



**ICA Housing Organisation  
London Symposium  
8<sup>th</sup> October 2010**

**The Pines Calyx®  
and the extension  
of zero carbon design to  
community housing projects**



# ***The Bay Trust***



***Exploring New Models of  
Sustainable Living***

***‘from a ‘grass roots’ perspective ...***



# ***An Explanation of the Project***

*Re-thinking the way we live our lives...*

# Where is it?



# The Pines Garden



# St. Margaret's Bay



4 miles from Dover





**What is it?**

 **pínes**  
**calyx**  
naturally inspiring

## Centre for Sustainable Living



### **Developing Real Health & Wellbeing...**

*Optimising Performance / Realising Potential*

### **Minimising Our Footprint ...**

*Zero Carbon Buildings / Clean Tech / Biodiversity*

### **Acquiring New Skills...**

*Outdoor Learning / Permaculture / Sustainable Construction*

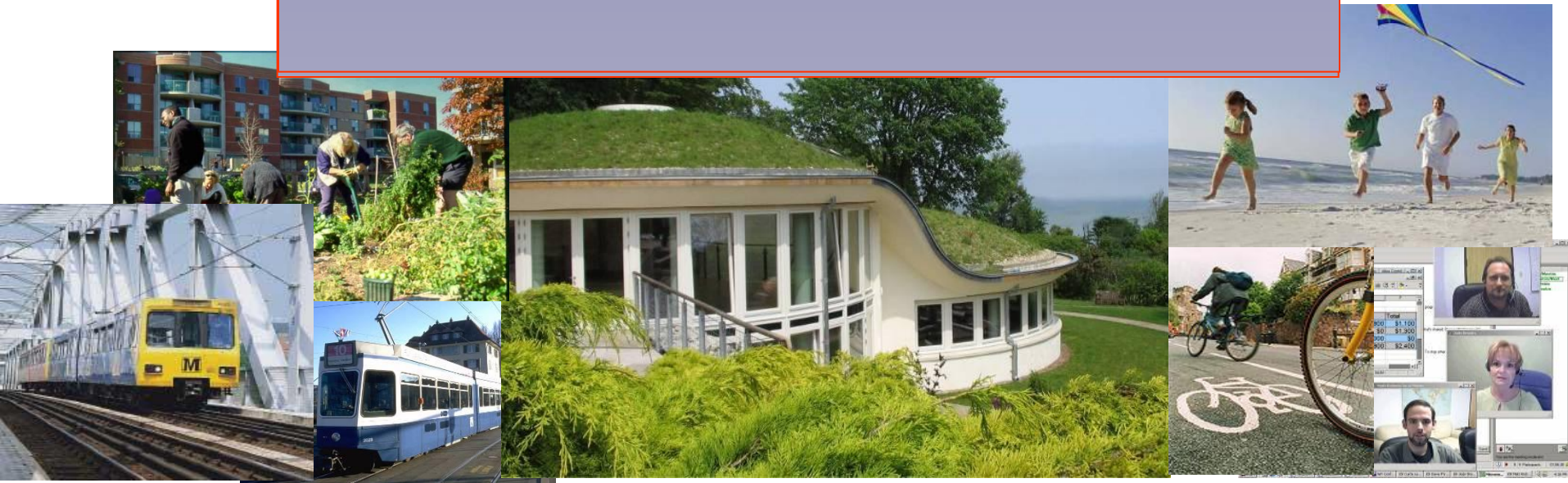
### **Building a Sustainable Community...**

*Energy / Food / Water / Waste / Transport /  
Affordable Housing / Local Enterprise*

*Re-thinking the way we live our lives...*

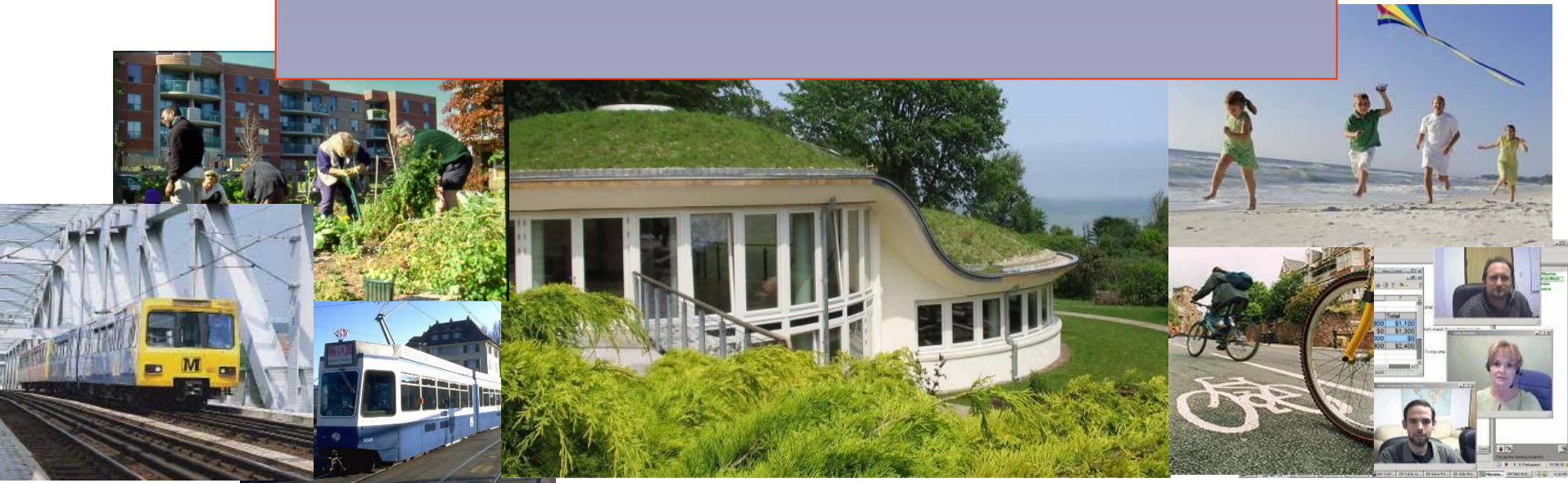
## “Real-Health”

