

Permaculture Inspirations

From the micro to the macro and the short cut through it all

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From the micro to the macro and the short cut through it all

- Permaculture gardens
- Sustainable landscape principles
- Rainwater harvesting designs
- Amaoti Organic Farming Project
- The Agri-Village Model
- Sustainable Housing Settlements
- Marikana Housing Project
- Fundamentals for EcoVillage Designs
- Strategic Framework for Sustainability
- Anastasia & the Ringing Cedars of Russia

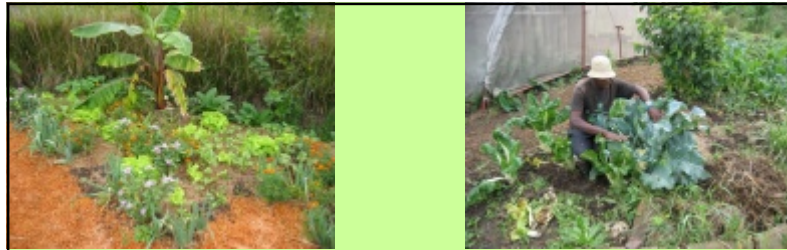


Newlands Mashu Permaculture Learning Centre



Newlands Mashu Permaculture Learning Centre

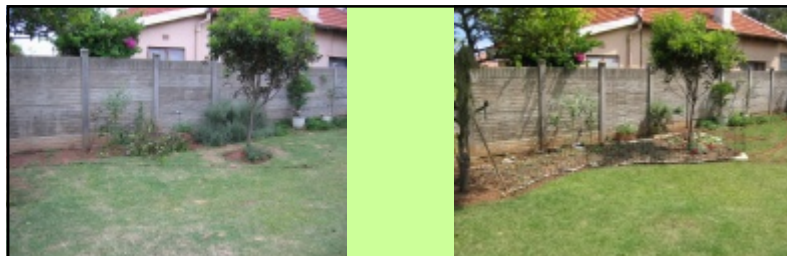




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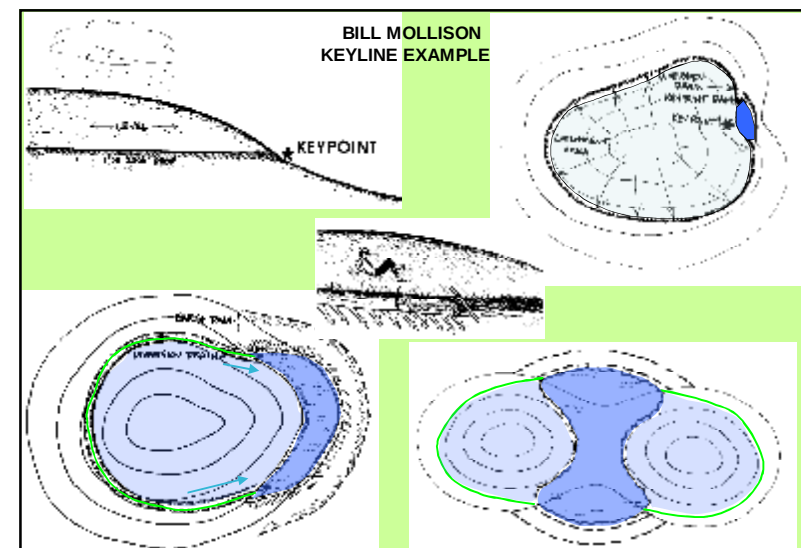
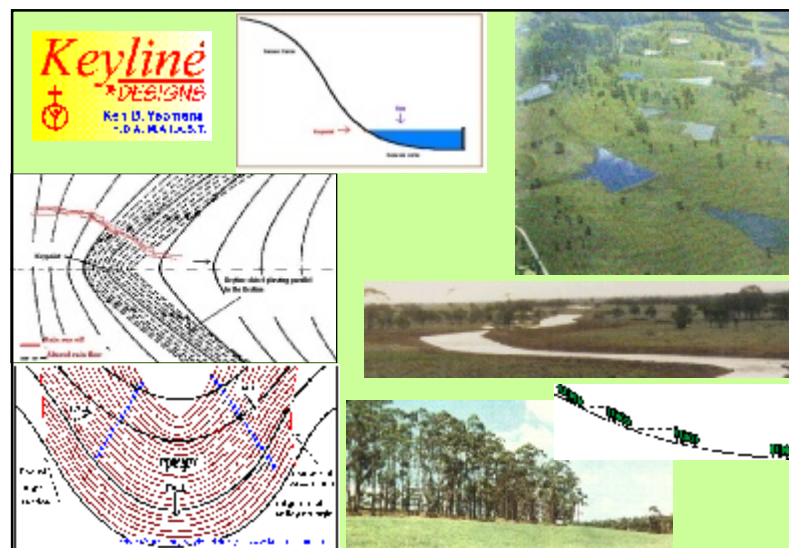


Mom's Permaculture Garden



Mom's Permaculture Garden





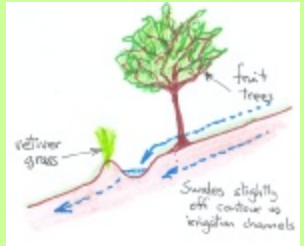
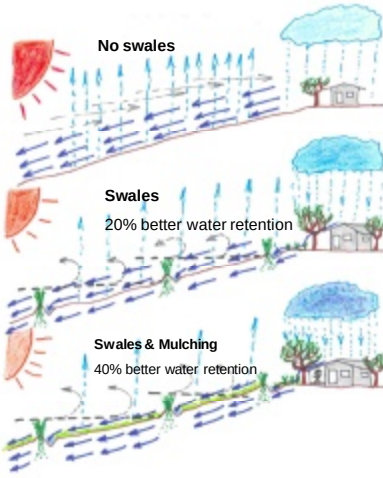
Sustainable Landscape Principles




