Sun Biofuels Ltd

- Sun Biofuels is a UK based biofuels business with operations in Southern and East Africa
- Established in 2005
- The company has developed a diverse and experienced management team from a wide variety of sectors
- Aim to establish large scale plantation operations in association with closely linked outgrowers, with the intent to produce bio-fuels for domestic and international markets

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Ownership

- Majority shareholding is held by Trading Emissions Plc, an AIM listed clean energy investment company, who invest in GHG reduction projects, developed under CDM and JI frameworks. TEP have invested in a number of sectors around the world including; wind energy, industrial gases, landfill, waste to energy, hydro, biogas and biomass

- In turn, TEP is owned by EEA Fund Management, a city based investment group with assets worth over $1.7 billion under management

The Business Proposition

Oil seed crop cultivation → **Oil seed crushed to extracted pure vegetable oil** → **Pure vegetable oil thermochemically treated thought the process of transestification to produce biodiesel** → **Biodiesel used in engines as a petrol- diesel fuel substitute or as a blend**

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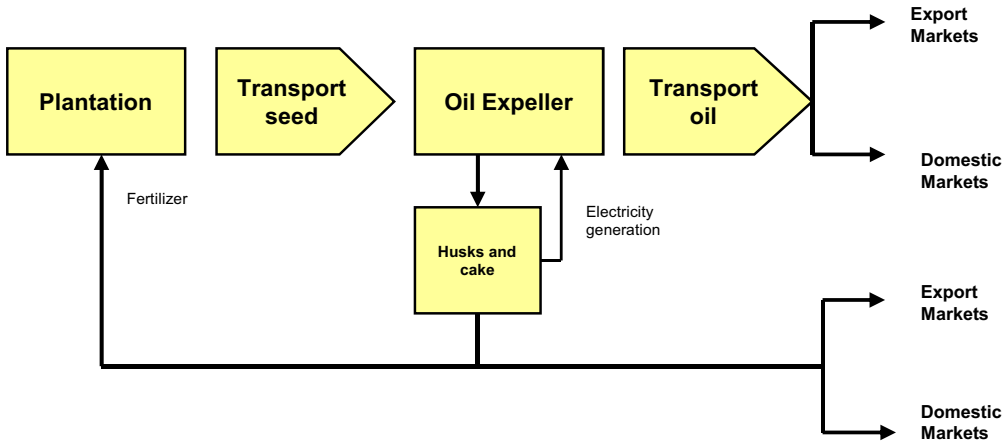
The Value Chain

Sun Biofuels has developed a business strategy involving key areas of the biofuels value chain, in order to maximise the value that can be driven from it business operations

At present Sun Biofuels is focusing on R&D, VER/CER Carbon Credits, pure vegetable oil production, biomass processing, SVO energy generation/ devolved power units and biodiesel production

Sun Biofuels Company Value Chain



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Where We Operate

Ethiopia

- 5,000Ha concession of which 1,000Ha planted. Located 500Km South of Addis Ababa
- Current status: Platform for out-grower development, seed variety collection and crop science R&D.

Tanzania

- Plantation development centred on 8,000Ha of land in Kiserawe District 70Km West of Dar.
- On-going negotiations involving land purchase and JV in Tanga and Lindi.
- Current status: facilitating compensation payment to villagers in Kiserawe District ahead of Derivative title issue>

Mozambique

- Plantation development centred on 8,600ha in Manica Province, central Mozambique
- Current Status: Land preparation in progress in advance of large scale planting programme scheduled to coincide with seasonal rains in November.

