

FYS207 Class Notes: Methods of Design in Permaculture

I. Introduction

Definition of Permaculture Design

Permaculture design is a system of assembling conceptual, material, and strategic components in a pattern which functions to benefit life in all its forms. It seeks to provide a sustainable and secure place for living things on this earth.

Functional design sets out to achieve specific ends, and the prime directive for function is:

To understand design, we must differentiate it from its component parts, which are techniques, strategies, materials and assemblies:

- **TECHNIQUE** is "one-dimensional" in concept; a technique is *how* we do something. Almost all gardening and farming books (until 1950) were books on technique alone; design was largely overlooked.
- **STRATEGIES**, on the other hand, add the dimension of *time* to technique, thus expanding the conceptual dimensions. Any planting calendar is a "strategic" guide. Strategy is the use of technique to achieve a future goal, and is therefore more directly value-oriented.
- **MATERIALS** are those of, for instance, glass, mud, and wood. **ASSEMBLIES** are the putting together of technologies, buildings, and plants and animals.

A. Process of Design Development

ANALYSIS: Design by listing the characteristics of components (3.2).

OBSERVATION: Design by expanding on direct observation of a site (3.3).

DEDUCTION FROM NATURE: Design by adopting the lessons learnt from nature (3.4).

OPTIONS AND DECISIONS: Design as a selection of options or pathways based on decisions (3.5).

DATA OVERLAY: Design by map overlays (3.6).

RANDOM ASSEMBLY: Design by assessing the results of random assemblies (3.7).

FLOW DIAGRAMS: Design for workplaces (3.8).

ZONE AND SECTOR ANALYSIS: Design by the application of a master pattern (3.9).

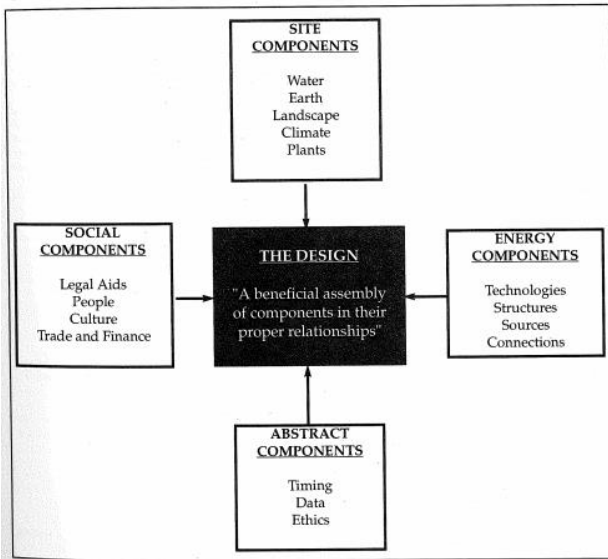
II. Design Methods

a. Design Analysis

Principle of Self-Regulation

The purpose of a functional and self-regulating design is to place elements or components in such a way that each serves the needs, and accepts the products, of other elements.

TABLE 3.1
ELEMENTS OF A TOTAL DESIGN



A POLLUTANT is an output of any system component that is not being used productively by any other component of the system. EXTRA WORK is the result of an input not automatically provided by another component of the system.

Information as a Resource

RESOURCES are practical and useful energy storages, while INFORMATION is only a potential resource, until it is put to use.

- b. Energy-Mass Transfer (Inputs and Outputs)
- c. Systems and Components
- d. Natural Observations
- e. Deduction and Problem Solving

CREATIVE PROBLEM SOLVING

Restate a problem many ways, reverse the traditional approaches, and allow every solution to be considered. Simple solutions may be found by this process.