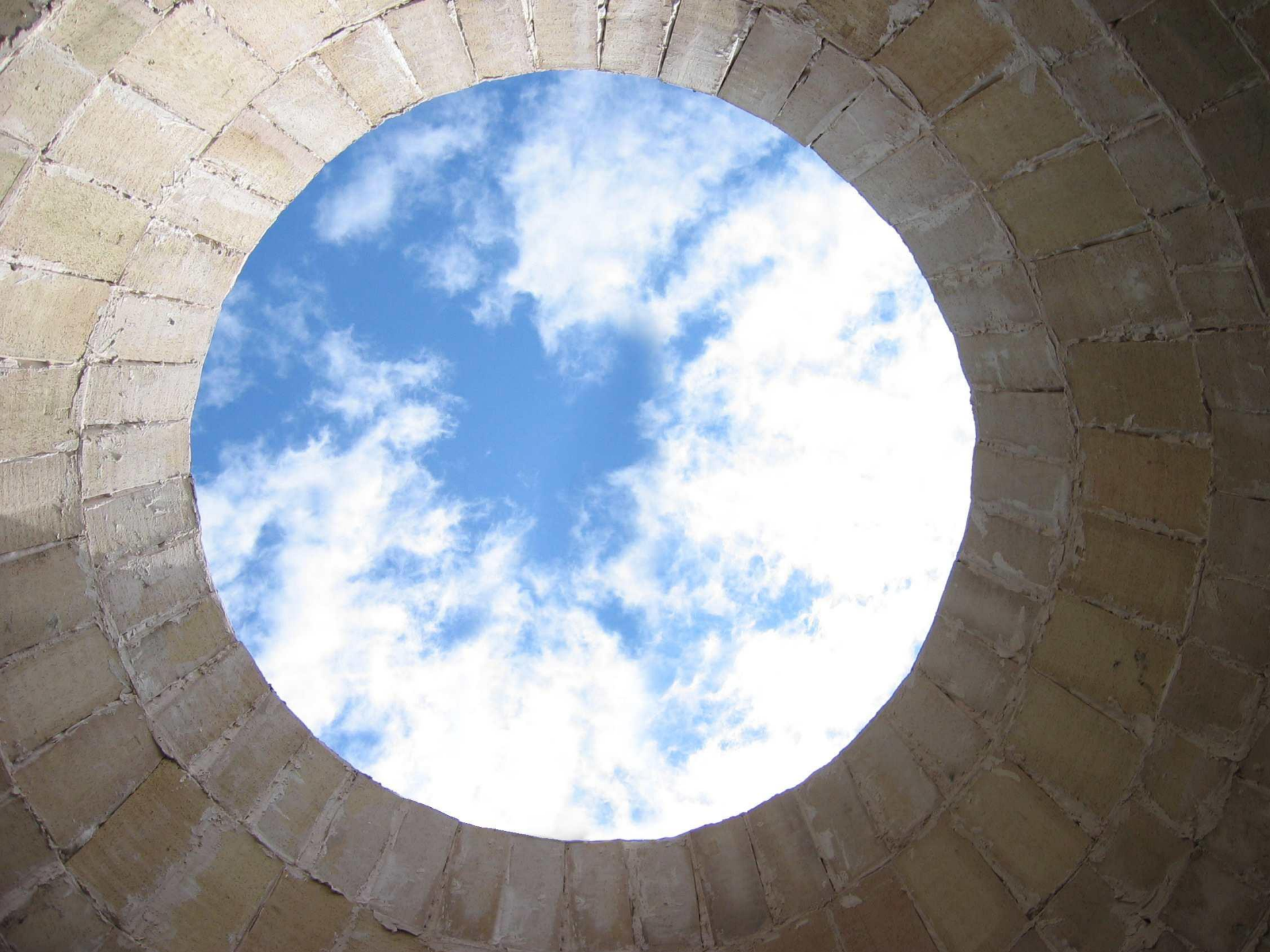
“A healthy mind in a healthy body  
in a healthy community, in a healthy environment”



## Real-Health: Core Values

- Community benefit
- Collaboration
- ‘Cradle to Cradle’ Sustainability



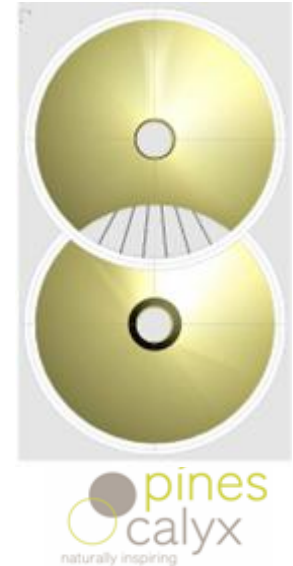


# The Pines Calyx®

A Conference, Training & Events venue  
for the Low Carbon Economy



# Nature as guide and mentor...



*“You cannot solve a problem at the same level of thinking that created it”*

Albert Einstein

**How important is the built environment  
to our health and wellbeing?**



**...and our natural environment?**



## **‘Nature is only interested in health’**



Thus.. ‘Health’ is the starting point for the design of the building

Seeking out a reference point for wholeness  
and healthy living

Reconnecting with the natural world – and each other  
i.e. ‘Real Health’

## Design for Health and Wellbeing

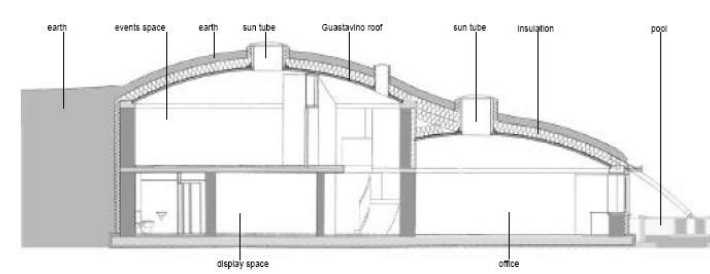
**Air Quality:** fresh sea air

**Air Temperature:** spaces naturally cooled in summer and warmed in Winter

**Materials:** untreated, natural

**Light:** Daylighting & 'Virtual Daylight'

**Visual Appearance:** Unobtrusive / flows into the surrounding landscape



longitudinal section A - A





*Re-thinking the way we live our lives  
and the way we manage our communities and businesses...*



***Following the sustainability trail...***



..Energy,  
Shelter,  
Water,  
Food,  
Waste  
Transport  
and  
Biodiversity,

# *Re-thinking the way we manage our communities and local businesses...*

## Overview of the Village of St Margaret's at Cliffe

- St Margaret's is a seaside village set on the White Cliffs of Dover in Kent; it is located 4 miles from the town of Dover.
- The village has approximately 3000 permanent residents with around 1370 households.
- Village Amenities include Village Hall, Post Office, Shop, 5 pubs, 5 Tea Rooms, 2 hotels and a range of B&Bs
- The estimated total electricity consumption for the village community is **8,300,000 kWh/yr.**
  - 82% from households**
  - 15% from businesses**
  - 3% from agriculture**





# Sustainable St Margaret's

*Re-thinking the way we live our lives...*



Time to re-think the  
way we live our  
lives...?