Keyline dams
Maximise source to sink distance

Swales

SWALES & VETIVER GRASS

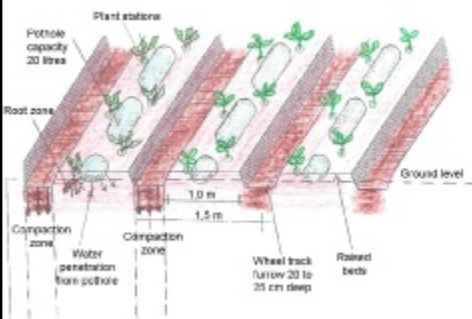
Progressive benefits from Swales	No Swales	Swales	Swales & Mulching
Rainwater harvesting	None	Good	Very good
Soil erosion	Bad	Very little	Contained
Water table	Low	Good	Very good
Moisture retention	Low	Good	Very good
Crop yields	Low	Good	Very good

No swales

Swales
20% better water retention

Swales & Mulching
40% better water retention

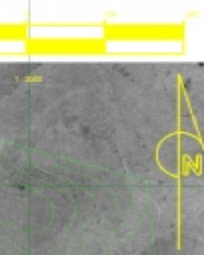
NO-TILL OR LIMITED TILL FARMING




Plant stations
Pothole capacity 20 litres
Root zone
Ground level
Compaction zone
Water penetration from pothole
Wheel track rut 20 to 25 cm deep
Rained beds

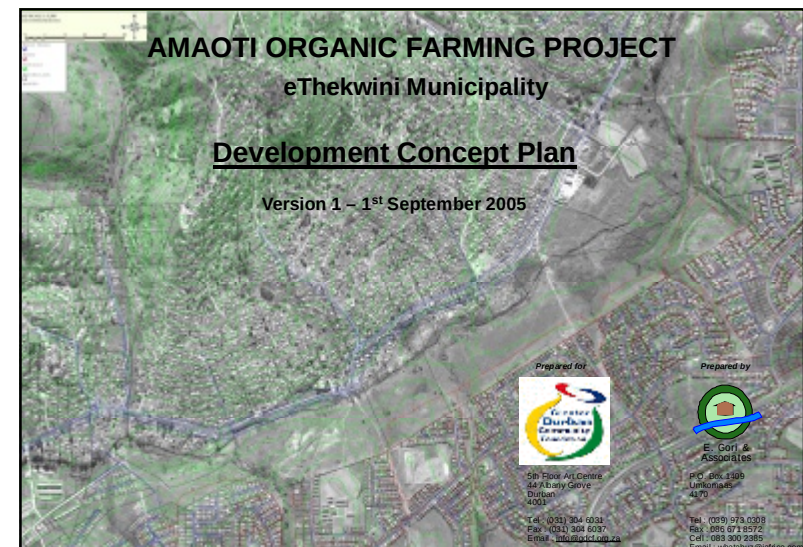
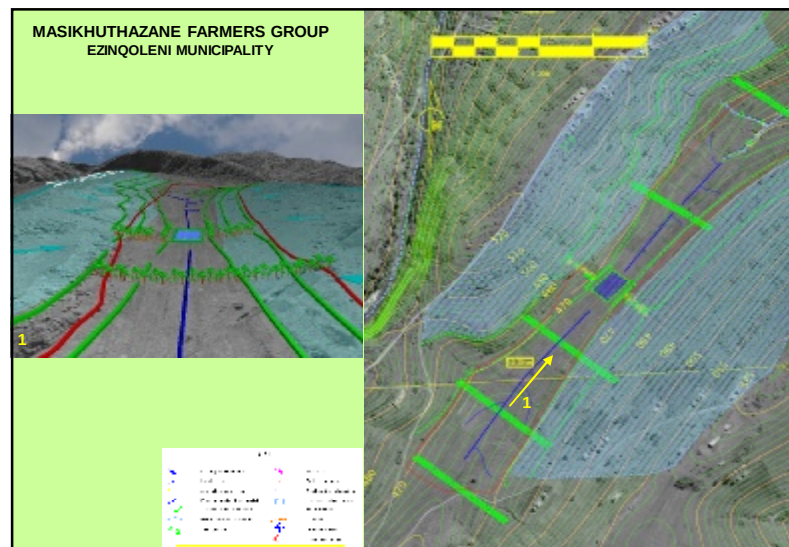
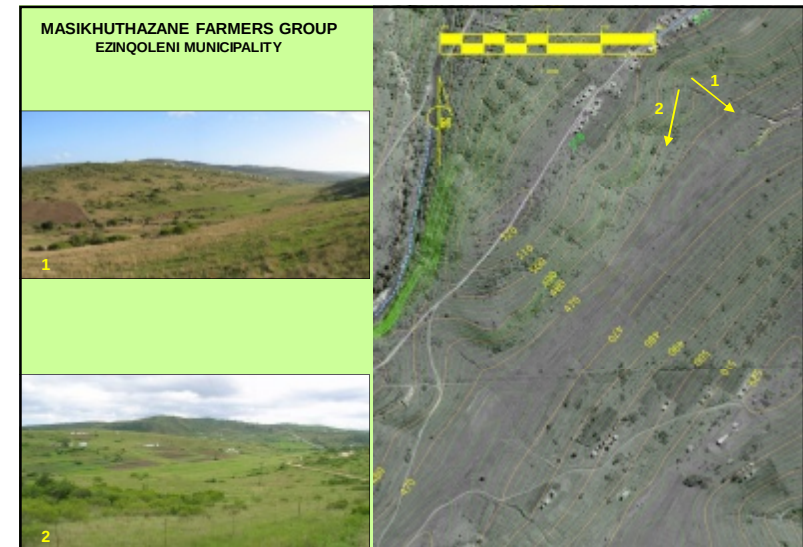
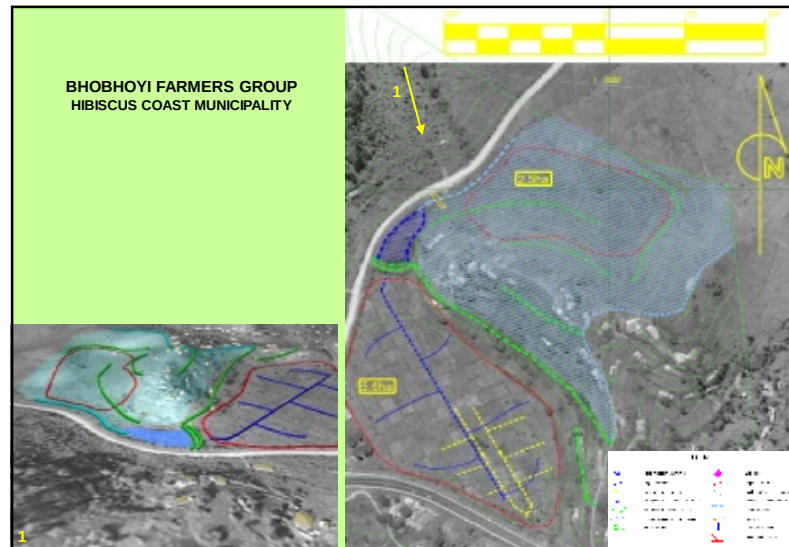


