UNITED REPUBLIC OF TANZANIA

MINISTRY OF ENERGY AND MINERALS

GUIDELINES FOR SUSTAINABLE LIQUID BIOFUELS DEVELOPMENT IN TANZANIA

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ABBREVIATIONS AND ACRONYMS

BRELA	Business Registration and Licensing Agency
BSC	Biofuels Steering Committee
CERs	Certified Emission Reductions
CHP	Combined Heat and Power
EMA	Environment Management Act, 2004
EWURA	Energy and Water Utilities Regulatory Authority
MAFC	Ministry of Agriculture, Food Security and Cooperatives
MEM	Ministry of Energy and Minerals
MITM	Ministry of Industries, Trade and Marketing
MJCA	Ministry of Justice and Constitutional Affairs
MLHHSD	Ministry of Lands, Housing and Human Settlement Development
MNRT	Ministry of Natural Resources and Tourism
MoFEA	Ministry of Finance and Economic Affairs
MoWI	Ministry of Water and Irrigation
NEMC	National Environment Management Council
PAPs	Project Affected Persons
PMO–RALG	Prime Minister's Office – Regional Administration and Local Governments
PO – PC	President's Office - Planning Commission
R&D	Research and Development
RP	Resettlement Plan
SBT	Sugar Board of Tanzania
SEA	Strategic Environmental Assessment
SVO	Straight Vegetable Oil or Pure Vegetable Oil
TANESCO	Tanzania Electric Supply Company Limited
TAOMC	Tanzania Association of Oil Marketing Companies
TBS	Tanzania Bureau of Standards
TIC	Tanzania Investment Centre
TPDC	Tanzania Petroleum Development Corporation
TRA	Tanzania Revenue Authority
URT	United Republic of Tanzania
VERs	Verified Emission Reductions

FOREWORD

In recent years, Biofuels development has become a common agenda across the world. Biomass based liquid fuels are proving to be alternatives to conventional fossil fuels, especially petroleum products in form of petrol and diesel. Thus, biofuels can be used for cooking, lighting, power generation and transportation. Biofuels by definition are biomass-based fuels that can be in form of solid, gaseous or liquid. Solid biofuels include charcoal and firewood; gaseous biofuels include biogas, landfill gas and producer gas; and the liquid biofuels encompass straight vegetable oils, bioethanol and biodiesel.

In developing countries, solid biofuels in particular charcoal are important fuels. However, charcoal is produced using inefficient technologies where more than half of the energy in the wood is lost during the process of converting wood into charcoal. Advanced technologies available today facilitate production of liquid biofuels and generation of electricity using solid by-products through cogeneration. Using current technologies, economically feasible production is through the use of agriculture crops which in some cases are also food crops.

Two primary liquid biofuels in use today are bioethanol and biodiesel. Bioethanol produced from starch bearing crops such as sugarcane, cassava and sorghum can be blended with gasoline. Biodiesel which is produced from oil seeds such as sunflower, soya and oil palm can be blended with gas oil.

It has been proven that bioethanol and biodiesel can be used to run existing engines with or without modifications. The fact that energy crops like maize, cassava, sunflower, cashew nut, oil palm, millet and sweet sorghum are also food crops, biofuels have raised serious concerns about their appropriateness as feedstock for biofuels (energy) production.

The Government is aware of potential benefits that could be realized through development of the biofuels industry; these include technology transfer through new bio-energy industries, employment and income generation in industry and agriculture sectors, improved energy security, foreign exchange savings via the reduction of oil imports, increased foreign exchange through exports of biofuels and reduced emission of pollutants such as lead, SO_2, CO_2 and other harmful particles.

In order to create an avenue for biofuels development, The Petroleum Act of 2008 recognizes biofuels as a potential fuel for blending with petroleum products. The Act gives mandate to the Minister responsible for energy to make regulations on blending of biofuels with petroleum products.

The implementation and issuance of blending ratios will be guided accordingly by energy regulator.

Appreciating the challenges, associated risks and trade-off in ensuring sustainable biofuels development, the Government has prepared Biofuels Guidelines that provide minimum requirements to ensure that biofuels development does not compromise with sustainability criteria. The criteria include biodiversity conservation, Greenhouse Gases (GHG) reduction, food security, land use rights and social wellbeing.

