

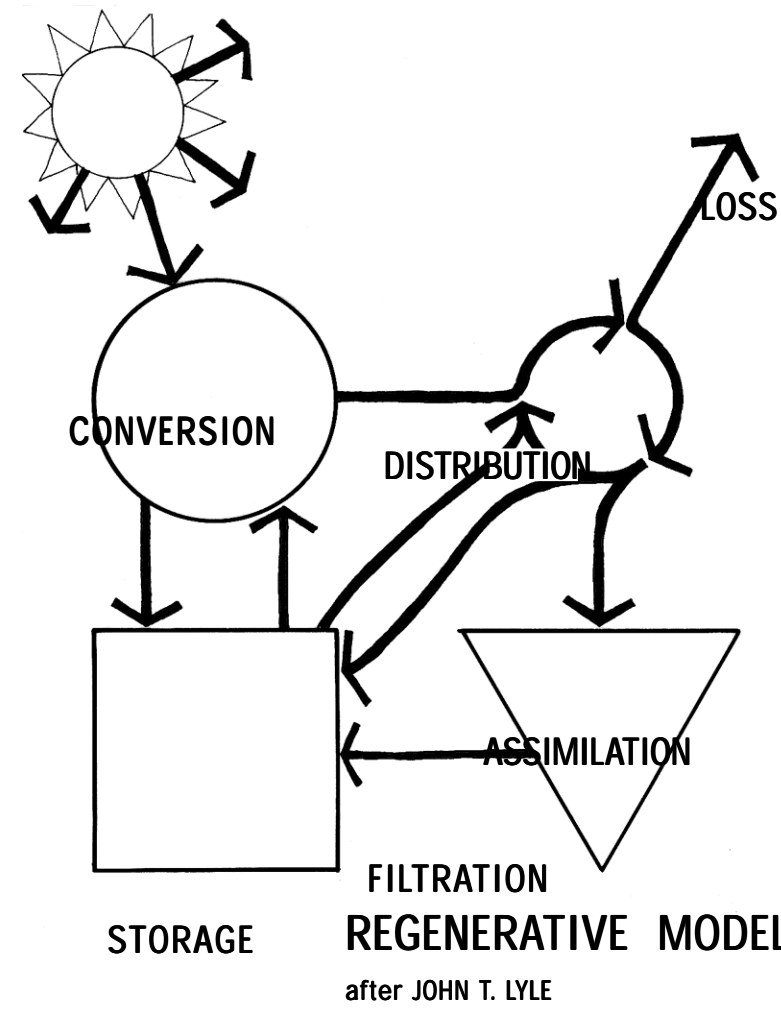
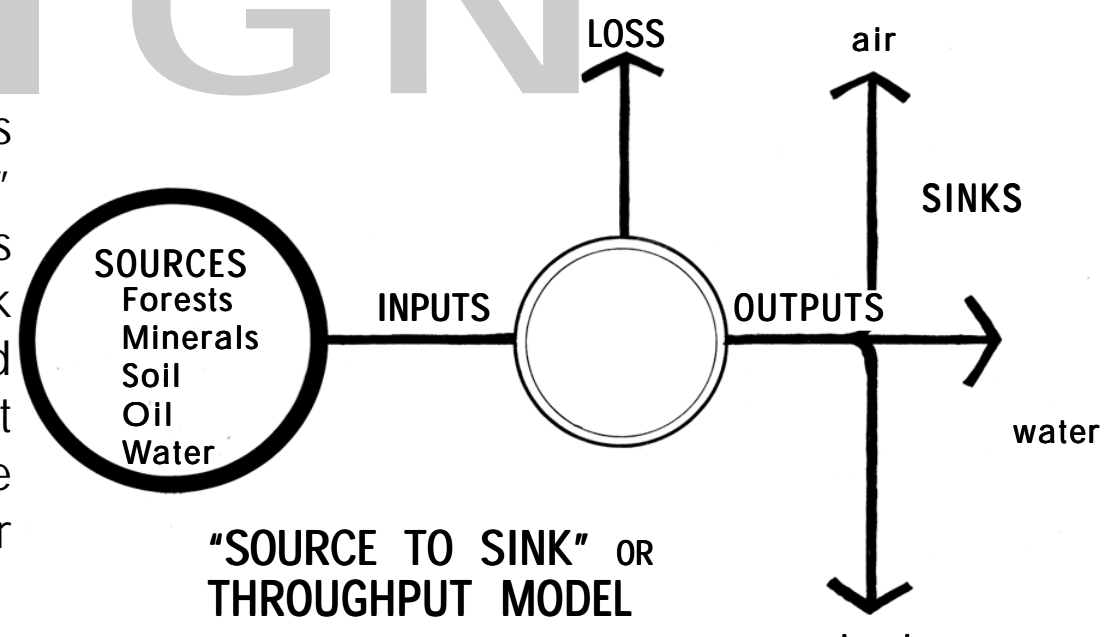
strategies