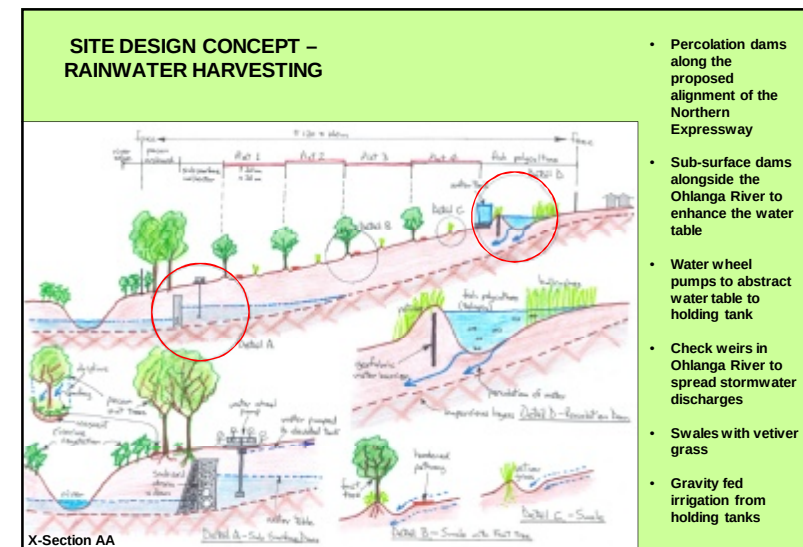
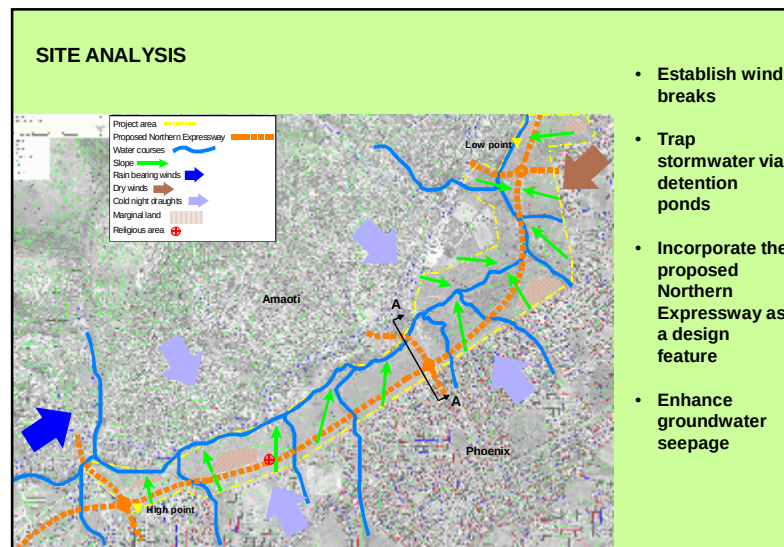
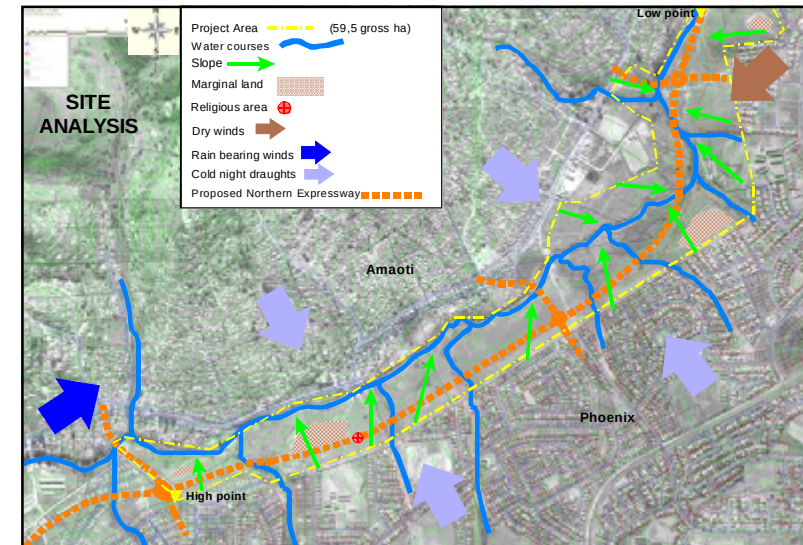
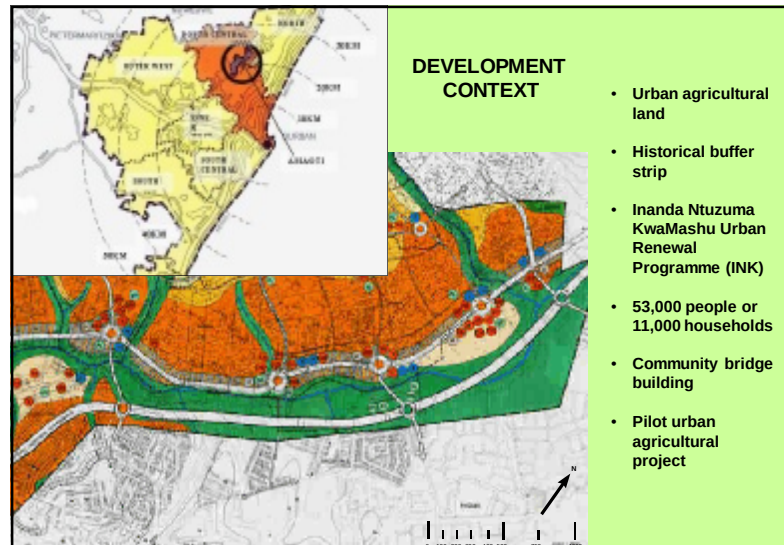

