ENSURING FOOD & INCOME SECURITY & SUSTAINABLE DEVELOPMENT FOR RURAL COMMUNITIES IN SEMI-ARID REGIONS OF ZIMBABWE

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DIVERSIFICATION OF LIVELIHOODS

+

OPTIMISATION OF RESOURCE UTILISATION & MANAGEMENT FOR EACH LAND USE ACTIVITY

+

IMPROVED MARKET ACCESS & VALUE ADDING TO EACH MARKET CHAIN

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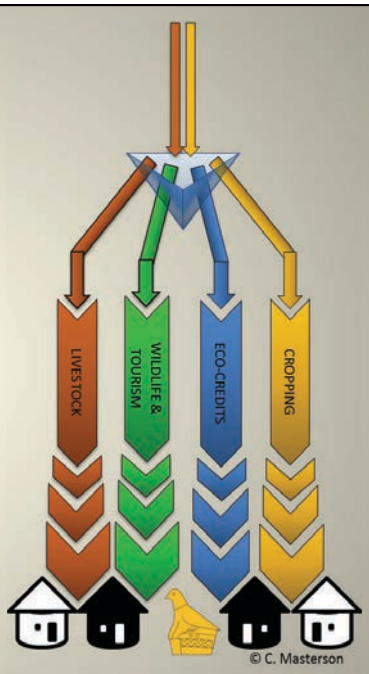
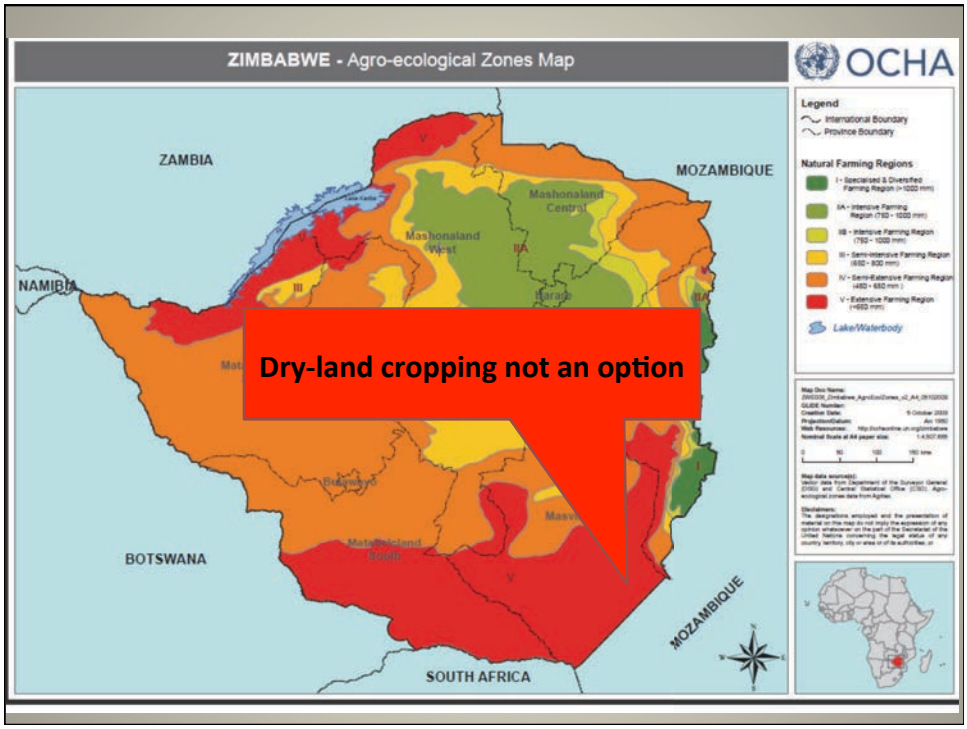
INCREASED PROFITABILITY & RE-INVESTMENT