regenerative design

The challenge for ecological designers is to move away from "linear" approaches that consider resources as infinite. This requires designers to think about resources differently and develop regenerative systems that reconnect/recycle outputs, and utilise renewable, non-polluting and longer lasting inputs.

The late John T. Lyle developed the adjacent diagram method to describe regenerative systems. The diagram begins with the conversion of sunlight, the primary source of contemporary non-polluting energy, into various forms of matter and energy. Distribution of matter and energy is accomplished through mechanisms such as wind, rain, animals and people. Assimilation recognises that everything is recycled. Materials and energy that aren't lost through entropy are returned, largely to the soil, to be reutilised. Storage occurs where matter and energy is held inactive for periods of time awaiting eventual reuse.

I have used Lyle's diagram to explore the potential application of regenerative design methods on five critical elements of the South Campus community, and generate a series of corresponding design principles, goals, and strategies.



community

principle:
Cultivate complete, dynamic and regenerative communities

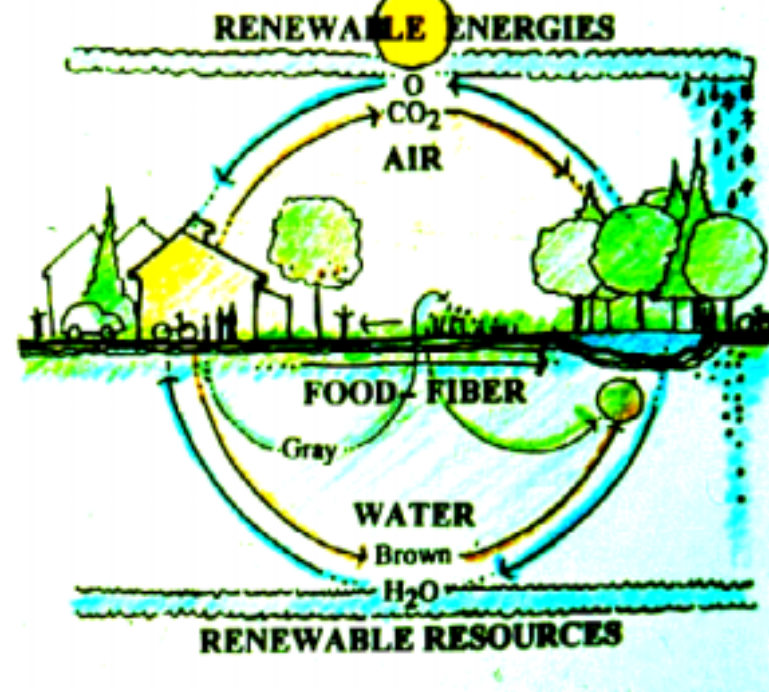
goals:
Promote a sense of place.
Integrate work, residence, study, research and recreation.
Foster pride in and commitment to the local community environment.

Create safe, healthy, participatory, empowering living environments.
Allow for adaptation/change.