# Sustainable St Margaret's

*Re-thinking the way we live our lives...*

Some of the challenges we face locally....

## Climate Change ...

+

- Rising Energy Costs & the challenges of 'Peak Oil'
- Future Water Shortages
- Increasing Waste Management Costs
- Car Congestion
- Increasingly Elderly population
- Lack of Affordable Housing
- Lack of Youth Facilities
- Lack of local employment opportunities
- Population migration (young people & key workers moving out)
- Decreasing provision of local services – potential loss of post-office, shop(s), medical practice, school(s)...
- Security concerns



# Sustainable St Margaret's

*Re-thinking the way we live our lives...*

Are we going to.....

Do Nothing!

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Wait for the Government...

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search ID: jsin7

"Would you like to wait?"



## Sustainable St Margaret's

*Re-thinking the way we live our lives...*

Or...take Responsibility...



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# Sustainable St Margaret's

*Re-thinking the way we live our lives...*

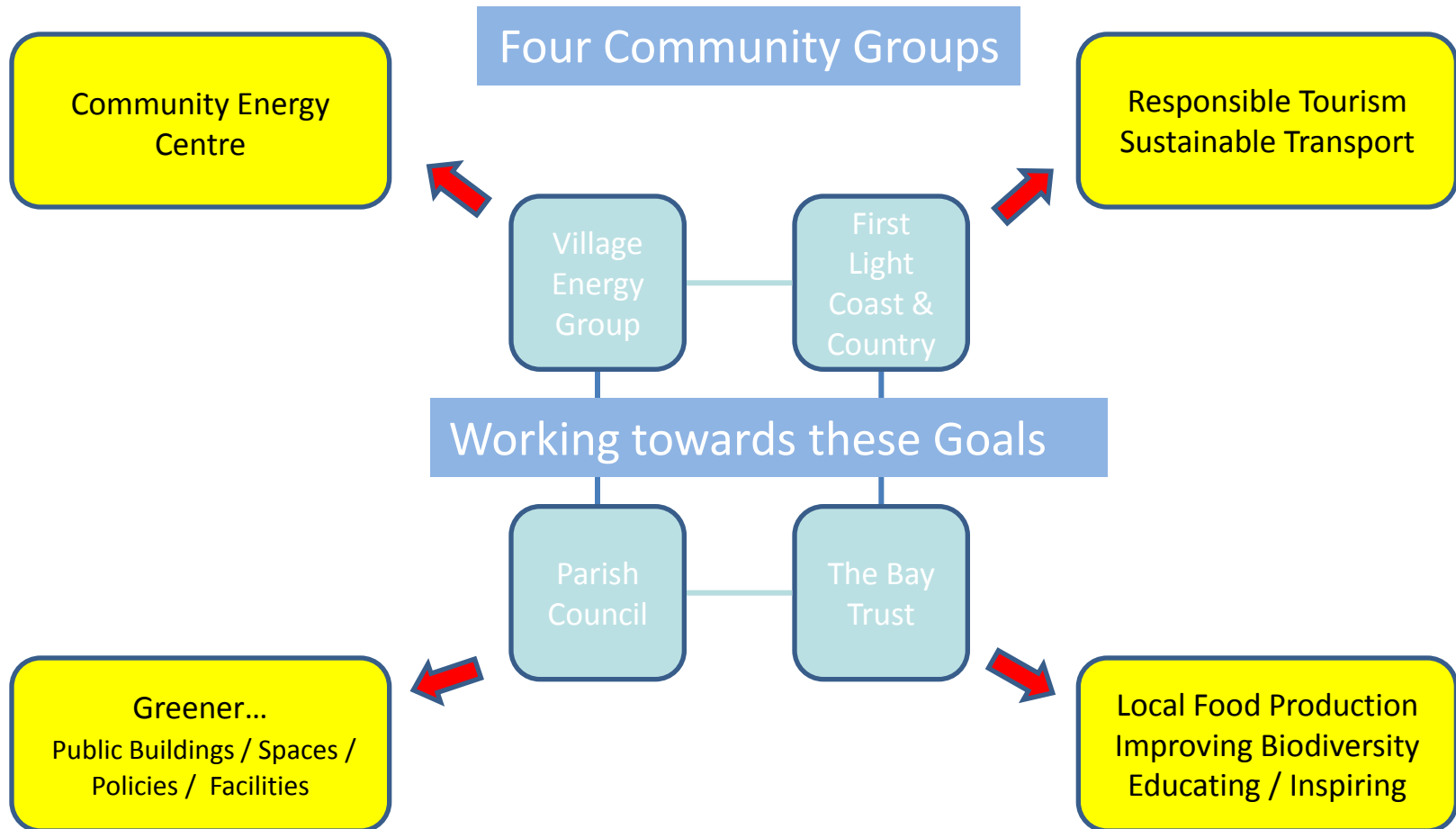
## Some Goals.....