This document therefore, presents guidelines developed as a tool to properly guide interested stakeholders, including local and foreign investors/developers who would like to invest in liquid biofuels in Tanzania. These biofuels Guidelines are in conformity with the existing Laws of the United Republic Tanzania.

Through research and development, a number of parameters and conditions for bioenergy may change. These guidelines will therefore be revised when appropriate.

William Mganga Ngeleja (MP)
MINISTER FOR ENERGY AND MINERALS

PART I

DEFINITIONS OF BASIC TERMS

'Biofuels' means liquid, solid or gaseous fuels that are predominantly or exclusively produced from biomass. Examples include ethanol, Straight Vegetable Oils (SVOs), biodiesel, purified biogas derived from crops, plant residues and animal wastes. Liquid biofuels specifically for energy are used to replace or supplement conventional petroleum-based fuels and can be used in existing vehicles with little or without any modification of engines and fueling systems. Large quantities of biofuels are presently used in a number of countries and the potential exists to greatly expand their use in the future.

'Energy crops' means crops which are grown specifically for energy use. Crops that can produce biofuels (biodiesel, bioethanol) in Tanzania include: Sugarcane, cassava, maize, sorghum, millet, sisal and rice for bioethanol and jatropha, oil palm, cashew nut, coconut, sunflower, castor bean, soybean, groundnut, cotton, sunflower and Croton megalocarpus among many others for biodiesel.

'Biodiesel' means liquid fuel made from vegetable oils, recycled cooking oils, bio-greases or oils, or animal fats. Biodiesels is produced by processing the oils to reduce their viscosity. The most widely used process is trans-esterification. Biodiesel is the main fuel used as an alternative to diesel.

'Bioethanol' means an alcohol based fuel produced from starch based crops, cornstalks and vegetable waste. Bioethanol is mainly produced by the sugar fermentation process. Bioethanol is the main fuel used as an alternative to petrol.

'Biofuels Blend' means the technical mixing of biofuel with fossil fuel at determined (various) proportions such that the blend does not affect engine performance.

'Straight Vegetable Oil (SVO)' means oil extracted from seeds and used as fuel in special appliances without processing. In other words SVO is pure vegetable oils.

'Biofuel Seeds' means a certified biofuel plant materials (seeds) prepared for planting and multiplication.

'Small-scale biofuel producer' means a person, group of persons or firm that has the basic liquid biofuels processing facilities able to produce not more than 1000 litres per day.

'Small-scale farmer' means a person, group of person or firm that has less than 100 hectares of land for biofuel crops' farming.

'Contract farming' means a contractual arrangement between farmers and investors in agriculture.

'Investor/developer' is a person, group of persons or firm that meets the TIC investment requirements.

'Out-growers' means farmers growing energy crops to be supplied to the established biofuel processing plants or firm.

'The Biofuels One-Stop Centre' means an office for providing information and guidance on biofuels' investment. The One Stop Centre is in the Tanzania Investment Centre (TIC).

'Net energy balance' refers to the amount of energy provided by a source, after taking into account the amount of energy required to produce that source.

PART II

GUIDELINES FOR SUSTAINABLE LIQUID BIOFUELS DEVELOPMENT IN TANZANIA

A. Institutional Framework

1. Biofuels development involves several sectors and actors. In order to ensure that the development of biofuels in Tanzania is in line with principles of sustainable development, there is a Biofuels One Stop Centre responsible for coordination, approval and monitoring of biofuels investments. The Biofuels One Stop Centre is also the source of information on biofuels development in the country.

2. The Biofuels One Stop Centre is institutionalized within the Tanzania Investment Centre (TIC) consistent with it's (TIC) mandate to ensure observance to these Guidelines. The Ministry of Energy and Minerals (MEM) and other ministries/ institutions (as listed in (5) below) provide technical backstopping in accordance with existing legislation and institutional set-up.

3. There is a section under the Energy Department in the Ministry of Energy and Minerals overseeing and spearheading a biofuels developments in the country.