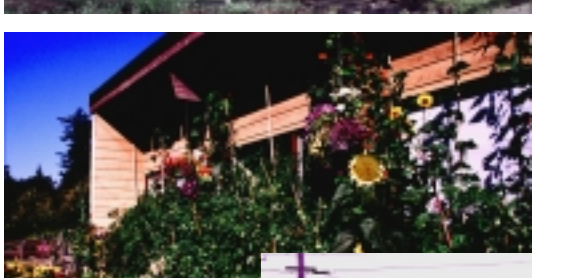
Maximize diversity.

design strategies:
Involve the community.
community planning/design processes
community governance models

Emphasise the local.
place-based design
Adaptable designs.
retain open space
accommodating building envelopes
Design for children.
Emphasise community spaces.
Develop community programs.



Regenerative communities are concerned with the beneficial integration of human settlements within nature. This concern extends beyond the development of a healthy, substantive community life that emphasises local and long-term relationships. There is a genuine interest in the environment, which includes care for, connection to and situation in. Regenerative communities, while a far cry from the utopian ideal, suggest what a truly ecological lifestyle might be.



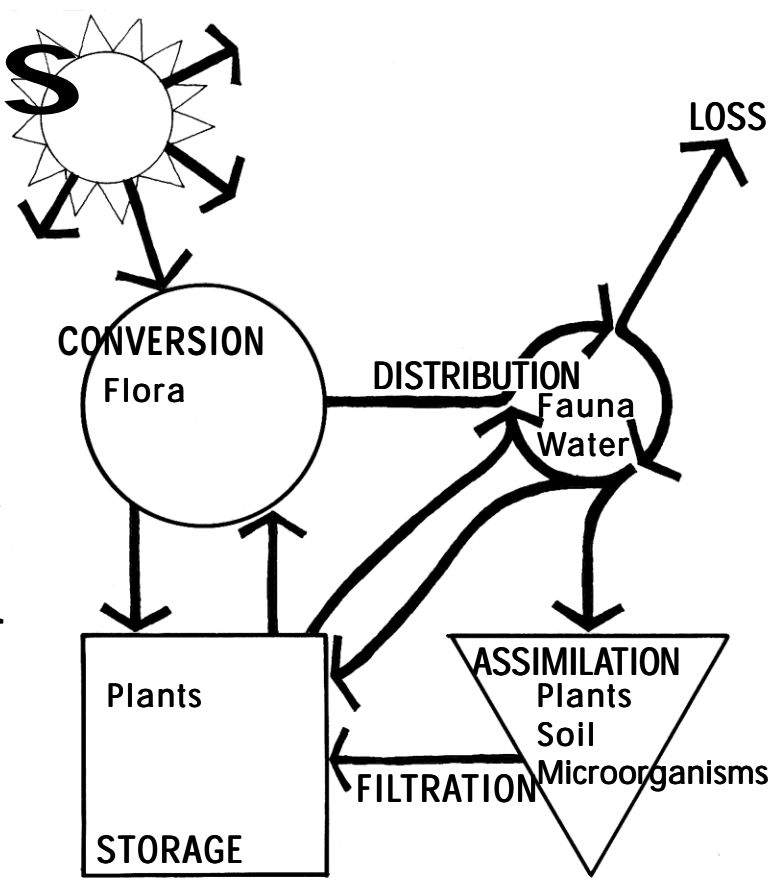
nutrients

principle:
Develop healthy, productive soils.

goals:
Minimise on-site nutrient loss.
Minimise the area covered by built infrastructure.
Conserve and improve use of existing soil resources.

physical design strategies:

Concentrate development
narrow streets
limited paved parking
cluster developments
reduced building footprints
multistorey buildings
Maximise use of site features
maximise solar orientation
equalise cut and fill
reuse existing infrastructure
use natural drainage features
appropriate placement of infrastructure
Incorporation of existing vegetation
On-site nutrient cycling
solar aquatics
composting toilets
greywater recycling
composting systems
biofilters
animals
green manures



The capture and cycling of local nutrients is an important characteristic of regenerative communities. Whenever possible nutrients should be captured, treated and reapplied within the community. There are numerous technologies available that make it possible to return vegetable, animal and even human waste back to the local landscape in a way that improves soil conditions and ultimately local productivity.

water

principle:
Protect, conserve, enhance and cleanse water.

