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PRIORITY A.2.3.: Managing Arid and Semi-arid Ecosystems

Third Periodic Activity Report
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ANNEX 1-3-2: Policy guidance note on integrating traditional land use and products into bioenergy policy

Deliverable D1.3 (Lead contractor: UKZN, Due date: June 2009)

COMPETE

Competence Platform on Energy Crop and Agroforestry Systems for Arid and Semi-arid Ecosystems - Africa

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Project Partners

Partici-pant role	Partici-pant number	Participant name	Participant short name	Country	Date enter project (month)	Date exit project (month)
CO	1	WIP – Renewable Energies, Germany	WIP	DE	1	36
CR	2	Imperial College of Science, Technology and Medicine	Imperial	UK	1	36
CR	3	Utrecht University	RUUTR.STS	NL	1	36
CR	4	Stockholm Environment Institute	SEI	SE	1	36
CR	5	Austrian Biofuels Institute	ABI	AU	1	36
CR	6	Höhere Bundeslehr und Forschungsanstalt für Landwirtschaft, Landtechnik und Lebensmitteltechnologie Francisco Josephinum	FJ BLT	AU	1	36
CR	7	ETA - Energia, Trasporti, Agricoltura s.r.l.	ETA	IT	1	36
CR	8	European Biomass Industry Association	EUBIA	BE	1	36
CR	9	Practical Action	Practical Action	UK	1	36
CR	10	Consiglio Nazionale delle Ricerche	CNR	IT	1	36
CR	11	E+Co, Inc. (not funded)	E+Co	USA	1	36
CR	13	Institute for Sustainable Solutions and Innovation	ISUSI	DE	1	36
CR	14	AGAMA Energy (Pty) Ltd	AGAMA	ZA	1	36
CR	16	Center for Energy, Environment and Engineering Zambia	CEEEZ	ZM	1	36
CR	17	Environnement et Développement du Tiers-Monde	ENDA-TM	SN	1	36
CR	19	Food, Agriculture and Natural Resources Policy Analysis Network of Southern Africa	FANRPAN	ZIM	1	36
CR	20	FELISA Company Limited	FELISA	TZ	1	36
CR	21	Mali-Folkecenter	MFC	Mali	1	36
CR	22	MOI University	MU	Kenya	1	36
CR	24	Tanzania Traditional Energy Development and Environment Organisation	TaTEDO	TZ	1	36
CR	25	UEMOA - Biomass Energy Regional Program (PRBE)	PRBE	BF	1	36
CR	26	University of KwaZulu Natal	UKZN	ZA	1	36
CR	27	University of Cape Town - Energy Research Centre	UCT, ERC	ZA	1	36
CR	28	Chinese Academy of Agricultural Sciences	CAAS	CN	1	36
CR	29	Centro Nacional de Referencia em Biomassa, Brazil	CENBIO	BR	1	36

Project Partners (continued)

Partici-pant role	Partici-pant number	Participant name	Participant short name	Country	Date enter project (month)	Date exit project (month)
CR	30	Indian Institute of Science	IISC	IN	1	36
CR	31	The Energy and Resources Institute	TERI	IN	1	36
CR	32	Universidad Nacional Autonoma de Mexico	UNAM	MX	1	36
CR	33	Universidade Estadual de Campinas	UNICAMP	BR	1	36
CR	34	Winrock International India	WII	IN	1	36
CR	35	Interuniversity Research Centre for Sustainable Development - University of Rome "La Sapienza"	CIRPS	IT	1	36
CR	36	Universitetet i Oslo	UiO	NO	1	36
CR	37	University of Bristol	UNIVBRIS	UK	1	36
CR	38	University of Botswana	UB	Botswana	1	36
CR	39	University of Fort Hare	UFH	ZA	1	36
CR	40	TWIN	TWIN	UK	1	36
CR	41	Joint Graduate School of Energy and Environment	JGSEE	TH	1	36
CR	42	African Development Bank Group (not funded)	AFDB	Int.	1	36
CR	43	Camco (Energy for Sustainable Development Ltd.)	ESD	UK	1	36
CR	44	Eco Ltd.	Eco	UK	1	36
CR	45	Chinese Association of Rural Energy Industry	CAREI	CN	1	36
CR	46	Food and Agriculture Organisation of the United Nations (not funded)	FAO	Int.	1	36
CR	47	Conservation International Foundation (not funded)	CI	USA	1	36
CR	48	Foederation Evangelischer Kirchen in Mitteldeutschland	EKMD	DE	1	36

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COMPETE WP1 – Current Land Use Patterns & Impacts

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Policy guidance note on integrating traditional land use and products into bioenergy policy

Preamble

We concede that most environmental, conservation, forestry and agricultural policies in pre and post independent Africa to date have failed – either exacerbating the problems they were designed to solve, or causing problems elsewhere. We acknowledge that a number of current European Union (EU) policies and preferential trading agreements are having detrimental external impacts on number of African countries.