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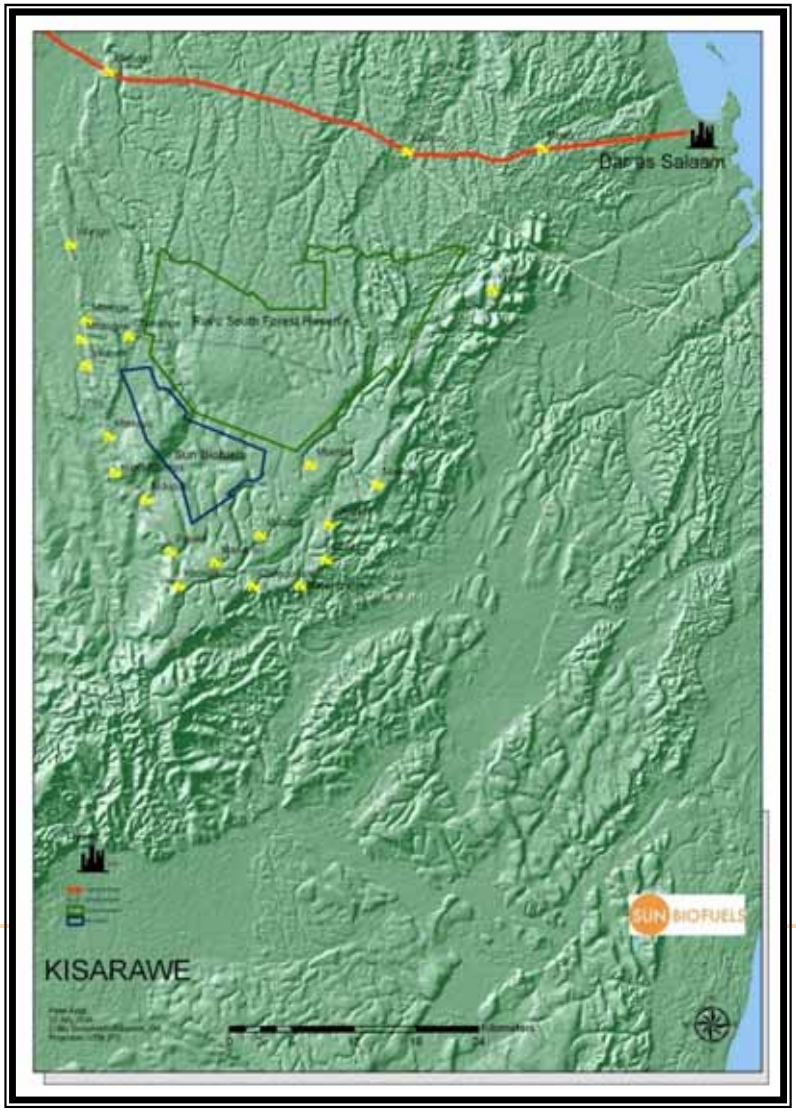
Tanzanian Location



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Plantation Location

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Tanzanian Location

Kiserawe is one of six Districts making up the Coast Region.

- Kiserawe District is around 3,535 Km^2
- Total Population of 95,614 people
- Population density of around 30 people per Km^2
- Population growth rate of 4.2% p.a.

Source: Sun Biofuels EIA, National Census of 2002

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Kiserawe Social Statistics

- There are 11 villages located around the project site.
- Surveyed and acknowledged land attached to these 11 villages is estimated to be just under 50,000Ha.
- Following Ministry of Lands survey, six villages were said to have allocated a total of 8,211Ha or about 16% of surveyed village land in the project area.
- The population of the six villages is estimated to be just over 11,000 people.
- Potential employment initially for 1,500 people with priority give to local communities
- Ample available land for out-growers without negatively affecting food production