f. Flow Diagrams

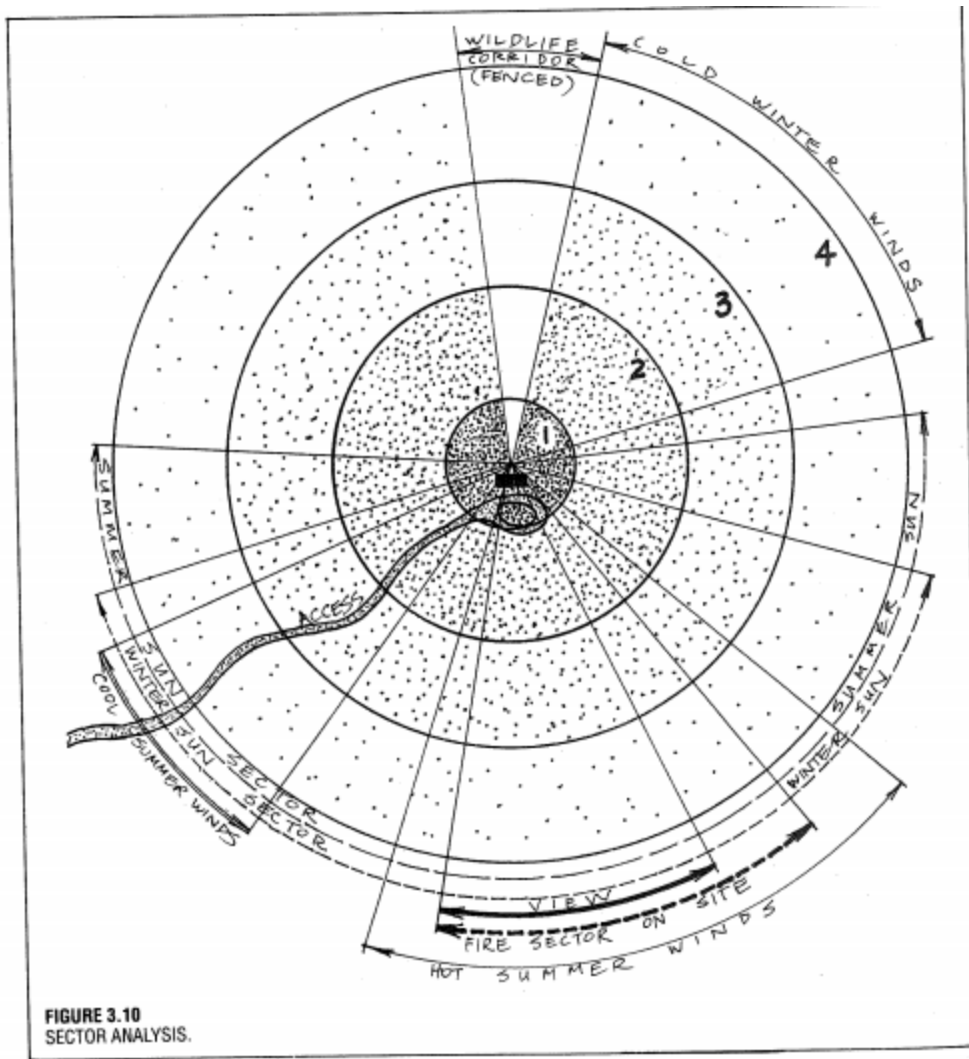
g. Zone and Sector Analysis

TABLE 3.3:
SOME FACTORS WHICH CHANGE IN ZONE PLANNING AS DISTANCE INCREASES.

Factor or Strategy	ZONE I	ZONE II	ZONE III	ZONE IV
Main design for:	House climate, domestic sufficiency.	Small domestic stock & orchard.	Main crop forage, stored.	Gathering, forage, forestry, pasture.
Establishment of plants	Complete sheet mulch.	Spot mulch and tree guards.	Soil conditioning and green mulch.	Soil conditioning only.
Pruning and trees	Intensive cup or espallier trellis.	Pyramid and built trellis.	Unpruned and natural trellis.	Seedlings, thinned to selected varieties.
Selection of trees	Selected dwarf or multi-graft.	Grafted varieties and plants managed.	Selected seedlings for later grafts, by browse.	Thinned to selected varieties, or
Water provision	Rainwater tanks, bores, wind pumps, reticulation.	Earth tank and wells, bores,	Water storage, fire control.	Dams, rivers, in soils, dams.
Structures	House/greenhouse, storage integration.	Greenhouse and barns, poultry sheds.	Feed store, field shelter.	Field shelter grown as hedgerow and woodlot
Information	Stored or generated by people.	In part affected by other species.	As for II.	Arising from natural processes.