We believe the COMPETE Declaration on Sustainable Bioenergy for Africa addresses the reasons why these policies have failed and why these impacts occur. Although funded by the EU, COMPETE is a totally independent and altruistic network, and is not motivated by assessing whether Africa can assist in meeting the EU Renewable Fuels Directive mandate of an increase in the EU's contemporary use of 2% biofuels in the transport sector, to 10% (by energy) by 2020.

This guidance has evolved over three years as a result of opportunities created by COMPETE for world-leading scientists, researchers, funders and practitioners from different fields and across the world to come together to discuss; exchange knowledge; meet with government officials, local authorities and local land users; and see different bioenergy crops being grown at different spatial scales and processed into biofuels for different supply chains and scales of use.

Africans comprised the majority at these workshops and they have taken place in African countries. The guidance is therefore specific to the African context. COMPETE has identified pathways for the provision of sustainable modern bioenergy in the arid and semi-arid regions of sub-Saharan Africa. While some of the guidance given here for implementing these pathways is sufficiently generic to be applicable anywhere in Africa, full appreciation of it is dependent on understanding the influence of dryland 'disequilibrium' behaviour on traditional and modern land use dynamics as described in Deliverable 1.5.

Deciding where best to grow biofuel crops

Most African countries already have Agro-ecological zone (AEZ) maps. These countries are divided into a number of zones in which a particular range in biophysiographic characteristics creates a particular land quality that matches the requirements by a particular range of crops. The biophysiographic characteristics included and the resolution of the maps varies country to country dependent on the data available.

The most common biophysiographic characteristics included are: physiography i.e. upland versus lowland, or water shedding versus water receiving; altitude; annual distribution of rainfall and temperature; soil type, pH texture, drainage and type; natural vegetation type; and length of growing season.

The range of crops matched to different AEZs, include potential biofuel crops. The first step involves acquiring these maps and identifying which AEZs biofuel crops grow best in. The second step involves overlaying a map of the same scale showing protected areas (including transfronteir national parks), Community Based Natural Resources Management (CBNRM) areas, and routes used by animals between protected and CBNRM areas on the AEZ map. The protected, CBNRM areas and migration routes that fall within the biofuel crop AEZs should be filtered out. In the case of East Africa, the migration route used by the Maasai[1] in both good and poor rainfall periods should also be filtered out. The unfiltered land in these AEZs is potentially available and suitable for certain biofuel feedstocks.

The final step involves local stakeholder consultation in order to ascertain whether the land is actually available. If people are living on the land they may be willing to grow biofuel crops once the benefits of doing so are explained to them, or alternatively willing to relocate to allow others the opportunity to do so. People do not necessarily have to be living on the land to be reliant on it. Rural people and the urban poor are very dependent on natural resources for food security and income generation. They often travel great distances on a seasonal basis to collect specific resources. Research is therefore needed to verify that land that appears to be unoccupied and unutilised actually is.

Other guidance more specific to drylands

While there is general consensus that ‘disequilibrium’ behaviour best explains the spatial and temporal heterogeneity and dynamism of arid and semi-arid regions, the implications of this behaviour in terms of interpreting the causes, effects, and transience of diminished environmental qualities, is hotly contested. Also hotly contested, is the sustainability of traditional practices and the motivation for and effects of policies and interventions. In order to avoid entering into these debates, the preamble to bioenergy policies should not (a) promote bioenergy as the solution to the fuelwood crisis, deforestation, etc. or (b) suggest that biofuel feedstocks be used to rehabilitate degraded lands.

[1] East Africa’s Maasai pastoralists number more than 900 000 and have actively resisted urgings by both the governments of Kenya and Tanzania to adopt a more sedentary lifestyle.

A number of general trends have interacted to erode the traditional communal landuse system. It is being replaced by a landuse system similar to that found on redistributed land where small scale freehold farmers grow most of their own food crops as well as cash crops.

In many African countries, small scale farmers already contribute a substantial proportion of the national production of both food and cash crops. They are very optimistic about the future and aware of the role modern bioenergy can play in it. Many are already growing biofuel crops, particularly Jatropha, or have plans to do so. Modern bioenergy clearly has the potential to enhance the livelihoods of small scale farmers and the time to support its rapid and widespread provision is ripe. Such support involves access to loans, extension services, and markets. The setting of loan repayments and quotas must take the implications of 'disequilibrium' behaviour of arid and semi-arid regions into account viz., in poor rainfall periods they must be reduced or even suspended.

A number of factors are responsible for a general decrease in the frequency and associated increase in the intensity and spatial extent of fires in the drylands of sub-Saharan Africa. All land under biofuel feedstock production must be adequately protected by firebreaks. Maintenance of the breaks and vigilance must be particularly efficient after good rainfall periods

New areas put under sugar cane to meet biofuel demands should be confined to regions with sufficient rainfall to avoid the need for irrigation. In the arid and semi-arid regions of sub-Saharan Africa, sweet sorghum is a more appropriate feedstock for bioethanol.

More general guidance

A concerted effort is needed to exploit the bioenergy potential of invasive alien plants.

All countries should adopt a cautious approach before authorizing the cultivation of any new, non African bioenergy crop.

Research into the potential for biodiesel production of a number of trees indigenous to Africa's drylands must be prioritized.

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