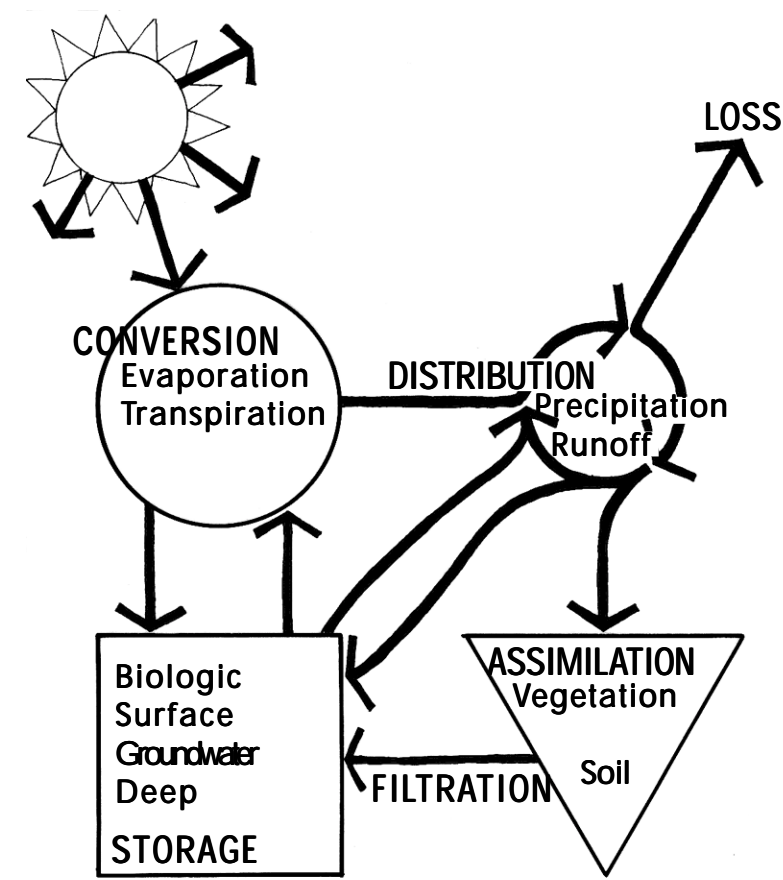
goals:
Reduce water consumption.
Utilize on-site water sources

Maximize water conservation, collection, storage, recycling and multiple use.

Eliminate off-site discharge of untreated wastewater.

physical design strategies:

On-site water retention
constructed wetlands
permeable swales
cisterns
Water cleansing and reuse
solar aquatics
biofilters
greywater recycling
water recycling
Water conservation
xeriscaping
composting toilets
efficient water fixtures
greywater recycling
water harvesting and
Passive delivery systems
gravity delivered irrigation water



Water is an essential site element. Humans require approx. 4 - 8 litres per day yet, on average, consume 600 litres per day (indoor and outdoor household use). Regenerative communities rely on on-site water sources the availability of which, dictates use patterns. Here in Vancouver on-site water availability is seasonal, needs are generally met in the winter/spring months and challenged during the summer and fall. Conservation and retention strategies would have to be geared for the summer and fall.