JUDGING ZONAL PLACEMENT

Place a component in relation to other components or functions, and for more efficient use of space or nutrient. Look for products that serve special needs not otherwise locally available.



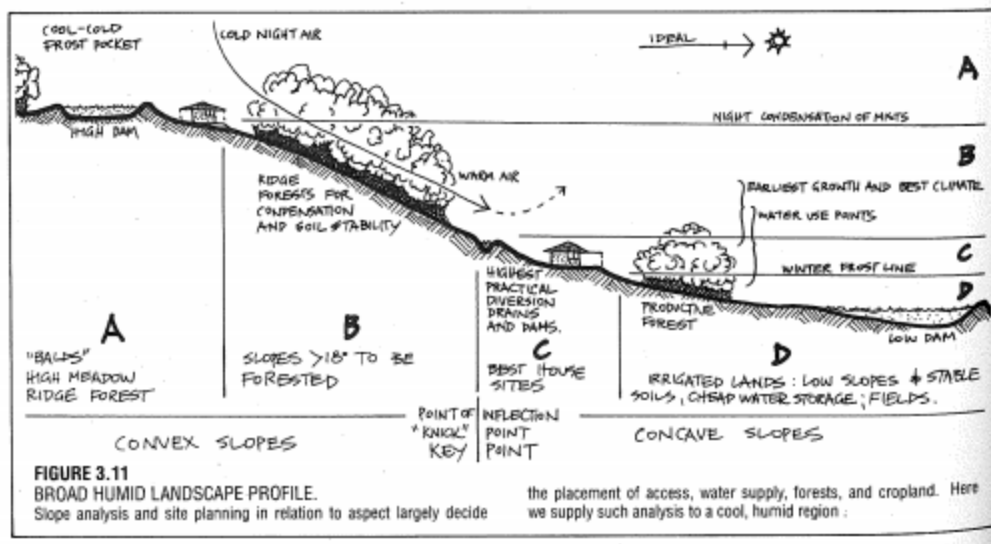
The Basic Energy-Conserving Rules

Every element (plant, animal or structure) must be placed so that it serves at least two or more functions.
Every function (e.g. water collection, fire protection) is served in two or more ways.

Placement Principle

If broad initial patterning is well analysed, and good placements made, many more advantages than we would have designed for become obvious.
Or, if we start well, other good things naturally follow on as an unplanned result.

- h. Site Analysis
 - i. Slope-Aspect-Elevation
 - ii. Hillslopes and Valley Bottoms
 - iii. Swales



i. Permaculture Design Philosophy

TABLE 3.4
IMPETUS TO DESIGN

PERMACULTURE	MOST PRESENT-DAY DESIGN
STIMULATED BY: A perceived social problem.	STIMULATED BY: A drive to erect monuments or make money.
SUBJECT TO: Values of energy conservation, self-reliance, and harmonious human occupancy.	SUBJECT TO: Economic (as cash) considerations and the desire for profit.
MEDIATED BY: Consideration of long-term biosocial factors.	MEDIATED BY: Purely functional values for short-term cost and material factors.
ACHIEVED BY: Research and consultation with clients, or assisting people to gain an education in design.	ACHIEVED BY: External funding, little consultation, little client/people education.
REFINED BY: Allowing space, finance, and feedback to adjust activity, and allowing for new or overlooked needs as they occur.	REFINED BY: Selling off and not taking responsibility for the results.
LEADING TO: A dynamic and healthy area inhabited by people with the power and understanding to make necessary changes.	LEADING TO: A dislocated population, powerless to effect change easily. Hence, dependency and anxiety.
RESULTS	
THE STABILITY OF DYNAMIC LOCAL ADJUSTMENT.	THE INSTABILITY OF PERCEIVED INDIVIDUAL POWERLESSNESS.

PRINCIPLE SUMMARY

Definition of Permaculture Design: Permaculture design is a system of assembling conceptual, material, and strategic components in a pattern which functions to benefit life in all its forms. It seeks to provide a sustainable and secure place for living things on this earth.

Functional Design: Every component of a design should function in many ways. Every essential function should be supported by many components.

Principle of Self-Regulation: The purpose of a functional and self-regulating design is to place elements or components in such a way that each serves the needs, and accepts the products, of other elements.