- Take personal and collective **Responsibility** for re-thinking the way we live our lives (re ourselves, our environment, our community)
- Become Self-sufficient for **Energy, Waste & Water**
- Reduce our Carbon Emissions (if possible to zero)  
especially re **Buildings & Transport**
- Develop a thriving **Local Economy**
- Maximise **Food** production from land in and around the village
- Develop the **Attributes, Knowledge** and **Skills** we need for healthy sustainable living
- Maintain the **Beauty, Peace** and **Tranquillity** of our village
- Create a **Secure, Happy, Healthy, Well-balanced Community** for ourselves and for our children



# Sustainable St Margaret's

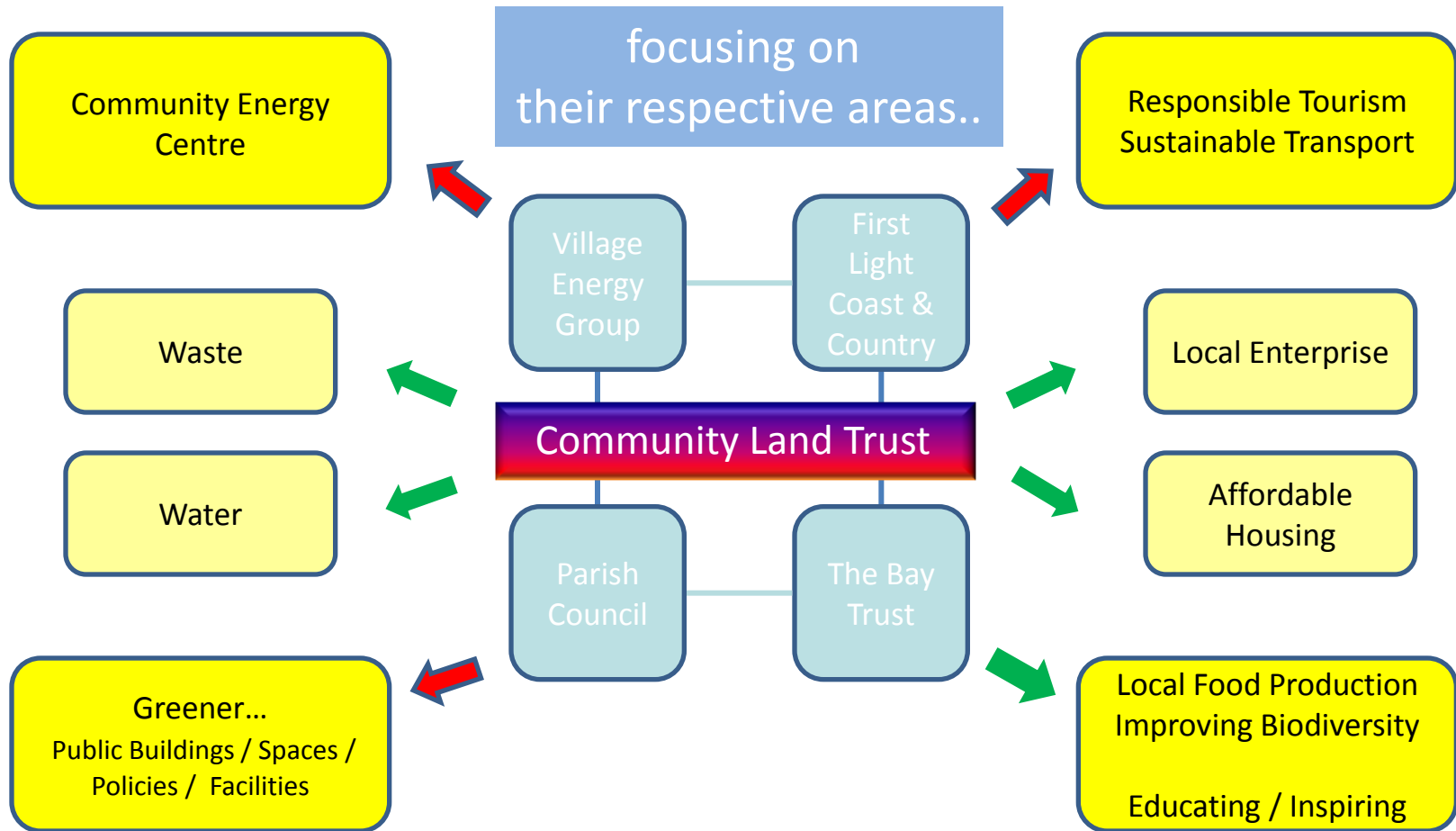
*Re-thinking the way we live our lives...*





# Sustainable St Margaret's

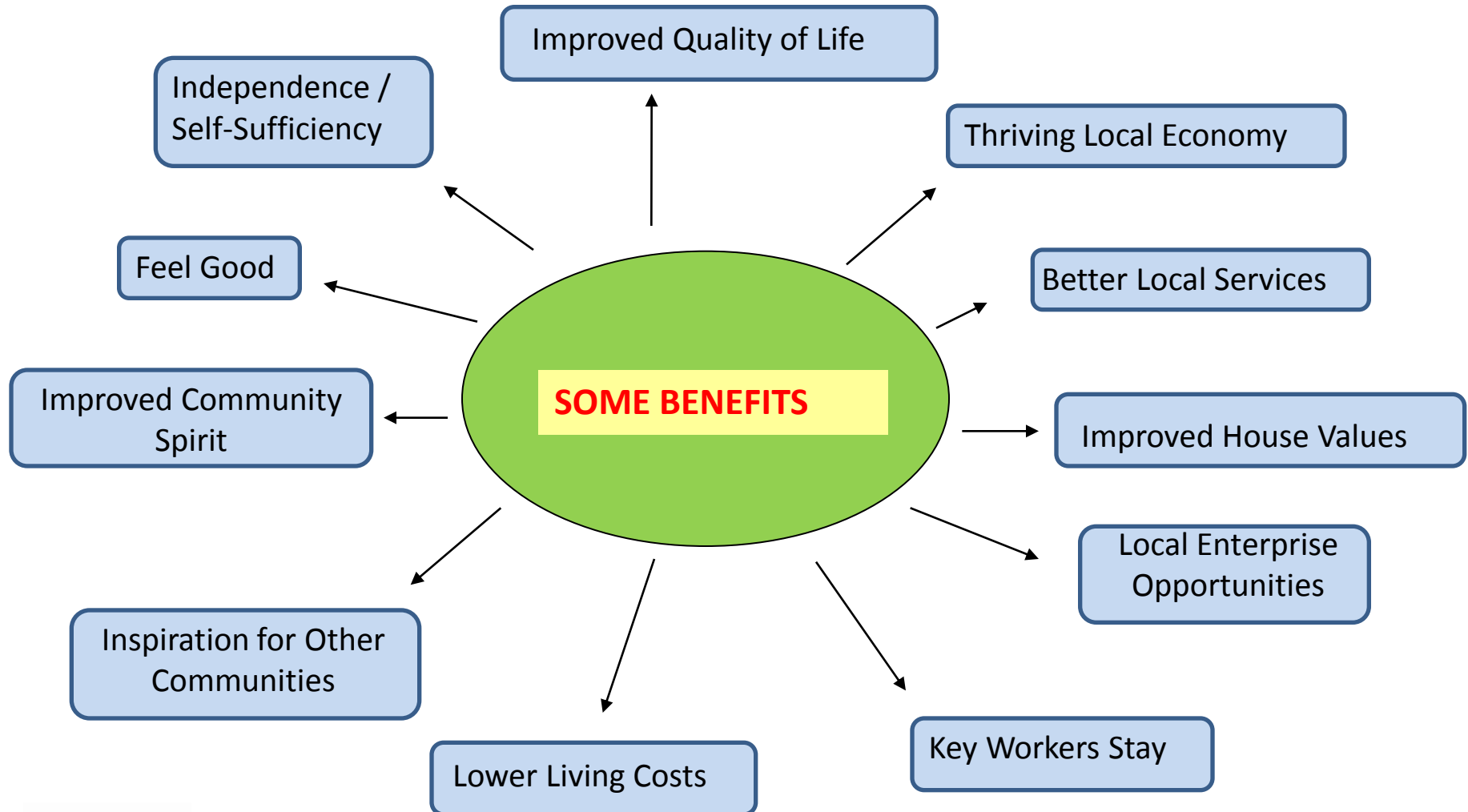
*Re-thinking the way we live our lives...*