+

IMPROVED ECONOMIC & ECOLOGICIAL SUSTAINABILITY & RESILIENCE





Value adding to livestock

- Commodity Based Trade (CBT)

- CBT enables beef to be safely traded out of FMD-endemic areas to more lucrative urban and international markets so:
  - Adding value to livestock in FMD endemic areas
  - Reducing motivation to circumvent veterinary controls (which jeopardises National FMD status)
  - Increasing compatibility between wildlife and livestock so enabling land-use diversification
- Without costly and ecologically damaging FMD control measures which impact negatively on local livelihoods and wildlife-based land use (which is in the top 3 contributors to GDP and employment across the SADC region)

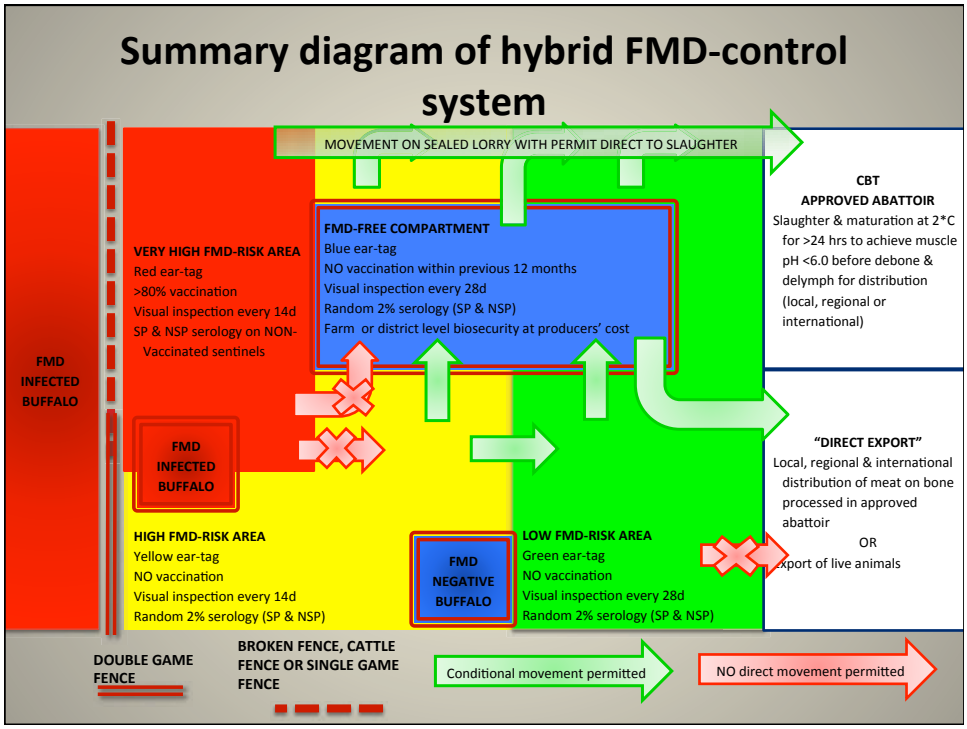
Commodity Based Trade

- impact on cattle value in CHIREDZI DISTRICT

	$/head	Cattle population	Rounded subtotal
Livestock Unit value in endemic area without CBT (Trade restricted to local region only so prices lower)	$200	188,000	US$ 38 Million
Livestock Unit value in endemic area with CBT	$900	188,000	US$ 170 Million
		Value addition	US$ 132 Million

- Without CBT the US$132 Million "red-line value gradient" is a potent driver for livestock owners and speculators to by-pass veterinary controls in order to access more lucrative urban & international markets
- This jeopardises FMD Status at a National and Regional level

Summary diagram of hybrid FMD-control system



Cost issues with CBT

- <2% off-take from communal livestock systems
- Poor av. Carcass weight
- Poor average carcass quality
  - Until improved, CBT focus should be on domestic market to prevent unwarranted shut-downs during outbreak

THUS:

- High average cost of surveillance/vaccination/ID & traceability/movement control etc. on a $/kg basis