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Kiserawe Social Statistics

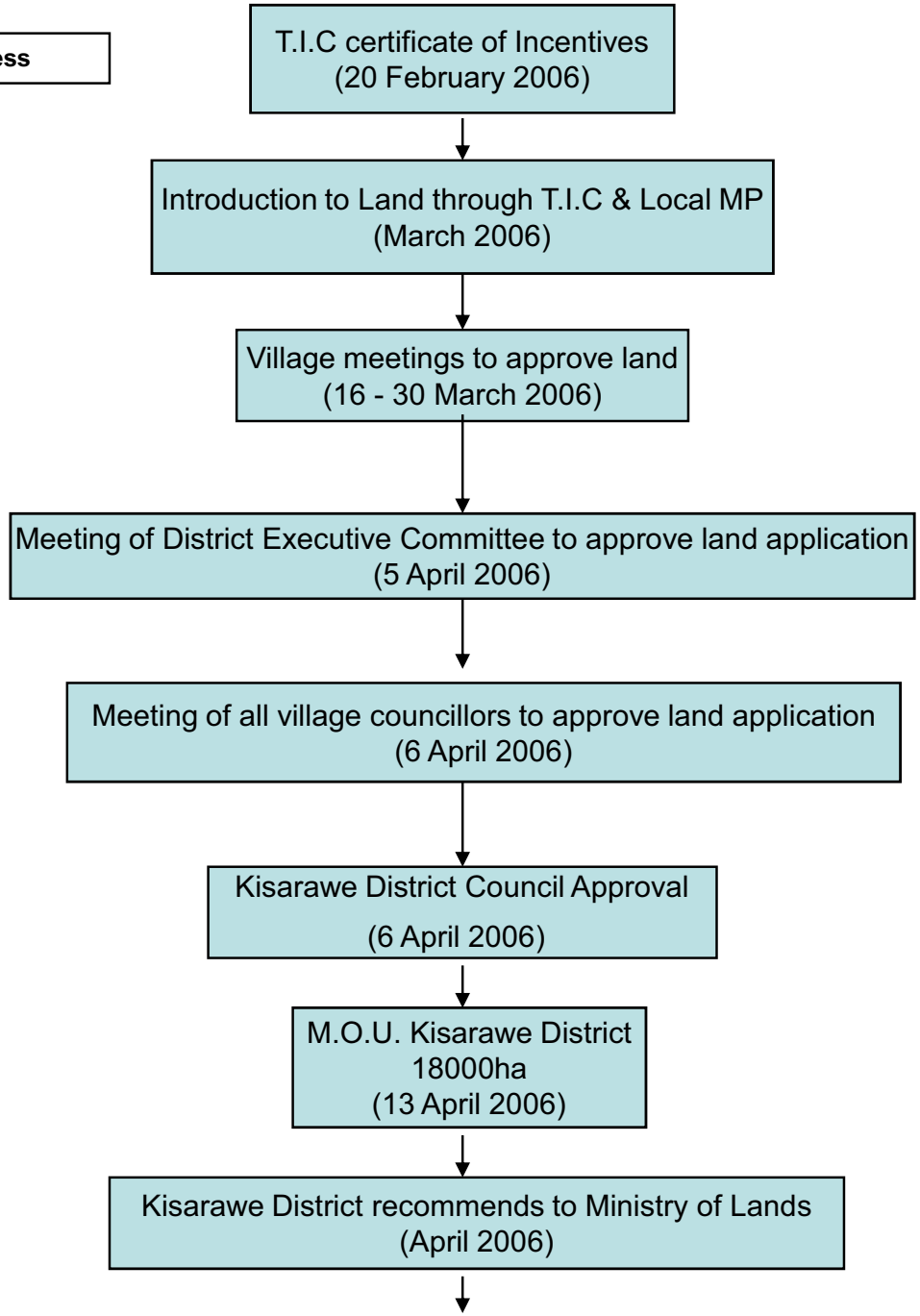
District wide data summarising Education, Health and Clean Water Access:

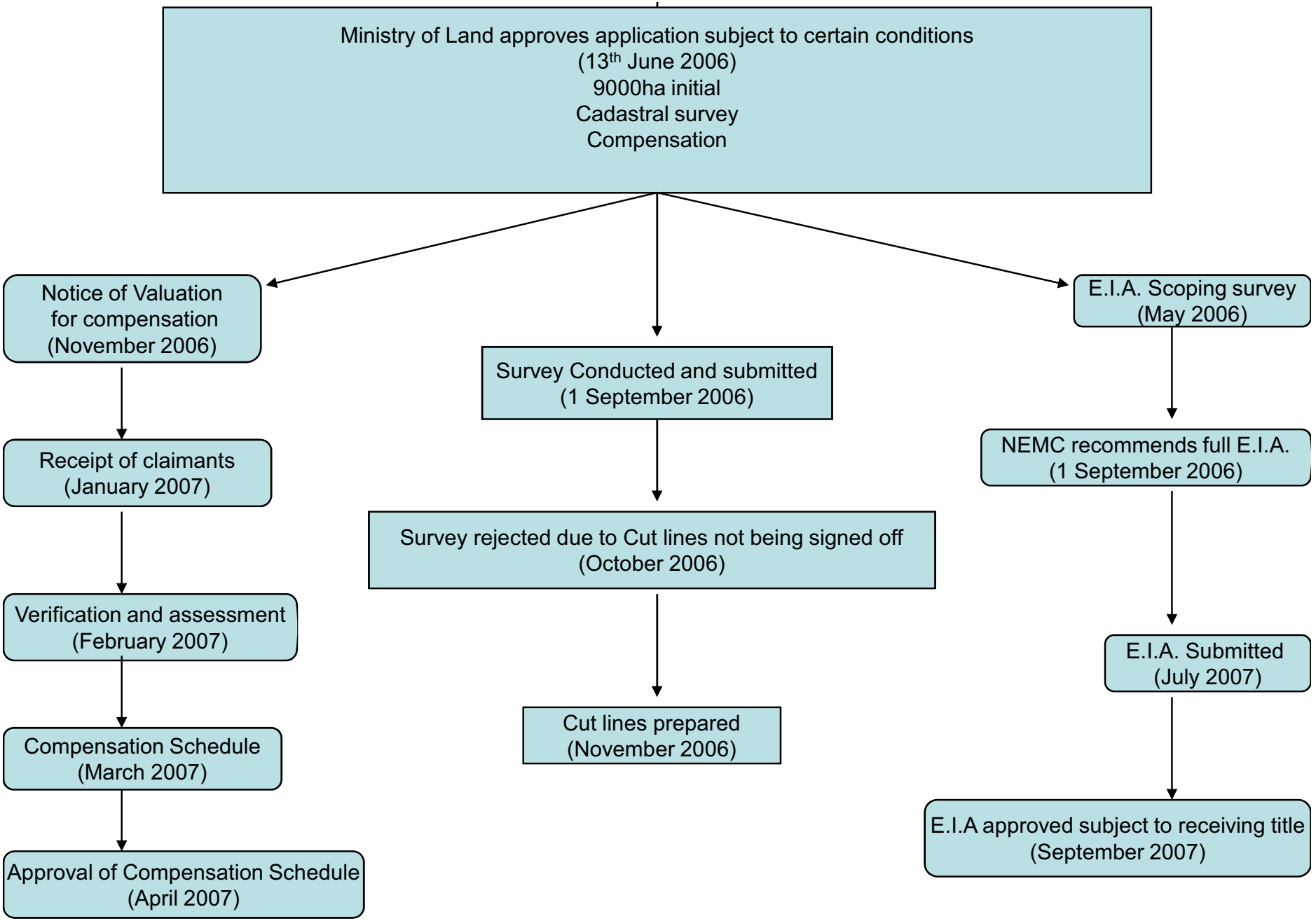
- Primary Schools: 74
- Primary School Teachers: 443
- Primary School Pupils: 22,500
- Secondary Schools: 9
- Secondary School Pupils: 3,126