BHOBOHOI FARMERS GROUP HIBISCUS COAST MUNICIPALITY

1

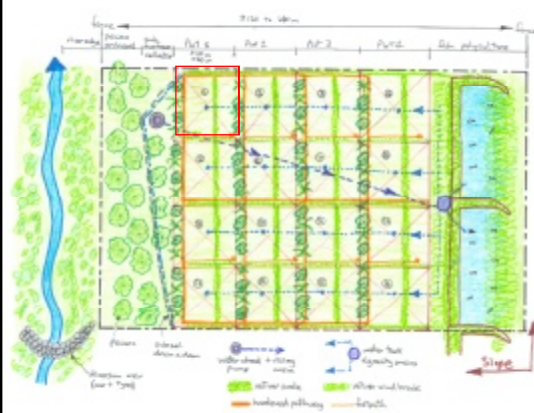
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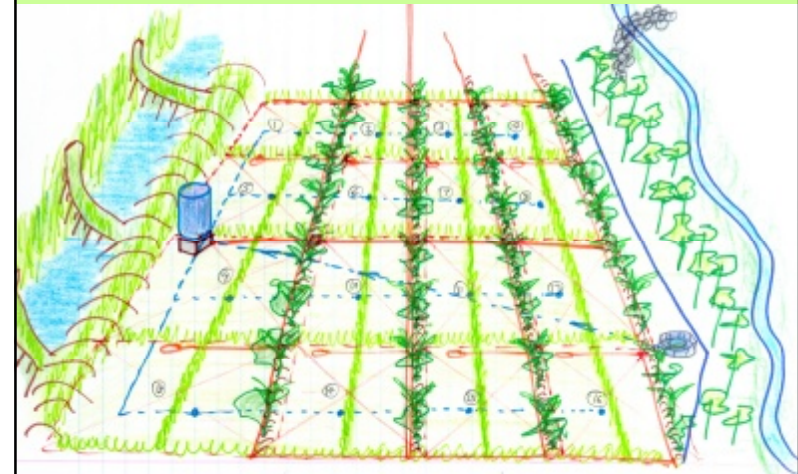
SITE DESIGN CONCEPT – ALLOTMENTS

Plan Section AA



- 20m by 20m grid for a 400m² allotment
- Vetiver grass and fruit trees provide tree canopy, wind breaks and biomass
- 8 Adjacent allotments can be grouped for a polyculture of integrated rotation system of crops and chickens
- Pecan nut orchard alongside the Ohlanga River
- Polyculture with tilapia fish in percolation dams
- LEISA principles minimise operating costs and create better income margins
- Income yields about 2,5 to 3 times better than yields of conventional large scale agriculture
- Each allotment to earn at least R3,600 per annum

SITE DESIGN CONCEPT – ALLOTMENTS



SITE DESIGN CONCEPT – HOMESTEAD GARDENS



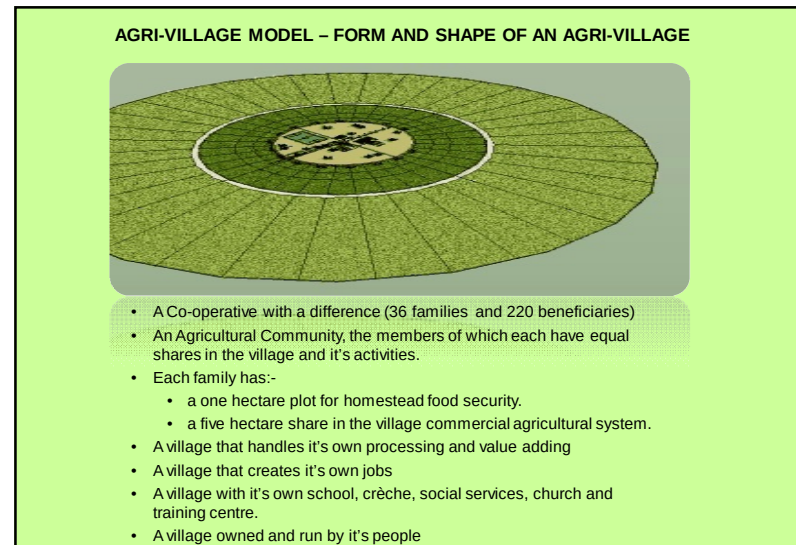
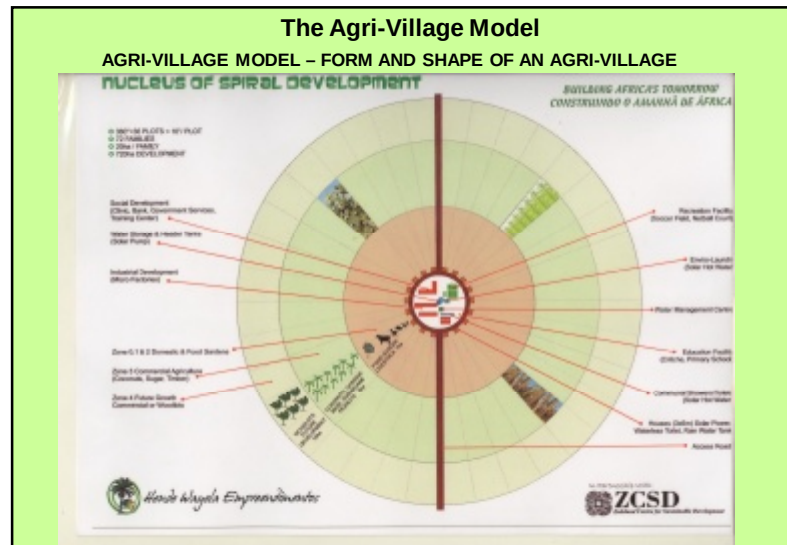
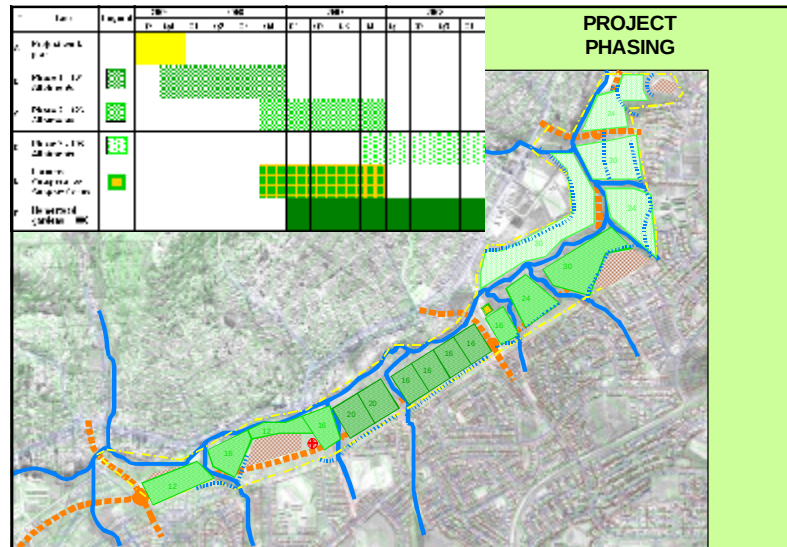
- Trainees to become the new community based farm stewards to help establish some 1,000 homestead gardens
- Homestead gardens :- rainwater tank; plant material; fruit and nut trees; and, small tools
- Homestead gardens to be established via small loans up to R2,500 each, R2,000 value of goods and R500 paid to the farm steward upon completion
- Loan funding to be based on the Grameen Banking system
- Bona fide loan applicants will need to provide loan collateral via 4 other households
- Loan guarantee fund worth 10% of the loan stock to be secured in order to entice a micro-finance service provider
- The scheme stops once the loan guarantee fund is exhausted