4. Given the cross-cutting nature of biofuels and challenges of its development, the Ministry of Energy and Minerals cordinates a Biofuels Technical Advisory Group (BTAG) which provides technical/professional advice to MEM/TIC on biofuels development/investment issues.

5. The BTAG consists of experts in Energy, Agriculture, Natural Resources (Forestry, Wildlife), Land, Land Use Planning, Food Security, Labour, Investment, Water, Industry and Environment. Other experts are called upon from time to time to advise on specific issues.

6. A Secretariat led by MEM established and draws members from sectors of Energy and Agriculture. The Secretariat for the BTAG is responsible for coordinating and monitoring day to day biofuels related issues.

B. Application and Registration procedures for Biofuels Investments

Procedures for all proposed licenses for biofuels investments are as outlined below:

7. All applications for biofuels investment will be submitted to the Biofuels One Stop Centre.

8. The applications will be submitted in number of copies as may be determined by Biofuels One Stop Centre covering the following aspects;
    a. Name of the investor (s)/developer(s);
    b. Profile of the investor(s)/developer(s);
    c. Profile of the project(s) including the type of project(s), types of feedstock(s), production capacities, investment cost, earmarked area(s) of the project including brief description of land requirement (area and location);
    d. Financial capability of the -investor(s)/developer(s);
    e. Business plan; and
    f. Type of technology to be applied.

9. Once the application has been completed, the investors/developer(s) will conduct the appropriate feasibility studies and thorough Environmental and Socia Impact Assessments.

10. The investor(s)/developer(s) will then submit Environmental and Social Impact Assessment (ESIA) report to the National Environment Management Council (NEMC) and feasibility study report(s) to Biofuels One Stop Centre.

11. After being satisfied with the ESIA report, NEMC will advise the Minister responsible for environment to grant a certificate to the investor(s)/developer(s).

12. Investor(s)/developer(s) will then submit ESIA certificate to Biofuels One Stop Centre.

13. After receiving the ESIA certificate and being satisfied with the feasibility study, Biofuels One Stop Centre will approve the project(s).

14. Once application(s) are approved, registration will follow normal TIC investment procedures.

C. Permits and fees

15. The following permits from relevant sector ministries/institution(s) shall be required for:

i. Production of biofuels;
ii. Surface water abstraction:
iii. Ground water exploitation:
iv. Specified biofuel crop in a specified location;
v. Import and export of seeds;
vi. Co-generation;
vii. Power plant installation;
viii. Processing of liquid biofuels;
ix. Plant installation;
x. Local marketing and distribution;
xi. Export and transportation; and
xii. Land use.

16. Every permit will be subject to a prescribed fee as stipulated by the relevant law.

D. Taxation and incentives

17. Taxation arrangements shall be in accordance with financial laws administered by Tanzania Revenue Authority (TRA).

18. Incentives shall be as per Financial Laws/regulations administered by the Ministry responsible for Finance and Economy Affairs and TIC guidelines issued from time to time.

E. Land Acquisition and Use

19. Land for investment is formally allocated to TIC and investor(s)/developer(s) are given a derivative right for a specified period of time. It is a pre-condition for any investor to be given only areas with a land use plan.

20. The land tenure for biofuels production is twenty five (25) years. However, in recognition that land applied for biofuels development/investment might be kept idle or used for different applications from that applied for; the initial period of land tenure for biofuel production will be five (5) years for an investor(s)/ developer(s) to demonstrate investment seriousness. Extension of the period will depend on the type of crop and other reasonable justifications as will be determined by the One Stop Centre.

21. The maximum land size per biofuels developer(s)/investor(s) is 20,000 ha.

22. Applications of land for biofuels investment have to be submitted to TIC. Applications have to be accompanied with the following documents; -
    a. Certificate of incorporation of the company;
    b. Project implementation plan;
    c. Document showing the purpose of acquiring land and type of biofuel crop; and
    d. Biofuel project approval from Biofuels One Stop Centre;

23. Land can also be acquired through the act of transferring the property title from one person to another (conveyance). Investor(s)/developer(s) wishing to acquire land from another right holder shall;
    a. Follow application procedures for biofuels investment or development under these guidelines;
    b. Prove its competence on biofuels industry by presenting to Biofuels One Stop Centre the documents under item (22) above;
    c. Apply for approval of land from the Commissioner for Lands by presenting the required documents plus biofuel project approval from Biofuels One Stop Centre.

