population, however, may not be suitably addressed in existing sustainability schemes. In this field further work by the multi-stakeholder working groups is needed.

4.3 Formulation of indicators for proof of compliance

For the set up on an effective sustainability scheme in Mali, indicators have to be identified which can be used to verify compliance with the selected principles and criteria.

For the choice of suitable indicators guidance can be provided by existing international sustainability schemes, such as the International Sustainability and Carbon Certification System (ISCC), the Dutch sustainability scheme (NTA 8080), the RSB sustainability scheme, and the RSPO sustainability scheme for sustainable palm oil production. Specific indicators are discussed in the documents available at the respective websites of the certification schemes.

In most existing certification schemes clear and measurable indicators only exist for environmental sustainability criteria (e.g. GHG emission reductions, carbon stocks, biodiversity), whereas the compliance with socio-economic sustainability criteria is usually subject to reporting requirements or mandates to perform impact assessments.

In the field of socio-economic impacts of biomass and biofuels, research on the identification of practically applicable and measurable indicators is currently undertaken in the framework of the project Global-Bio-Pact (Global Assessment of Biomass and Bioproduct Impacts on Socio-economics and Sustainability) which is coordinated by WIP Renewable Energies and co-funded by the European Commission [16]. Cooperation between Global-Bio-Pact and the current initiative on the development of a certification scheme in Mali is foreseen.

4.4 Policy measures – Elaboration of certification scheme

In order to provide the grounds for the implementation of biofuel sustainability certification schemes in Mali, such schemes need to be integrated into relevant policy documents, namely the National Strategy on Biofuels under development by the National Agency for the Development of Biofuels (ANADEB).

It may be beneficial to introduce two different sustainability schemes depending on the application of the produced biofuels, i.e. whether the biofuels are used for national consumption (e.g. for rural electrification or as blend with fossil fuels) or for export purposes.

Biofuels for export into the European market will be subject to the sustainability criteria specified in the Renewable Energy Directive (RED). Several certification schemes are already available or will be available during 2011 (e.g. ISCC, REDCert, NTA 8080, RSB) in order to certify compliance with the RED. It is therefore recommended to use these existing certification systems for biofuels export into Europe rather than to develop a new Malian system. Furthermore, most certification systems offer the opportunity to facilitate the adaptation of the systems to national or regional conditions and crops. Biofuels for export will generally be produced by larger companies which should be able to certify biofuels according to international schemes.

On the other hand, biofuels for national consumption or for export into markets without sustainability requirements (i.e. Asian markets) may require the development of a national sustainability scheme with a clear focus on Malian sustainability concerns, namely the

avoidance of food-fuel and land tenure conflicts, the increase of energy access for the rural population and the ensuring of sufficient local and national revenue generation. The Malian sustainability scheme may thereby involve less administrative requirements than international schemes in order to limit the associated costs to facilitate the engagement of small-scale farmers in the biofuels sector in Mali.

This sustainability scheme should be developed and overseen by the national agency ANADEB. An interesting option to complement the development of a sustainability scheme is a national mapping and zoning initiative with the aim to identify land suitable for the production of biofuels. Such zoning initiatives have recently been successfully undertaken by the Governments of Brazil and Mozambique providing valuable experiences for a similar initiative in Mali. Based on such land management plans and a suitable set of sustainability criteria, ANADEB could then be responsible to issue or withhold permissions for the implementation of biofuel projects in Mali.

5 CONCLUSION

The development of national sustainability schemes in African countries is regarded as an appropriate means to ensure environmental, social and economic sustainability of biofuels and bioenergy production and use. Thereby, potential negative impacts can be identified and mitigated such as increasing competition over land and water resources, rising food prices, land ownership conflicts and displacement of rural communities.

The current initiative in Mali implemented under the guidance of the National Agency for the Development of Biofuels (ANADEB) and supported by the project Mainstreaming Sustainability in the Biofuel Sector in Mali will provide the grounds for the development of a sustainable biofuels sector in Mali based on intensive consultation of a large number of national stakeholders.

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