SITE DESIGN CONCEPT – FARMERS CO-OPERATIVE SUPPORT CENTRE

The scale of this project makes for a viable Farmers Co-operative Support Centre as an independent business unit in order to consolidate and deliver a wide range of functions, such as:-



- management and administration of allotments
- inspections for organic compliance
- administration of micro loans
- training and mentoring of farmers
- advisory services for farmers
- propagation of seeds and trees
- storage and exchange of seeds
- collection point for recycling of glass, paper and steel
- use of local garden refuse for large scale composting
- hiring of plant and equipment
- provide a trading platform on market days
- produce delivered for onward transport to other markets
- add value to niche produce such as packaging and marketing
- provide assistance to emerging SMEs



AGRI-VILLAGE MODEL - HOMESTEAD GARDENS FOR FOOD SECURITY



Each family has a house on a one Ha plot

This has proved to be sufficient to provide for food security needs and a small surplus.

Homestead

AGRI-VILLAGE MODEL - COMMERCIAL CROPS



Each family owns a five hectare share in the Commercial Agriculture zone.

Commercial Agriculture Zone

AGRI-VILLAGE MODEL - COMMUNITY NUCLEUS



The family plots are arranged around a communal area in which the following facilities are found:-

- Multipurpose Centre
- Primary Industry
- Secondary (Micro) Industries
- Creche
- Primary School
- Ablution Facility
- Enviro-Laundry
- Recycling Centre
- Sports fields
- Water works

Facilities

DESIGN EXAMPLE OF A SUSTAINABLE AGRICULTURAL LAYOUT FOR THE DUKUDUKU ON-SITE RESETTLEMENT PROJECT



Legend

- Homestead gardens on leasehold or freehold sites
- Agricultural allotments on short term leaseholds or PTOs
- Fenced off area for wetland and livestock grazing
- Keyline rainwater harvesting swales
- Water course
- Keyline dam for gravity fed irrigation with ram pumps
- Site access

DESIGN EXAMPLE OF A SUSTAINABLE AGRICULTURAL LAYOUT FOR THE DUKUDUKU ON-SITE RESETTLEMENT PROJECT



1



2



3

Homestead Gardens to Enhance Food Security

Basic food security is the mandate of DAERD and should be grant funded.

Micro-finance institutions (Grameen Bank approach) to be established for small loans for rainwater tanks, tunnels, inputs, etc.

Development of Productive Commonage for Commercial Cash Crops

Commercialisation projects can be part grant and part interest financed. DFIs to be mobilised to fund these projects. Grant to interest funding as follows:-