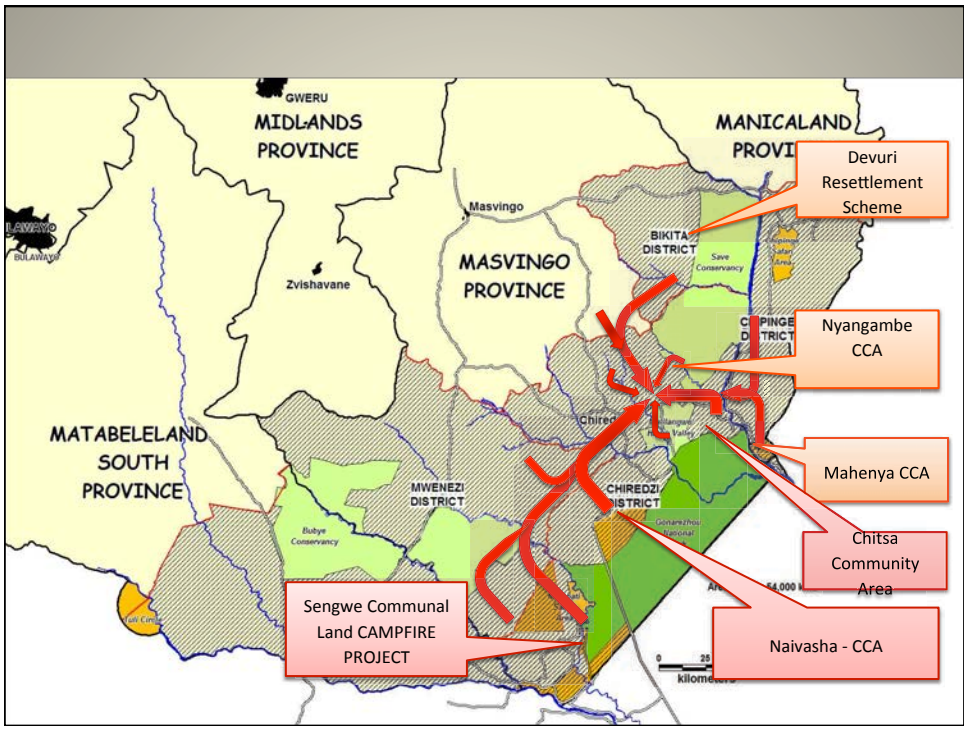
Value adding to livestock

Community Livestock Centres (CLC's)

Network of livestock handling and dipping infrastructure providing facilities for commercial provision of:

- Improved animal nutrition
- Improved genetics & breed selection
- AI and bulling services
- Improved Fertility
- Improved 1^0 Animal health
- Improved disease surveillance & control
- Improved extension services & farmer contact
- Improved marketing & commercialisation (improved linkages to output markets)

Facility cost +/- US$40,000 (upgrade of existing facility)
Facility maintenance: 1% maintenance levy on all transactions
New facility establishment: 1% roll-out levy on all transactions



Value adding to livestock –

i. Contract feeding at CLC's

	Units	US$/unit***	Subtotal (US$)	
Initial livestock unit (LU) value	300 kg	$ 1.50 (Economy grade)	$ 450	
Final livestock unit (LU) value	400 kg	$2.25 (Super grade)	$ 900	
Feed input	1.2 tons	$180	($ 216)	
Management & induction	Vaccines, dip, deworm, brand, transport & labour	$60	($60)	
		Net value added / LU	$174	+39%
		X 800 head (120d)	$139,200	
		X 4 rotations/year	**$556,800**	**EXTRA**
2% transaction levy = ($276 x 3200 x .02) = ca. $17,000/annum				
*** indicative values – vary according to season, drought, etc.				