# Sustainable St Margaret's

*Re-thinking the way we live our lives...*





# Sustainable St Margaret's

*Re-thinking the way we live our lives...*



From this...





# Sustainable St Margaret's

*Re-thinking the way we live our lives...*



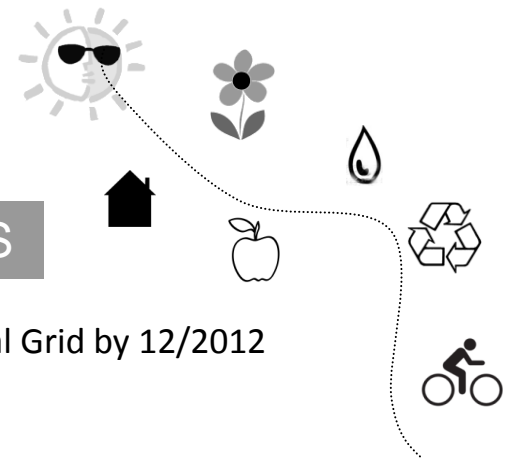
To this....





## Sustainable St Margaret's

*Re-thinking the way we live our lives...*



### 'ENERGY DESCENT PLAN' – SOME OVERALL TARGETS

#### ENERGY

Become Net Exporter of Energy to the National Grid by 12/2012

#### WASTE

Become a Zero Waste Community by 2015

#### WATER

Become Self-sufficient in Water by 12/2013

#### FOOD

Maximise food production on land available within community...

#### BIODIVERSITY

Actively manage natural habitats to protect and promote biodiversity...

#### TRANSPORT

Reduce community CO<sub>2</sub> emissions from transport to 500 Kg / person p.a. by 2013

#### LOCAL ECONOMY

Become an award winning Responsible Tourism destination

#### AFFORDABLE HOUSING

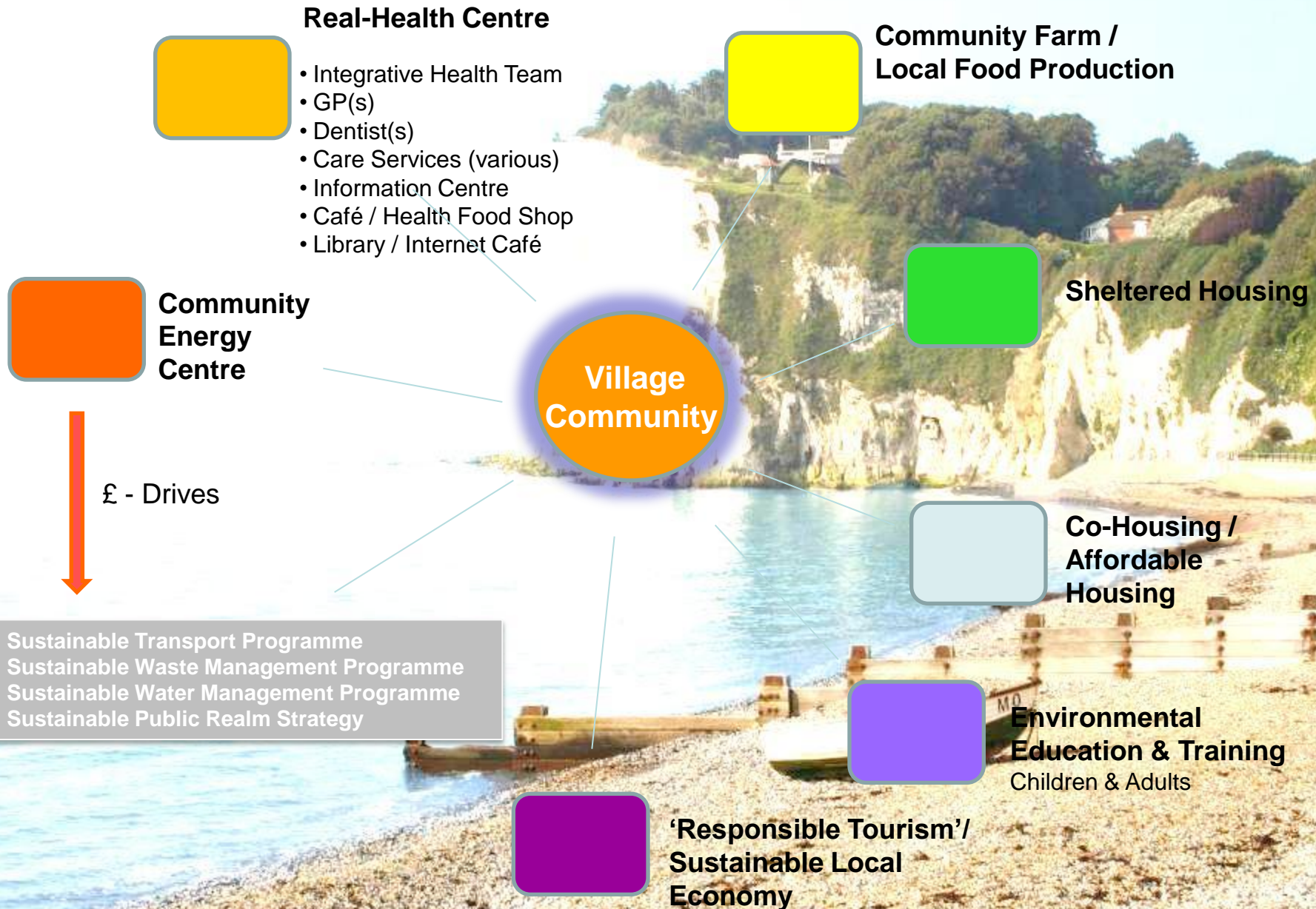
Provide c.40 Units of affordable (Eco)Housing for the Elderly and Key Workers