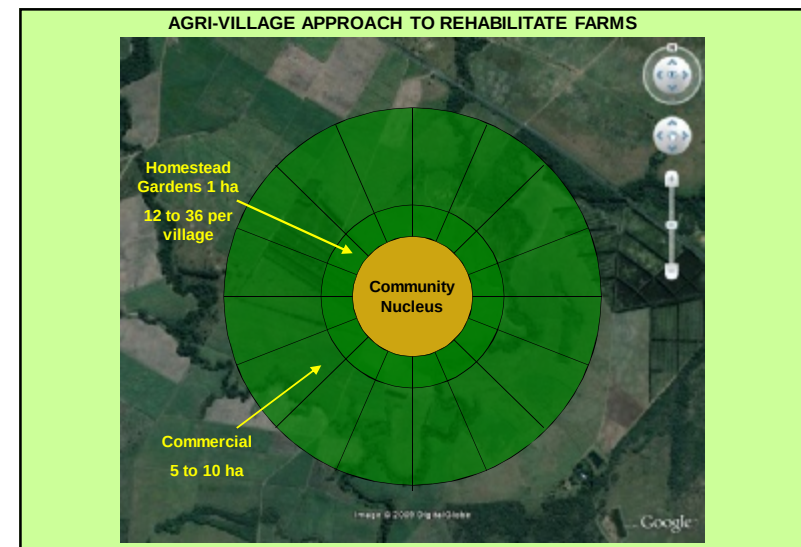
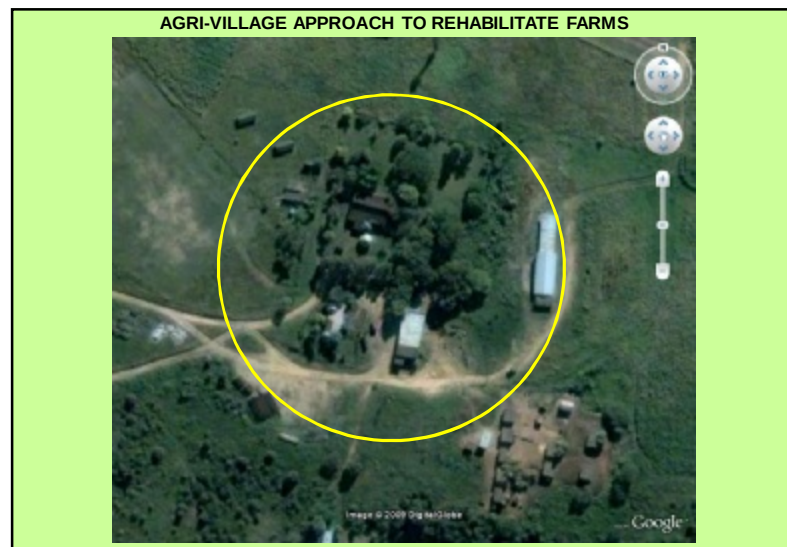
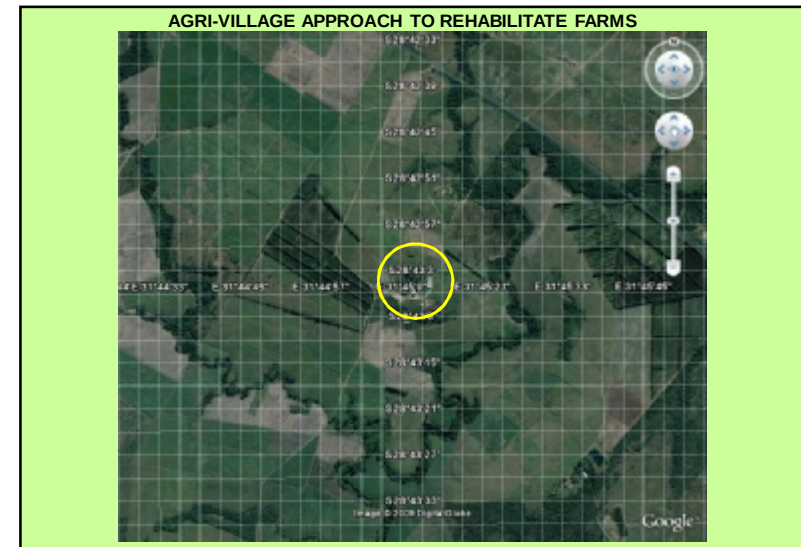
- 1st Loan – 30 / 70
- 2nd Loan – 20 / 80
- 3rd Loan – 10 / 90

Village Co-operative / Farmers Support Centre

Establishment of infrastructure – DEDT

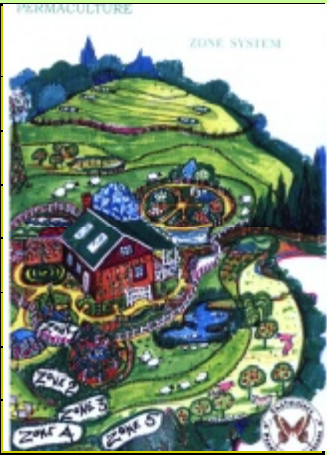
Equipment – DFIs

Operational support - DAERD



Sustainable Housing Settlements

Zone	Permaculture zones for homesteads
Zone 00	The Individual
Zone 0	Home dwelling
Zone 1	Domestic self sufficiency - pick and pluck plants for daily usage
Zone 2	Small domestic stock and an orchard
Zone 3	Crops, forage and stored food
Zone 4	Orchards, forage, forestry and pastures
Zone 5	Natural environment



THE CURRENT REALITY

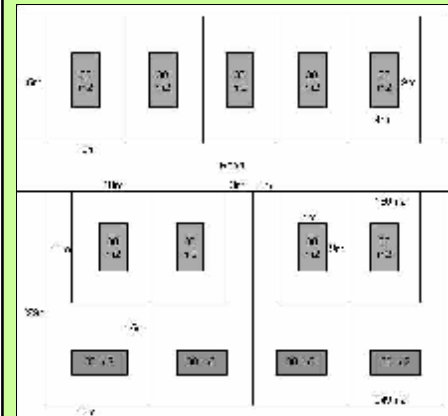
[More photos](#)





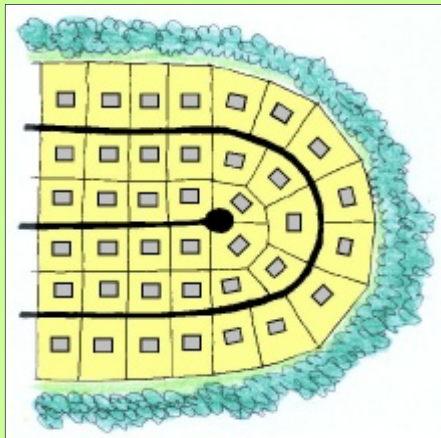


Typical conventional greenfield housing layout



- higher servicing cost
- less housing residual
- less privacy
- less functional space
- predominantly on steeper land
- lower densities
- unsafe neighbourhoods
- lower economic thresholds
- higher energy use
- 30m² house

Typical housing layout on a spur development

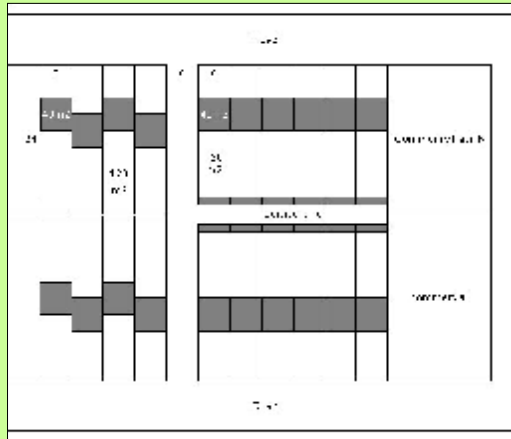


A sterile, unhealthy, unsafe, mono-culture built environment that subdues community spirit and forms a barrier to the natural environment.