Value adding to livestock –

ii. Improved weaning %'s & weights

(improved breed selection, genetics, fertility, nutrition, 1^0 animal health & seasonal breeding)

	Calving %	Weaning % (of live births)	Weaning weights	Beef produced per 500 cows***	$/kg (live)	Subtotal
Commercial target	>90%	>90%	210 kg	85,000	$2.25	$190,000
Current communal	55%	75%	140 kg	29,000	$1.75	$51,000
Communal target	75%	80%	180 kg	54,000	$2.00	$108,000
*** AI/bull a target of 500 cows per annum at each CLC						

Value adding to livestock

iii. Exploiting wasted fodder resources

- Sugar cane production is one of the most important economic activities of the arid south eastern lowveld (SEL)
- To facilitate transport from the field to the sugar-mill all green, leafy material is removed from the cane stalk which contains the sugary sap
- These "cane-tops" are generally left to dry in the field and burnt releasing huge amounts of carbon into the atmosphere

"Cane-tops" as a livestock fodder

- Green cane-tops are a very good livestock fodder
- Once dry, cane-tops are unpalatable & nutritionally effete so effectively useless as a livestock fodder
- This necessitates processing & storage of cane top fodder to retain its nutrient content & palatability so as to enable fodder banking & distribution
- This can be achieved through production of silage (partial fermentation under anaerobic conditions)
- Cane-top silage has been used for decades in Brazil, Argentina & Mauritius as livestock fodder with great success

Potential of cane-tops as livestock fodder

- Hippo Valley sugar-mill processes 500 tones of sugar cane per hour x 24 hours per day x 8 months of the year
- Cane-tops = ca. 6% of the plant
- = potential harvest of [500 x 24 x 30 x 8 x 0.06]
- = 172,000 tons of cane-tops
- = **17.2 Million cattle days** (10kg/head/day)

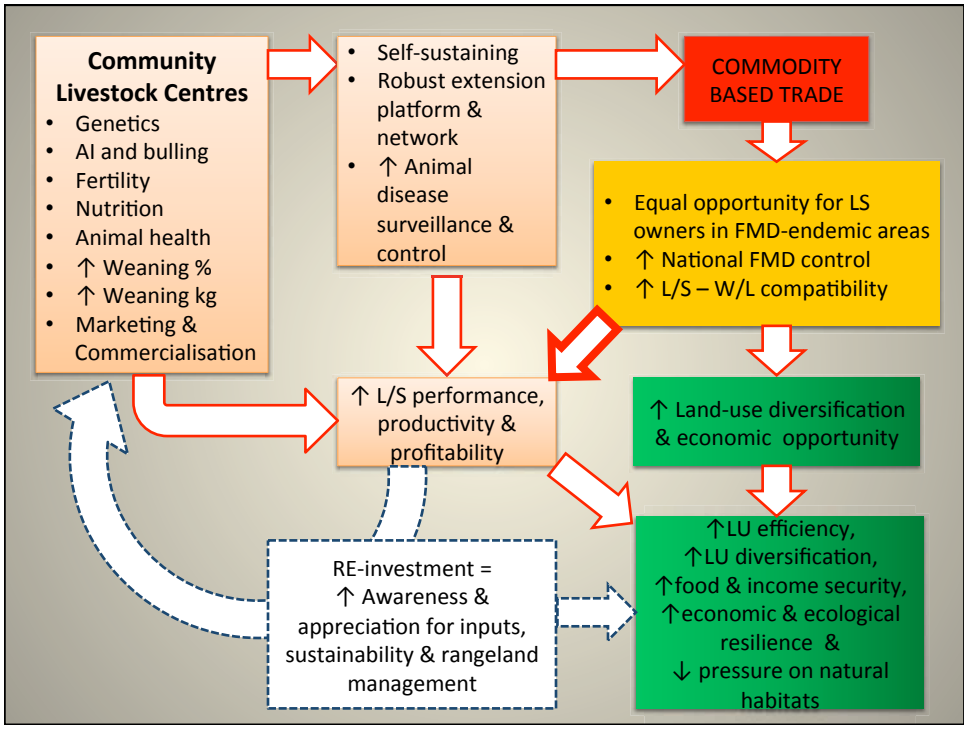
Enough to feed 95,000 head of cattle for 6 months

- Fodder that is normally wasted!