#### PUBLIC REALM

Improve community quality of life through provision of facilities for the Youth & Elderly along with elegant and effective open spaces

IMPLEMENTED WITHIN VILLAGE PLAN FRAMEWORK

# Key Elements of an Evolving 'Real-Health' Sustainable Community



# Key Elements of an Evolving 'Real-Health' Sustainable Community

## Key Organisations shaping the Process:



Real-Health Ventures

**Social Enterprise**



**Parish Council**



**Environmental Educational  
Charitable Trust**

**Village  
Community**

**'Sustainable St. Margaret's'  
CIC**

**Community Energy Services Co**

**First Light  
Coast & Country**

**Local Village Enterprise  
& Business Group**



## 1. Sustainable Local Economy - 'Responsible Tourism'



*"Businesses have to grow.  
Anything alive has to have  
growth."*

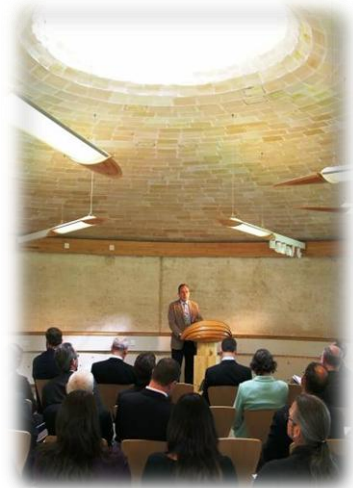
*Growth is good.  
But businesses have to grow  
health  
instead of sickness."*

Bill McDonnough

## 2. Environmental Education & Training for Children & Adults



*Following the sustainability trail...*



## 3. Co-Housing / Affordable Housing



### Existing Buildings\*

- Reusing buildings reduces/removes time/costs in respect of the planning process
- Average demolition costs of a 3 bed semi is now around £40K.
- Reusing existing homes could make an initial savings of 35 tonnes of CO2 per property by saving on the embodied energy of a new build.

Insulate...

then generate...



\*'New Tricks with Old Bricks' Study

Publication by the Empty Homes Agency (EHA) and the Building and Social Housing Foundation (BSHF) March 2008.

# Key Elements of an Evolving 'Real-Health' Sustainable Community

## 3. Co-Housing / Affordable Housing

Responding to the pent up demand in society for a more sustainable and sustaining way of living...



dental housing to code le  
where needed distributed



**New build projects... learning from successful co-housing development models in Europe and North America...**

# Key Elements of an Evolving 'Real-Health' Sustainable Community



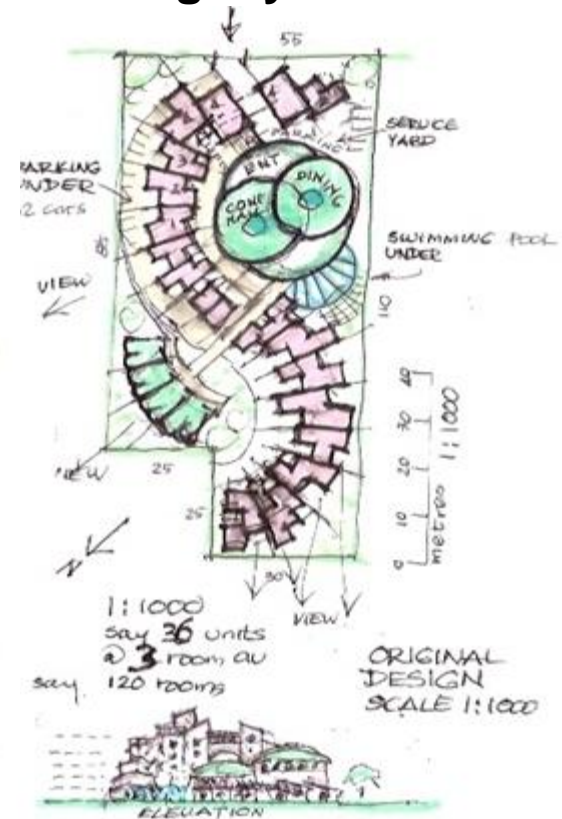
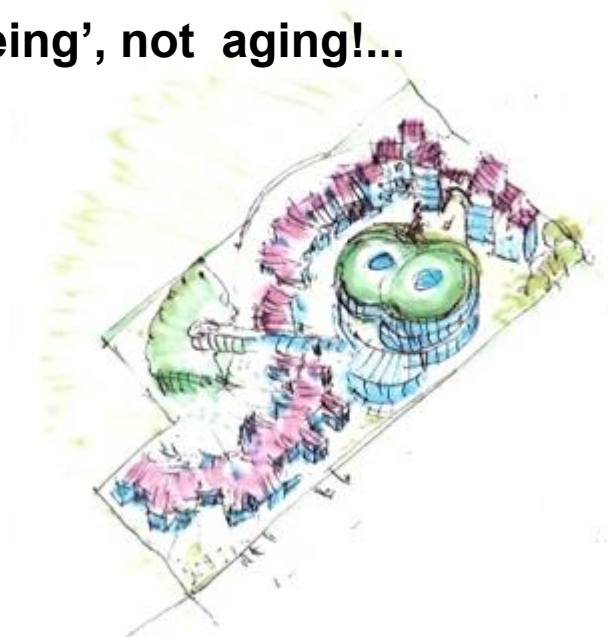
## 4. Sheltered Housing

Changing Demographics leading to the urgent need for appropriate imaginative approaches to support the elderly with dignity.

- to support 'Sageing', not aging!...