THE PERMACULTURE DESIGN OPPORTUNITY

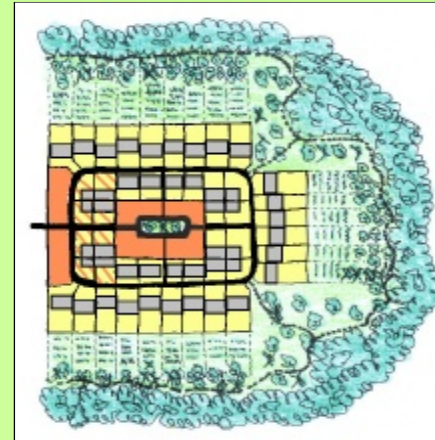


Typical row housing layout concept



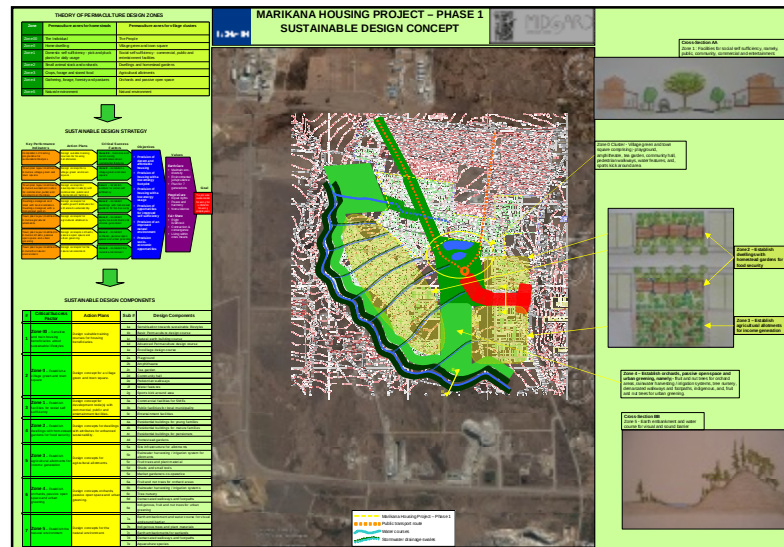
- lower servicing cost
- more housing residual
- more privacy
- more functional space
- predominantly on flatter land
- higher densities
- safe neighbourhoods
- higher economic thresholds
- lower energy use
- 40m² house

Compact row housing layout within a sustainable environment



A vibrant, diverse and safe built environment that promotes a sense of community, urban agriculture and an appreciation of the natural environment.

"Embraces Permaculture zone principles"



FUNDAMENTALS FOR ECOVILLAGE DEVELOPMENTS

Natural Building Systems

- Low energy footprint
- Low maintenance costs
- Use of local materials
- Vernacular design

Renewable Energy

- Wind power
- Solar power
- Biogas

Holistic Permaculture Design

to produce a vibrant, diverse and safe built environment that promotes a sense of community, urban agriculture and an appreciation of the natural environment.

Food gardens

- Organic farming
- Local food security
- Edible landscapes
- Community Supported Agriculture

Ecological Sanitation & Water

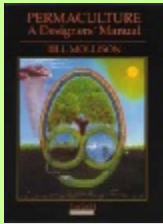
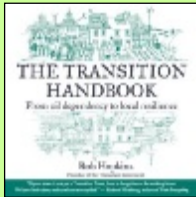
- Constructed wetlands, and/or,
- Living machines
- Re-cycle grey water for irrigation
- Rainwater harvesting

Socio-Economic Fabric

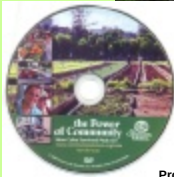
- Local employment opportunities
- Community facilities
- Educational facilities
- Local shopping facilities
- Local currency

STRATEGIC FRAMEWORK FOR SUSTAINABILITY

Working Draft v1 – 9 October 2009





Sources of Inspiration

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HUMANITY'S TWO GREATEST CHALLENGES




PEAK OIL

- Coal to liquids
- Gas to liquids
- Relaxed drilling regulations
- Massively scaled biofuels
- Tar sands and non-conventional oils
- Resource nationalism and stockpiling

CLIMATE CHANGE

- Climate engineering
- Carbon capture and storage
- Tree-based carbon offsets
- International emissions trading
- Climate adaptation
- Improved transport logistics
- Nuclear power

**WHEN SEEN AS TWO ASPECTS OF THE SAME PROBLEM:
BUILDING RESILIENCE PLUS CUTTING CARBON EMISSIONS**

**Planned relocalisation
(building local resilience)**

- Tradable energy quotas
- Decentralised energy infrastructure
- The Great Re-skilling
- Localised food production (food feet)
- Energy descent planning
- Local currencies
- Local medicinal capacity

Excerpt from
Transition Handbook

PLANETARY SURVIVAL MEASURES




Reducing Carbon Emissions

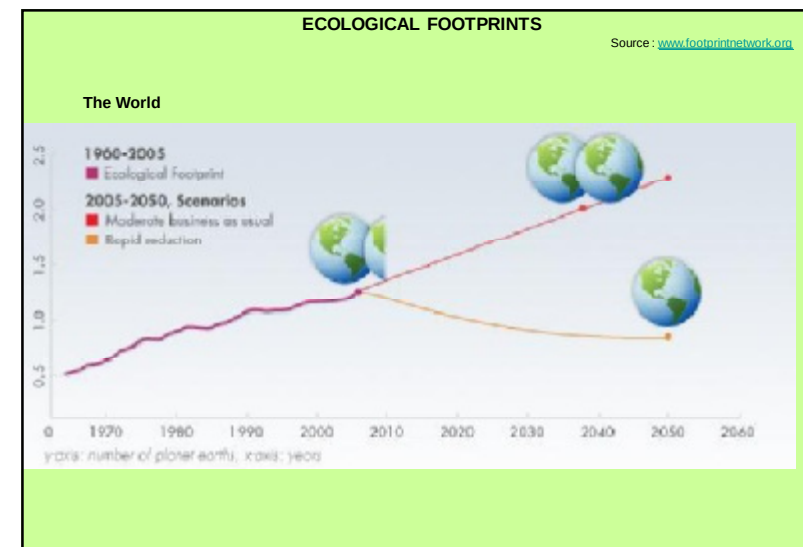
- Does not change bad industrial practices
- Does not reduce consumption patterns
- Shifts emissions to lesser pollutants
- Does not enable equitable development
- May be difficult to measure effectively