Value adding to livestock

iv. Improved grazing & rangeland management

- Holistic resource management & short duration, high impact holistic planned grazing is gaining ever greater acceptance as a suitable means of promoting greater rangeland productivity & sustainability in semi-arid environments worldwide



Commodity Based Trade

- promoting compatibility between livestock & wildlife

- CBT removes prejudice against livestock producers living within and adjacent to FMD-endemic areas - such as Trans-Frontier Conservation Areas (TFCA's)
- So promoting compatibility between livestock and wildlife-based land use
- Providing basis for diversification of local economies to include more sustainable and more profitable wildlife based land use
- So promoting risk diversification, economic and ecological resilience at community level

Risk diversification

Greater biodiversity within natural ecosystems imparts risk reduction & resilience to natural, disease and climatic challenges

Similarly, economic diversification imparts risk reduction & greater resilience of local economies to various external shocks

Economic Diversification & Opportunity

Resource base

= land, water & biotic potential

CROPS

LIVESTOCK

WILDLIFE BASED LAND USE

ECOTOURISM & HUNTING

NATURAL PRODUCTS

Meat harvesting & live game sales

DEVELOPMENT

Support services

Employment, training & empowerment

Concession fees & profit share

Carbon credits

Subsistence

Crafts & commerce

Traditional use

Food security

Commercial income

Market gardens

Shuttle service

Deliveries

Cultural tours

Other Employment - teachers, nurses, builders...

Community-owned Conservation Areas (CCA's)

Trophy hunting outperforms extensive cattle production in arid regions

(10,000 Ha example)

Species	Animal density (/km2)	sECC	Annual offtake	Live weight (kg)	Trophy value	Annual gross return
Cattle only	4	400	40	320	$ 1.70	$ 21,760.00
Buffalo	1.25	125	5		$ 15,500	$ 77,500.00
Elephant	0.3	30	0.9		$ 35,000	$ 31,500.00
Lion	0.1	10	0.2		$ 62,500	$ 12,500.00
Leopard	0.1	10	0.2		$ 19,000	$ 3,800.00
Kudu	0.6	60	1.2		$ 2,000	$ 2,400.00
Eland	0.6	60	1.2		$ 2,000	$ 2,400.00
Sable	0.33	33	0.66		$ 7,000	$ 4,620.00
Wildebeest	0.6	60	1.2		$ 750	$ 900.00
Zebra	0.6	60	1.2		$ 850	$ 1,020.00
Waterbuck	0.2	20	0.4		$ 1,200	$ 480.00
Warthog	1	100	2		$ 400	$ 800.00
Giraffe	0.5	50	1		$ 2,000	$ 2,000.00
Impala	2	200	4		$ 250	$ 1,000.00
Nyala, bushbuck, impala, warthog, bushpig, tsesebe,						$ -
duiker, grysbok, hyaena, etc…						$ -
Carbon credits						$ -
Non-consumptive ecotourism						$ -
Natural feedstuffs						$ -
Traditional hunts, cultural value, etc….						$ -
Harvested natural materials, arts & crafts, etc..						$ -
						$ 140,920.00

Additional financial benefits of wildlife based land use

(10,000 Ha)

- Carbon credit value per 10,000 Ha
  - = ca. 1 CC per Ha x $8 per carbon credit
  - = US$ 80,000 per annum
- Meat distribution and sales from trophy hunted animals & “ration quota” on typical 10,000 Ha area
  - = ca. 12,000kg x US$2.50/kg
  - = US$ 30,000 per annum

Comparison of gross returns from extensive cattle production vs. wildlife in arid areas

(10,000 Ha)