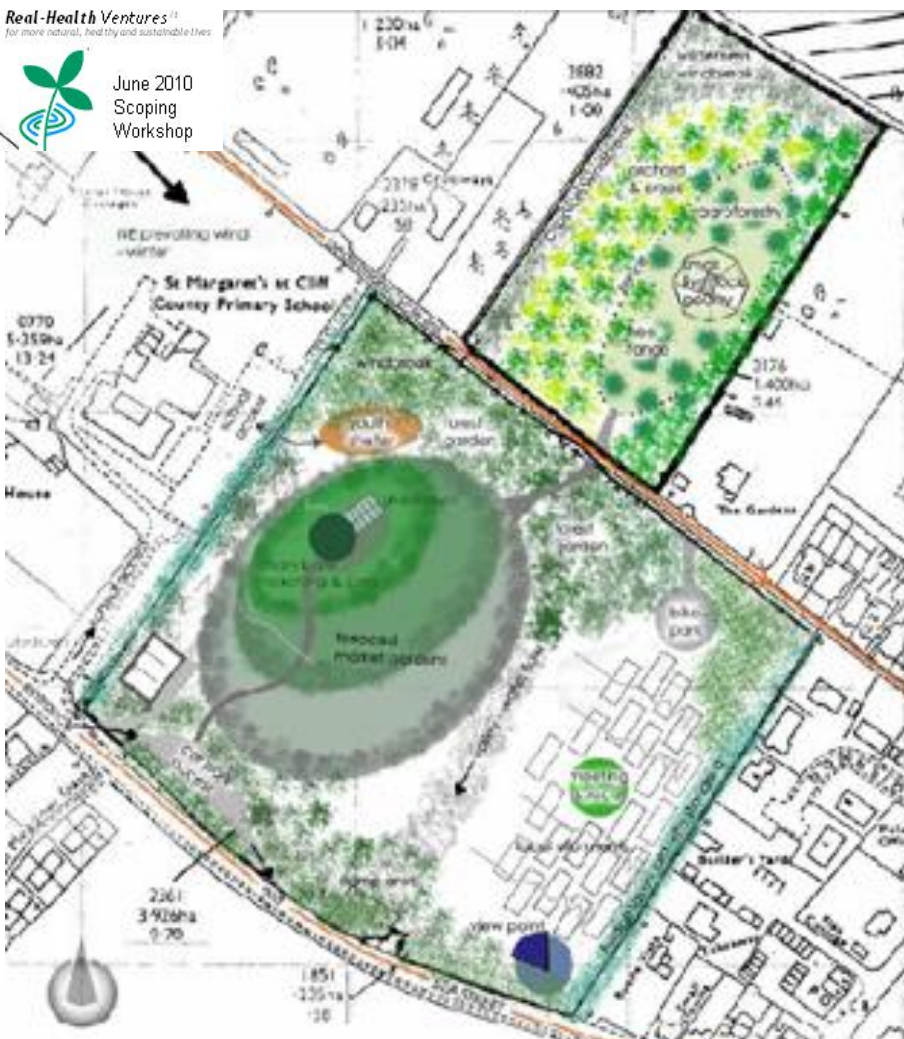


Maintaining health & vitality..  
Reducing Fuel Poverty...



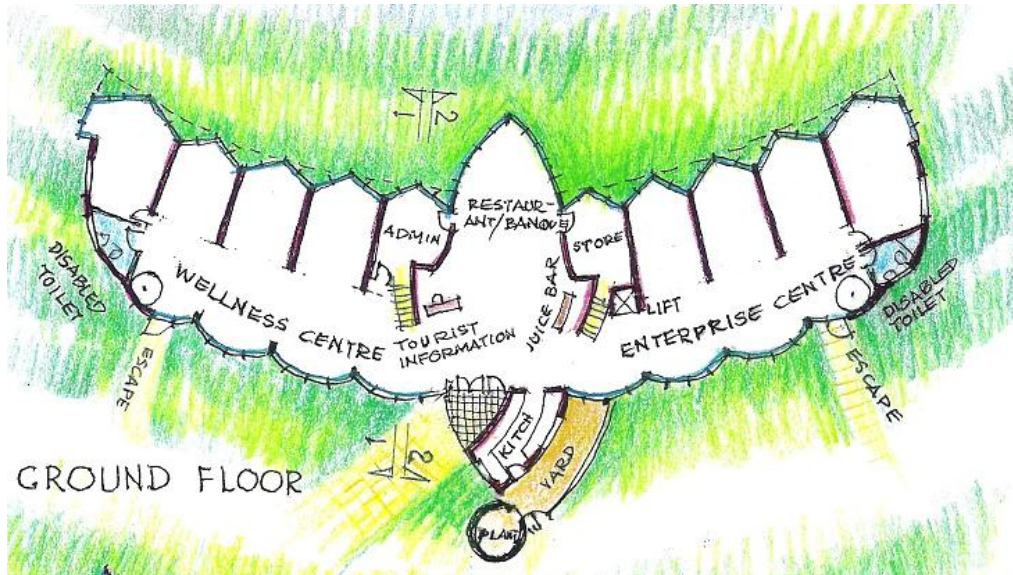
## Key Elements of an Evolving ‘Real-Health’ Sustainable Community

## 5. Community Farm / Local Food Production

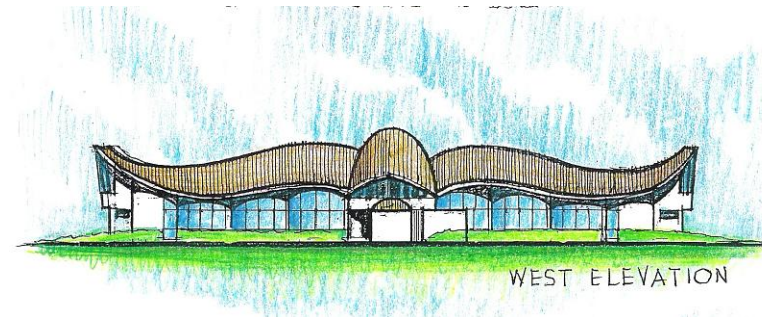


# Key Elements of an Evolving 'Real-Health' Sustainable Community

## 6. 'Real-Health Centre' - Healthy Living Centre



- Integrative Health Team
- GP(s)
- Dentist(s)
- Care Services (various)
- Information Centre
- Café / Health Food Shop
- Library / Internet Café



