



Land Use & Land Use Change: Lessons Learnt

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Putting land under bioenergy crops has potential to:

- •Displace rural poor
- •Deny poor access to natural resources
- Destroy biodiversity
- •Displace food & cash crops
- •Deplete/pollute water resources



Source: World Meteorological Organization (WMO), United Nations Environment Programme (UNEP), Climate Change 2001: Impacts, Adaptation, and Vulnerability, Contribution of Working Group II to the Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).



Where will bioenergy land use create value and be sustainable ? COMPETE focus: arid & semi-arid zones 8 study countries









Proximity of available and suitable to towns, transport infrastructure, water supplies, etc



Substantial areas potentially available & suitable for bioenergy

Country	Arid km²	Semi-arid km²	Arid %	Semi- arid %	Arid & Semi- arid km ²	Arid & Semi- arid %
Burkina Faso	0	22 756	0	15	22 756	15
Senegal	10 200	5 583	72	6	15 783	14
Mali	121 397	71 041	31	29	192 438	30
Kenya	209 760	169 938	91	75	379 698	82
Tanzania	n/a	147 252	n/a	46	147 252	46
Zambia	n/a	67 383	n/a	42	67 383	42
Botswana	102 193	189 667	80	42	291 860	51
South Africa	353 937	368 944	94	70	722 874	79



N6- too short growing period for crops, strictly managed livestock grazing of natural grasses

P2- sorghum, sisal, jatropha

E3- maize, sorghum, rice, cassava, sweet potatoes, sugar cane, peas, citrus, mangoes, pine apple, cashew, ground nuts, soya bean, sunflower, tobacco, cotton, sisal, jatropha. grasses & legumes for animals





Aridity Zones







Government schemes, or subsidized or tax incentives



- Filtering out unavailable & unsuitable land using GIS & global 1km² databases quick, cheap & effective for identifying where land is potentially available & suitable
- Recognize accuracy effected by 1, 2 & 3



1. Unfenced PA not representative



2. Temporally dynamic savannas











Need to exclude areas used by: Hunter gatherers & Pastoralists





Amount of land needed & detrimental effects of conversion to bioenergy can be reduced by good cultivation practices







need to: •Exploit bioenergy potential of invasive alien plants.

•Be cautious re: introducing non-African bioenergy crops.

•Research bioenergy potential of indigenous plants.