Cattle

- US$21,760/10,000
- = US$ 2.18/Ha gross return

Wildlife based land use

- = trophy hunts + carbon credits + meat value
- = US$140,920 + US$ 80,000 + US$ 30,000
- = US$250,920
- = US$ 25.10/Ha gross return

Distribution of CCA revenue

- CCA revenue would **NOT** be distributed at household level
- CCA would be administered by a CCA-Trust
- Trust funds would be allocated to:
  i. Community development projects
     - Schools, boreholes, clinics, roads, dip-tanks, etc.
     - CLC's to add value to livestock sector
  ii. Seed funding for small-scale start-up businesses within the community to take advantage of entrepreneurial opportunities & stimulate local economic activity
     - e.g. Fresh produce to tourist facilities; harvesting, processing and marketing of natural products (baobab powder, honey, grass, fruit, etc.); shuttle services for tourists; community tours; sale & distribution of meat; etc.

Distribution of CCA revenue

- Disbursement of CCA Trust funds would be unique in that a communal resource is commercialized for the collective community benefit rather than normal situation in which the communal resource is exploited by individuals
- This difference is subtle yet monumental
- It is one key to abolition of the "green-mango-syndrome" which promotes progressive communal resource degradation through competition between individuals to exploit that resource
- If you don't learn to eat green mangoes … you ain't gonna eat mangoes…

Ecological sustainability of wildlife based land use

Wildlife based land use provides land for conservation of natural habitats and ecosystems which support:

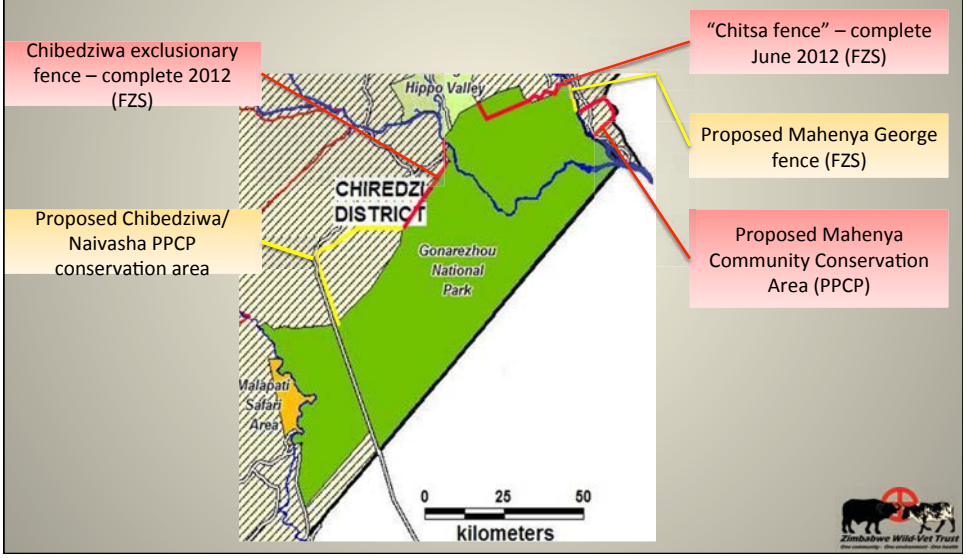
- Other key conservation species such as black rhino
- Greater economic diversification & opportunity
- Provision of key eco-services
  - Carbon fixing, promotion of soil health & fertility, reduction in erosion, amelioration of drought, flood & climate change, promotion of river & wetland health & functionality, water filtering & purification, water retention & sustained release, improved replenishment of water table, oxygen production, air purification, promotion of biodiversity, robust risk diversification, natural products, pollination, reduced methane production, ecosystem balance….

Tools for managing the transmission

- Geospatial separation
- Vaccination
  - Logistically challenging
  - Fragile protection
  - Expensive

Can CCA's provide sustainable relief to these costs?

Proposed fencing for Gonarezhou National Park 2012-13




THANK YOU