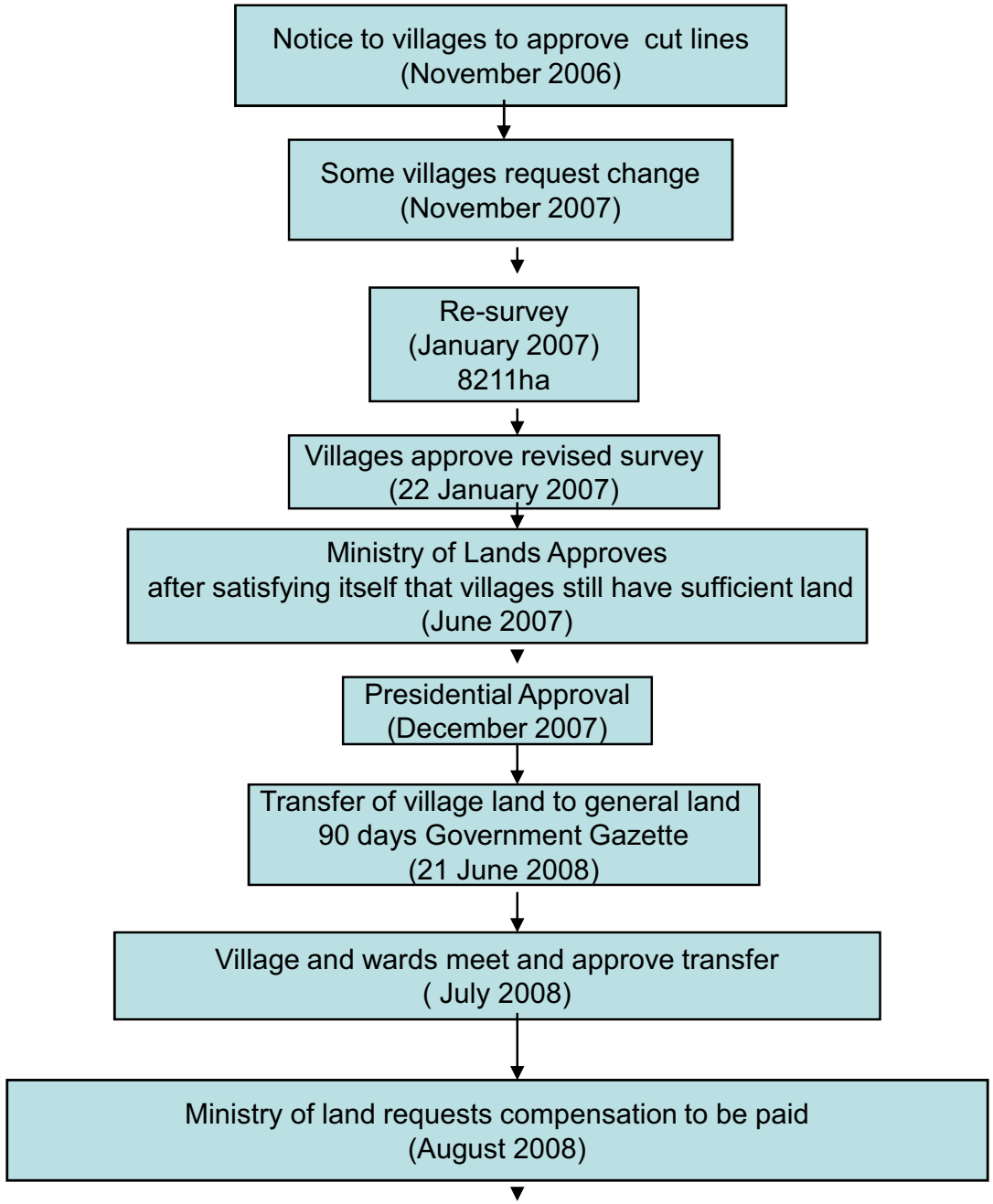
- Hospitals: 1
- Health Centres: 2
- Dispensaries: 17
- Health Centre in Project Area: 1 serving about 9,500 people
- Access to Clean Water: 48% of the population