24. Procedure for acquisition of land by small out-growers is provided under Village Land Act, 1999 and/or Land Act, 1999.

25. The land is granted to the investor/developer on condition that the land is used for the applied purpose only.

26. Investor(s)/developer(s) shall use the land for specified energy crop(s) and in case of default, Tanzania Investment Act, 1997 shall be applied to institute legal proceedings against the investor(s)/developer(s).

F. Contract Farming

27. Various social impacts and losses can be associated with the land acquisition. In this regard no forced displacement of people should be allowed for biofuels development. Resettlement is a sensitive issue which shall be handled with care. It is therefore encouraged to use out-growers model or hybrid model i.e. plantation and out-growers schemes.

28. The Government encourages out-growers to form associations/cooperatives that may enter into contract agreements and encourage them to be more involved in the value adding activities.

29. Investor(s)/developer(s) should indicate how out-growers will be engaged in the project within districts where biofuels projects are taking place.

G. Sustainability of Biofuels Production

In order to ensure that biofuels development do not result into a negative impact, especially threatening food security, increasing food and land prices, land conflicts, ecosystem change, environmental degradation, social impacts, decreased water availability and diminished water quality; the following rules shall apply.

30. Any biofuels development must ensure that:
    a. There is abidance to land use plan in order to avoid threatening potential land for food crop production/farming/livestock and other human needs. Areas of high biodiversity and of cultural value, protected forests, game reserves, Ramsar sites and National Parks are not for biofuels investments.
    b. Biofuel production activities contribute positively to local economy.
    c. Biofuel production activities contribute positively to social well-being of employees and the local population.
    d. Priority on employment is given to the community in the locality.

31. The production/farming by small-scale farmers should be approved and monitored by local authorities to ensure that the proposed areas meet sustainability conditions.

32. To ensure that biofuels production has a positive impact on food production, all investors/developers shall set up to 5% (exact figure to be issued by the One Stop Centre) of land acquired for biofuels production to grow relevant food crops by applying the state of the art agricultural techniques.

33. All biofuel investments shall be monitored and evaluated by the One Stop Centre to ensure that all development phases meet the sustainability criteria.

H. Environmental and Social Impact Assessment

34. Biofuels investor(s)/developer(s) shall carry out Environmental and Social Impact Assessment and Environmental Audit as required by the National Environment Management Act, 2004.

35. The sustainability criteria highlighted under Section G above, shall be part of ESIA,

36. Biofuels investor(s)/developer(s) may be required to carry out Occupational Health & Safety Assessment after commencement of the project implementation.

I. Farming Approaches and Seed Management

37. Farming techniques shall be cleared by the Ministry responsible for Agriculture during project registration at the One Stop Centre.

38. Biofuel seeds production shall be certified according to the regulations governing seed production in Tanzania; and

39. Biofuel Seeds shall not be imported or exported without permit from the Ministry responsible for Agriculture or/and Forestry which ever is appropriate.

J. Efficient Utilization of Biofuels Crops

40. To ensure efficient utilization of biofuels crops, by-products from farms, plantations and processing plants should be channelled to where they can be used for electricity generation, production of organic fertilizer, animal feeds, biogas production or other useful products.

K. Appropriate Infrastructure Development (roads, electricity grid Network, pipelines, railways, etc.)

41. Appropriate infrastructure such as access roads to the main road, electricity transmission and distribution lines, pipelines, etc., inside the project area shall be developed by the investor(s)/developer(s).

L. Community Engagement

42. As part of public participation, investor(s)/developer(s) shall:-
    a. Consult and involve the public during the feasibility study or project planning phase. Involvement shall include:-
        i. Regional authorities;
        ii. District authorities;
        iii. The local (village) authorities:
        iv. National Authorities (e.g. Ministries); and
        v. The Public (i.e. ordinary people).
    b. Provide a brief description in the feasibility study report on how the local community will be fully engaged in project(s);
    c. Contribute at least 2% of revenues in improving social services, economy and environment in the project area; and
    d. Ensure locals' shareholding in the business (in cash or land-asset or both), including the out-growers.