food & fibre

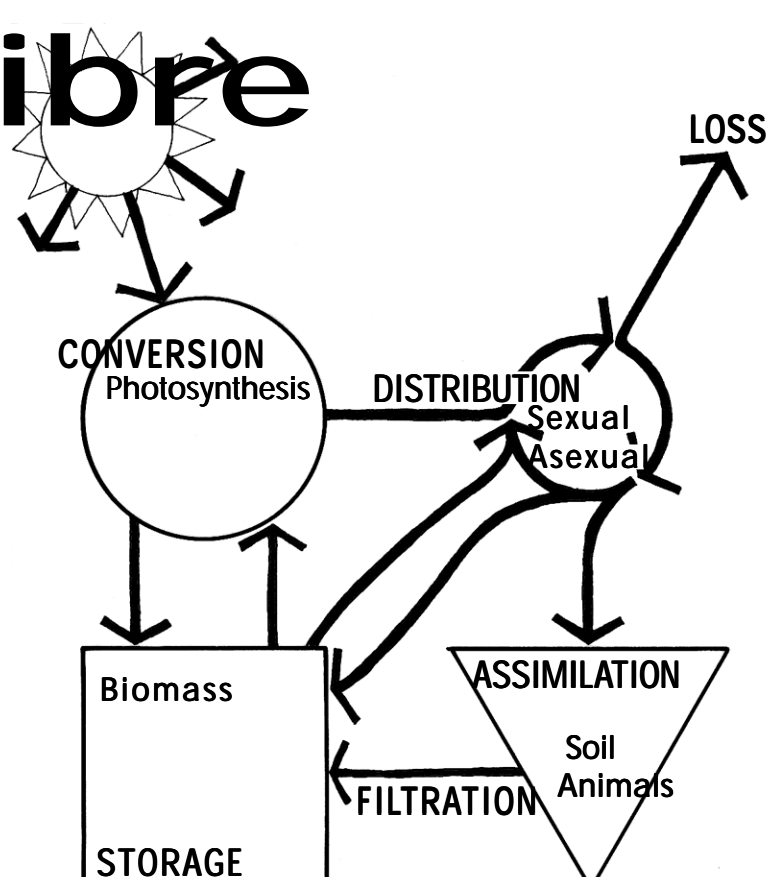
principle:
Maintain, enhance and create healthy abundant landscapes.

goals:
Provide the community with locally grown organic food.
Reduce the need for off-site food and fibre sources.

Manage existing forest areas for long term conservation and production.
Improve long term site productivity.

physical design strategies:

Alternative, diverse production methods.
agroforestry
permaculture
biodynamic farming
organic farming and gardening
aquaculture
Local food production
community farm
community gardens
backyard and rooftop gardens
school and business gardens
local market garden
Local use of nutrients
community composting
solar aquatics
local animal manure
Community forests
wood
firewood
botanicals



The provision of homegrown food is decreasing throughout North America. This can be attributed to the availability of cheap, subsidized food. The average consumer generally does not know the manner of cultivation and distance that food purchased from a grocery store travels to get there. Regenerative communities consider the effects of the current food and fibre economy. Growing ones own food and fibre improves the health of the local and global community. It also has the added benefit of improving local food security.

energy

principle:
Conserve and use energy efficiently.

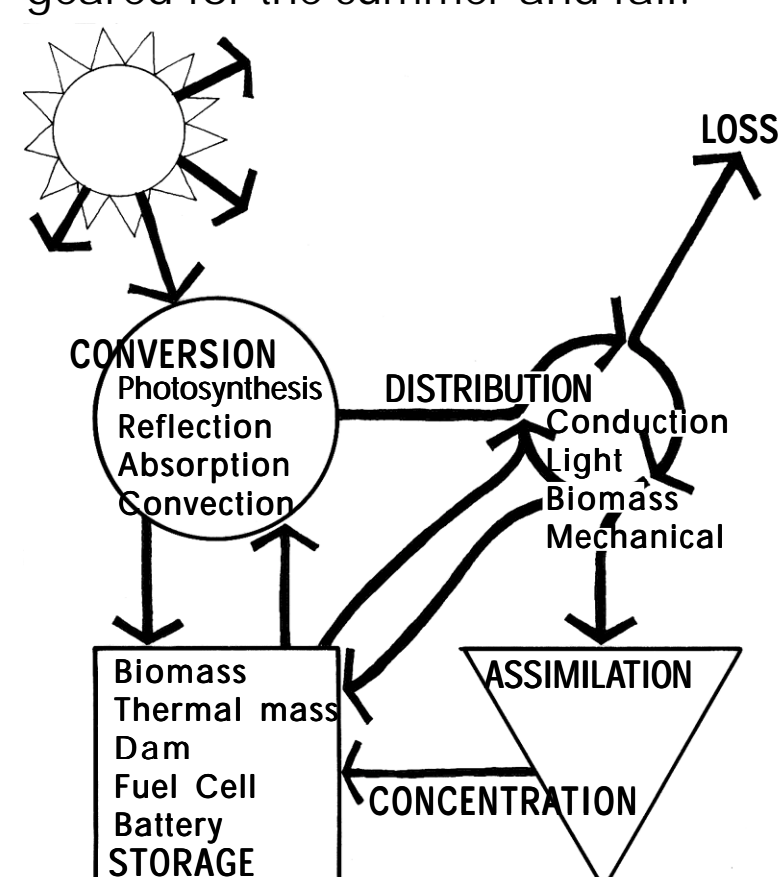
goals:
Reduce energy consumption.
Minimize or eliminate the use of non-renewable energy sources.