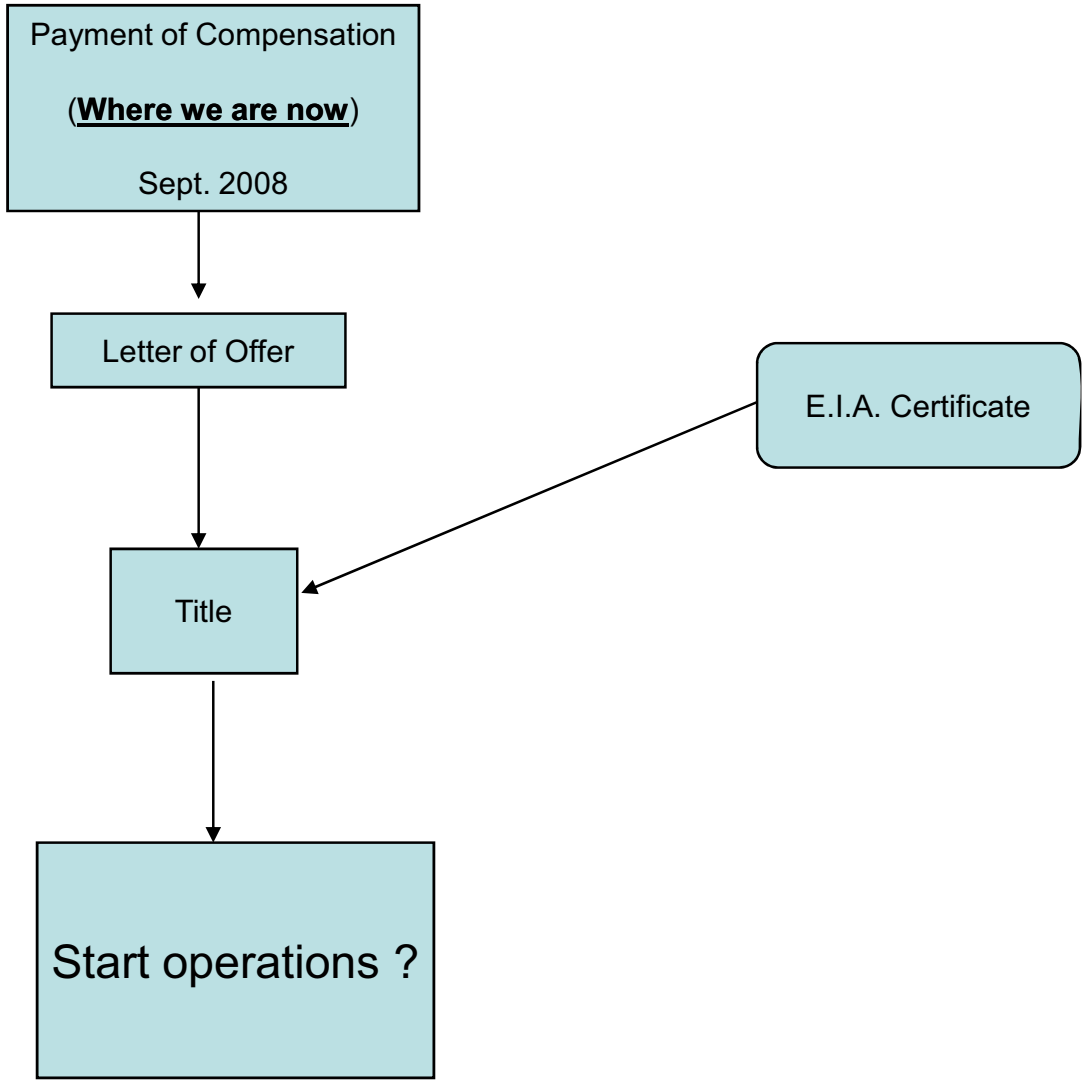
Kiserawe Land Use

The Land Acquisition Process




Ministry of Land approves application subject to certain conditions
(13th June 2006)
9000ha initial
Cadastral survey
Compensation
Notice of Valuation for compensation (November 2006)
Receipt of claimants (January 2007)
Verification and assessment (February 2007)
Compensation Schedule (March 2007)
Approval of Compensation Schedule (April 2007)
Survey Conducted and submitted (1 September 2006)
Survey rejected due to Cut lines not being signed off (October 2006)
Cut lines prepared (November 2006)
E.I.A. Scoping survey (May 2006)
NEMC recommends full E.I.A. (1 September 2006)
E.I.A. Submitted (July 2007)
E.I.A approved subject to receiving title (September 2007)


Notice to villages to approve cut lines
(November 2006)
Some villages request change
(November 2007)
Re-survey
(January 2007)
8211ha
Villages approve revised survey
(22 January 2007)
Ministry of Lands Approves
after satisfying itself that villages still have sufficient land
(June 2007)
Presidential Approval
(December 2007)
Transfer of village land to general land
90 days Government Gazette
(21 June 2008)
Village and wards meet and approve transfer
(July 2008)
Ministry of land requests compensation to be paid
(August 2008)


Payment of Compensation
(Where we are now)
Sept. 2008
Letter of Offer
E.I.A. Certificate
Title
Start operations ?

Land Law

The following laws, Acts and Regulations have been applied during the Acquisition process:

- Land Acquisition Act No.47 of 1967
- The land Act No.4 1999
- Regulation 3 Land Regulations 2001
- Part III Village land Regulations 2002
- Land Forms No. 14 & 15 were issued and processed
- All under the administration of the Tanzanian Investment Centre, the Ministry of Lands and the Commissioner of Lands.

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For The Record

- The process has followed land law and regulations
- It has been open, transparent and inclusive allowing free, fair and informed access to information
- Nobody is being evicted, moved or resettled
- The land has been allocated for development by the inhabitants themselves
- Valuation and Compensation has been agreed by respected independent Tanzanian surveyors
- The 90 day Gazette period was completed without registered objection.

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Sustainability

What do we mean?