43. There shall be an MoU between developer(s)/investor(s) and relevant Village Authorities defining terms to develop village land that falls in the area within the identified biofuel projects.

44. Carbon revenue stream emanating from biofuel farming should benefit the stakeholders through consultation with the Designated National Authority (DNA).

45. Mainstream HIV/AIDS control and Gender Sensitivity in Biofuel projects and programme(s).

M. Processing of biofuels

46. Processing of biofuels feedstock up to a final biofuel product shall be done within Tanzania.

47. In line with Item (46), investor(s)/developer(s) is required to submit the following information to the biofuels One Stop Centre:
    a. Detailed process flow sheet and process layout of the anticipated plant;
    b. Detailed equipment specifications and drawings for all equipment in the plant;
    c. Operational manuals of major equipment in the plant;
    d. A list of all chemicals that will be used; and where appropriate (in case of less known chemicals), a material safety data sheet for each chemical:
    e. Clean EIA clearance from NEMC for the plant design, construction, operation and decommissioning; and
    f. Any other technical information relevant to the proposed plant.

N. Storage and handling of biofuels

Biofuels are sensitive materials; susceptible to deterioration if not stored and handled properly. Since biofuels products are new in Tanzania and there is currently no appropriate infrastructure and standards for its storage and handling, then the investor(s)/developer(s)/producer(s) should ensure that:

48. Own storage facility (depot) or hospitality arrangement from any other biofuel/ oil marketing company(ies) is in place.

49. The product is stored at the plant and elsewhere in appropriate containers that prevent its deterioration.

50. The containers are clearly marked and made particularly for such biofuels in accordance with internationally agreed standards;

51. The containers are reusable;

52. The containers have safety and user friendly features for storing and handling biofuels, especially at household level;

53. The containers are of various sizes and capacities to cater for various storage and handling applications;

54. The containers are of adequate strength for transportation and carriage; and

55. A mechanism for collection of used containers including obsolete ones for possible re-cycling or safe disposal is in place.

O. Transportation and distribution

The investor(s)/developer(s) shall:

56. Have an arrangement of appropriate containers, pipelines, vehicles or wagons for haulage and transportation of large volumes of biofuels;

57. Have distribution centres (outlet centres) with appropriate safety measures;

58. Apply a permit from appropriate Authority for construction of biofuels transportation and distribution system;

59. Apply permit(s) from City/Municipal/Town Councils for construction of biofuels stations at various points;

60. Ensure that safety and country's policy procedures on construction of the above infrastructures are adhered to;

61. Produce an indication for potential customers for the proposed biofuel products; and

62. Establish mechanism of selling liquid biofuels.

P. Quality of biofuels (quality standards)

63. Quality standards and process for manufacturing biofuels are well established elsewhere in the world. For safe and satisfactory engine performance, biofuels standards are based on physical and chemical properties. Since Tanzania Bureau of Standards (TBS) is a member of ISO, the Interim biofuels standards are based on those developed by ISO.

Q. Blending (biofuels & mineral fuel)

64. Liquid biofuels which include biodiesel and bioethanol can be blended with petroleum products at various ratios. Blending ratios will be issued by the Energy Regulator from time to time.

65. Straight Vegetable Oil can be used locally for various applications such as cooking fuel, soap making, running stationary machines, automobiles and the excess can be exported.

R. Biofuels waste management (use, re-use, recycling & disposal)

In the course of production and processing of biofuels, waste will normally be generated. The investor(s)/developer(s) shall make sure that:

66. All liquid effluents from the plant are treated to meet standards in accordance to Tanzania Waste Water Standards before disposing them to water bodies;

67. Where generated, but can not be used or reused, solid waste must be appropriately disposed;

68. A mechanism is in place for recycling products that do not meet the set quality standards;

69. All solid waste generated in the plant is used either for co-generation or processed to useful by-products such as fertilizers (compost manure) or animal feed, Biogas production etc.