Utilise flexible and redundant energy systems.

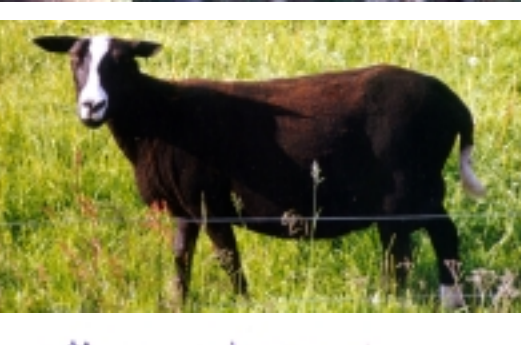
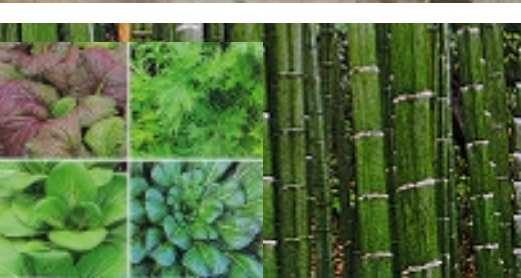
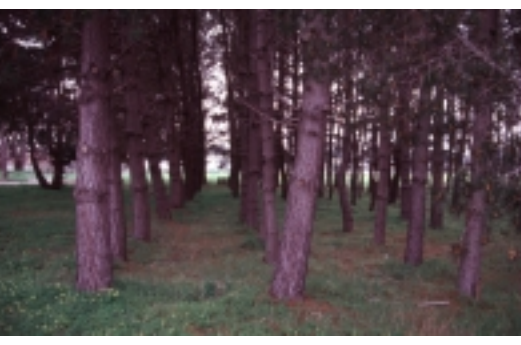
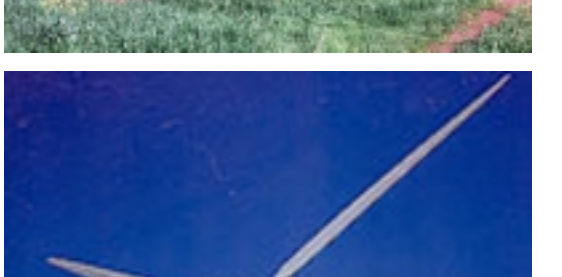
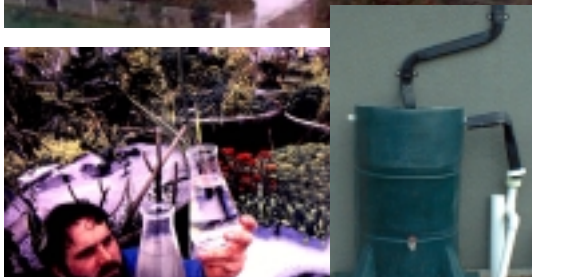
Develop locally appropriate renewable energy systems.

physical design strategies:

Passive day-lighting
Passive solar heating
Shade trees
Vegetative wind breaks
Solar panels
On-site storage systems
Fuel cell technology
Thermal massing
Water - thermal storage
Geothermal
Hydro
Co-generation
Biogas
Heat pumps



Considered to be the primary change agent of ecological systems, energy is generally taken for granted in today's society. However, as the price of non-renewable fuels increases coupled with an expected decrease in their availability it will become necessary to identify and develop alternative sources. Regenerative communities require sources of renewable energy that do not pollute, are available locally, and are affordable and efficient. Renewable energy sources of this nature are generally limited to solar, wind and hydroelectric energy but may include geothermal and biogas sources.



UBC SOUTH CAMPUS FARM

UNIVERSITY OF BRITISH COLUMBIA VANCOUVER, BC

Approach

DRAWING 4

base::design::detail D. MASSELINK 01.2001