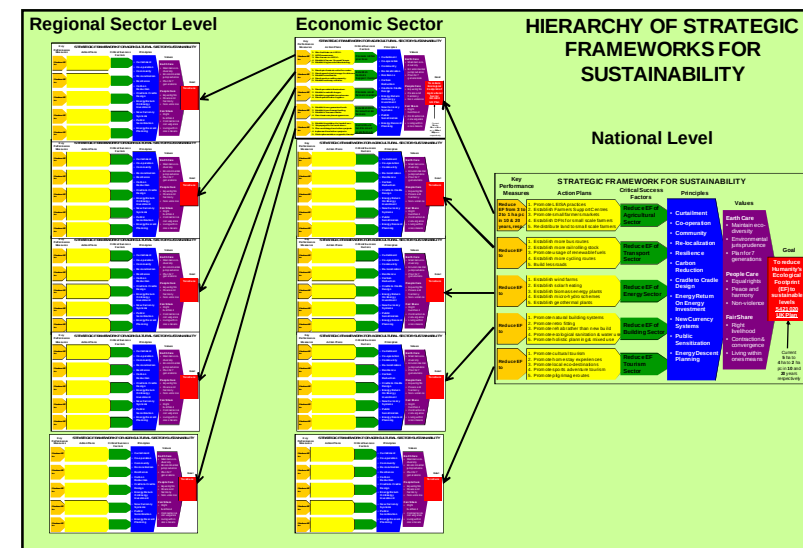
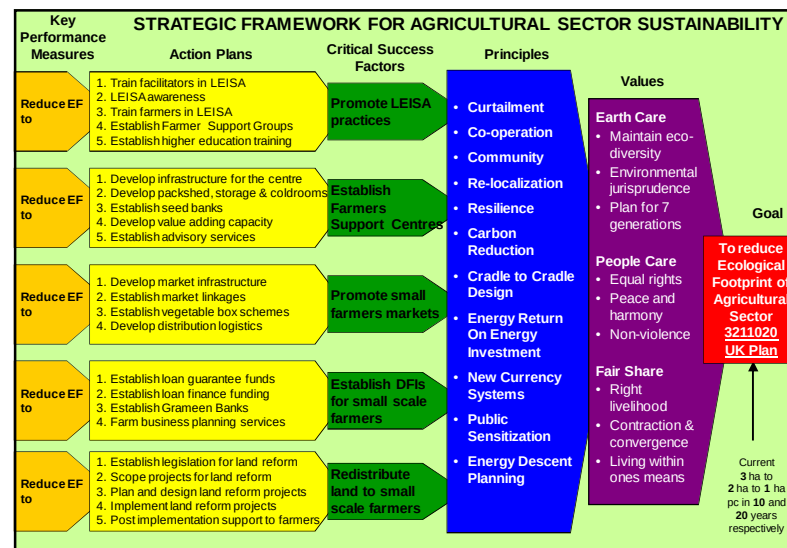
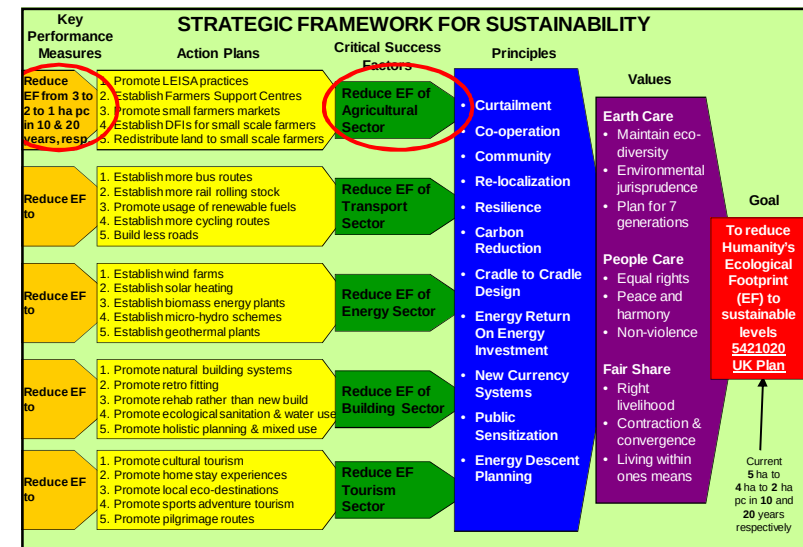
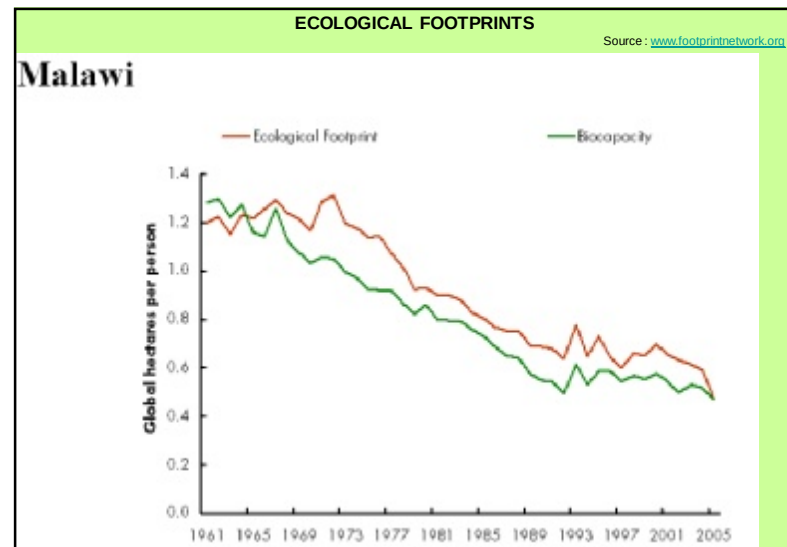
"Basically a smoke screen to hide behind"

Reducing Ecological Footprint

- Promotes industrial efficiencies
- Reduces consumption patterns
- Promotes spread of new efficiencies
- Enables equitable development
- Measures are more tangible

"A vivid measurement of how many more planets humanity requires"







First steps to your Permaculture Garden



- Mulching
- Composting
- Organic seed exchange
- Planting diversity
- Vermiculture
- Rainwater harvesting with swales & vetiver grass
- Create microclimates
- Grey water recycling
- Form your Permaculture Guild Group

Thank You