70. All air emissions from the plant are sufficiently scrubbed and treated to remove poisonous pollutants to meet air quality emission standards [i.e. in accordance to Tanzania Occupational Health and Safety Act (OSHA 2003)] before discharging them to the atmosphere;

71. All gaseous emissions from the plant lands at a distance of at least 5 km away from the source and in an un-habited area;

72. Within two years of operation of the plant, the investor/developer conducts a thorough Environmental Audit and this should be a regular exercise as the plant continue to operate.

S. R&D (condition to fund/support R&D)

73. Research and development is vital for the production of crops including biofuel crops. It is therefore important for the investor(s)/developer(s) to support research activities for their respective crop. Research finding shall be taken back to the biofuels industry through extensive service.

T. Compliance

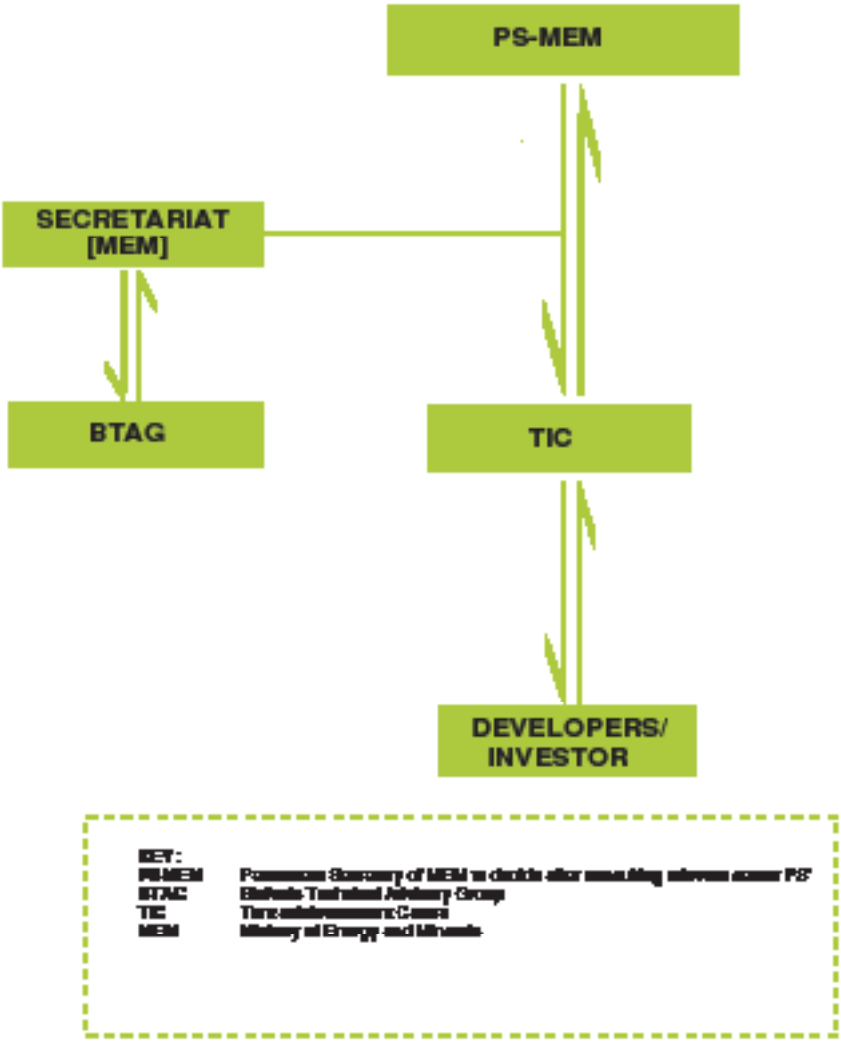
74. All investements/projects cleared before the date of operationalization of these Guidelines shall be assessed to their compliance with this set of Guidelines.

U. Revision of Guidelines

75. These Guidelines may be updated whenever necessary to do so.

PART III

INSTITUTIONAL FRAMEWORK FOR IMPLEMENTATION OF GUIDELINES



MEM

MEM

MEM


UHURU
NA
UMOJA

Permanent Secretary
Ministry of Energy & Minerals
754/33 Samora Avenue, P.O. Box 2000, Dar es Salaam, Tanzania
Tel: +255-22-2117156-9/2119158
Fax: +255-22-2116719/2120799/2119159
Website: www.mem.go.tz