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

(1987, World Commission on Environment and Development (WCED)

Source: Anna Lerner, GTZ-ProBEC

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Achieving Sustainability

Management/company tools (MICRO level):

- crop choices based on geo-climatic conditions and region experience
- agricultural best-practice (e.g. environmentally sustainable harvesting methods)
- schemes to allow small farmers to participate
- value added processing, develop the whole value chain in the country
- exclusion of protected zones, national no-go zones

Policy/government tools (MACRO level):

- enforcement of environmental laws and regulations
- institutional capacity building
- research solutions suitable for developing countries with production potential
- internationally agreed system (standard/certification) to ensure sustainability of biomass intended for biofuels production
- zoning of land and calculation of water quantities for food and fuel production

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International Bench Marking

National initiatives

European Union – *Sustainability criteria for biofuels*

United Kingdom – *Renewable Transport Fuel Obligation*

Netherlands – *Cramer framework for sustainable production of biomass*

Brazil - *Social Biodiesel Scheme, Program for Certification of Biofuels*

Private initiatives (institutional)

GBEP (G8+5, UN Agencies) – TF on GHG balance + sustainable development

FAO – BEFS (food security), BIAS (GHG, biodiversity)

Multistakeholder processes

Better Sugar cane Initiative – BSI

Round table on Sustainable Biofuels – RSB

Round table on Responsible Soy – RTRS

Round table on Sustainable Palm Oil – RTSP

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Unsustainable Systems in Africa

Some of the main problems we face

- Continued loss of forests through illegal logging and charcoal burning
- Desertification
- Soil loss/erosion
- Overgrazing
- Ever shorter fallow rotations
- Growing populations

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Soil Facts

Fiona Harvey, FT 16.06.08 – Soil Under Strain

- **FAO has linked soil erosion and declining fertility to the recent rise in food prices**
- **Financial losses in the US from soil erosion are put at $40bn per year**
- **Fertility mining is rife in shifting agriculture and leads to long term degradation**
- **Africa is estimated to lose about 8 million tons of soil nutrients per year and has over 90 million ha of degraded arable land**
- **The solution according to FAO: sustainable land management**
- **"About 90cm of topsoil represents the founding of human civilisation."**

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Soil Reality in Ethiopia

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The Ingredients For Something Similar?

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Processing Concepts

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Energy Facts

Tanzania's primary energy consumption is such that:

- **Biomass (mainly wood fuel) accounts for about 90%**
- **Petroleum products (including natural gas), about 8%;**
- **Electricity (hydro and thermal) and 1.2%;**
- **Coal, solar, wind and other RE account for less than 1%.**

- **Petroleum products are among important energy sources for transportation, industry and for powering stationary engines and appliances.**
- **Tanzania is a net importer of petroleum oil**
- **Tz spends more than 25% of its foreign earnings.**
- **Main consumer of petroleum products is transport sector (40%)**
- **Manufacturing industry consume about 24%**
- **Households take close to 21%.**
- **11% is accounted for by agriculture while 4% is commerce.**

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Energy Facts

Tanzania's consumption of Diesel annually is estimated to be:

- **800,000 cubic m3 per year**
- **Assuming equal density this would require around the same quantity of PVO/biodiesel**
- **Jatropha seed yield of 5mt per ha**
- **Oil recovery of 30%**
- **Oil yield of 1.5mt per Ha**
- **Requiring about 530,000 Ha of Land.**
- **Does not take into account potential for significant yield increases**
- **Does not take into account of energy contribution of biomass**
- **Does not take into account increases in the efficiency of engines.**

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Devolved Energy Production

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Out-Growers

Out-Growers

- **Ample existing village land available in project area**
- **Successful Malaysian oil palm models to bench-mark**
- **Producer groups can be allocated shares in processing facilities**
- **Village trusts can be established to receive dividends in cash or oil**
- **Oil dividend could be linked to devolved energy generation schemes**
- **Ministry of Lands can title existing village land for producer groups to facilitate collateralisation of titles**
- **Local banks, financial institutions, commercially aware NGOs and donor funds can be channelled**
- **R&D needed to establish mixed/inter-cropping systems adapted to local growing conditions and maintain/increase food security.**

Food Security

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Final Thoughts

“Man’s mind is so formed that it is far more susceptible to falsehood than to truth”.

***Desiderius Erasmus, 16th Century*.**

“We can’t solve problems by using the same kind of thinking we used when we created them”.

Albert Einstein.

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