# Key Elements of an Evolving 'Real-Health' Sustainable Community

## 7) Community renewable energy generation opportunities....?

### Key Options Considered:

- Wind

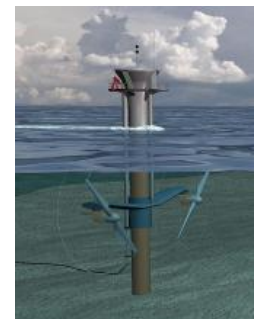
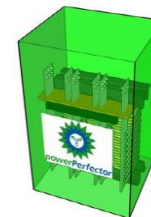
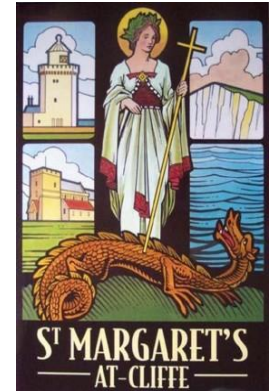
- Biomass

- Anaerobic Digestion

- Voltage Optimisation

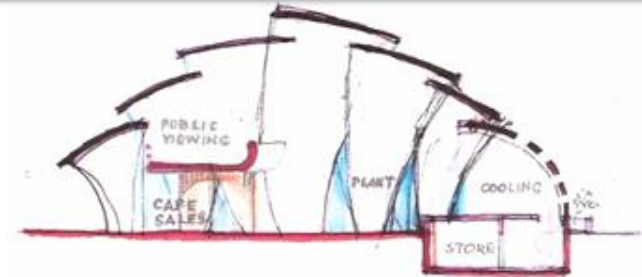
- Tidal Power

- Micro Generation



# Key Elements of an Evolving 'Real-Health' Sustainable Community

## 7. "Community Energy Centre"



### 4.5 MW WID Bio-Mass system

Total cost £16.5 million

Annual Revenue £3,548,913

Payback Period 4.5 years

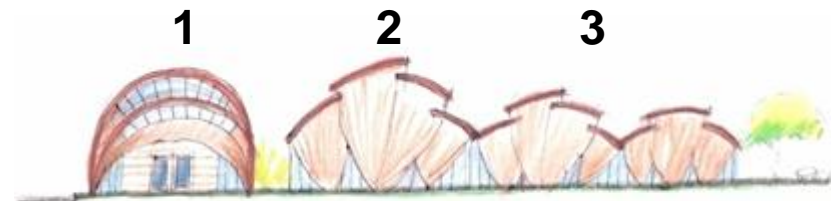
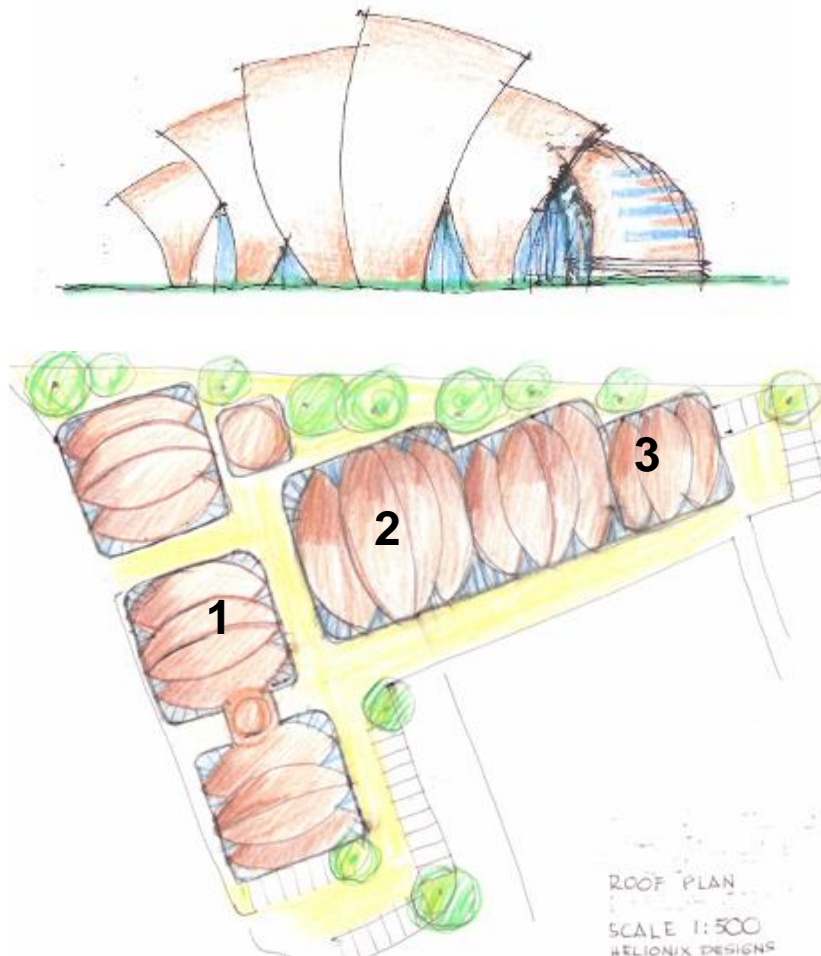
**Return on Investment 22%**

16 Permanent Jobs Created /

CIC holds Minimum 20% stake

CIC ££s – Drives.....

- Sustainable Transport Programme
- Sustainable Waste Management Programme
- Sustainable Water Management Programme
- Sustainable Public Realm Strategy



SECTION A-A 1:500

1. Visitor Information Centre / Offices
2. Power Plant
3. Biomass Storage & Drying

ROOF PLAN  
SCALE 1:500  
HELIONIX DESIGNS

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# Key Elements of an Evolving 'Real-Health' Sustainable Community



## Next Steps.....



1) Establish Frameworks for effective community engagement & involvement

2) Agree Appropriate Community Land Trust Financing & Community Representation

3) Identify Social Enterprise Partners  
(e.g. Housing Association, Local PCT, Local CIC &c.)

4) Sequenced Project Delivery  
in accordance with..

- a) Parish Council's Village Plan &
- b) Village Energy Group 'Energy Descent Plan'





*“You can never change things by fighting the current reality.  
To change something build a new model that makes  
the existing model obsolete”*

Buckminster Fuller



Thank you for listening

**Alistair Gould, MRICS, CEnv., The Bay Trust**  
[www.baytrust.org.uk](http://www.baytrust.org.uk)